King County Brightwater TREATMENT SYSTEM

Brightwater Marine Outfall

Baseline Sediment Characterization Study - Sediment Chemistry and Benthic Infauna

Final Report - November 2002

King County
Department of Natural Resources and Parks
Wastewater Treatment Division

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Executive Summary

Using King County Council-adopted policy siting criteria, King County conducted two phases of site selection in 2000 and 2001 for the marine outfall that will be part of the Brightwater Regional Wastewater Treatment System. During these selection processes, the policy siting criteria were used to identify potentially suitable locations along the shoreline of northern King and southern Snohomish Counties for the outfall and diffuser. At the conclusion of the second phase of the outfall site selection narrowing, the King County Council accepted candidate marine outfall Zones 5, 6, 7N, and the two diffuser sites in Zone 7S for further analysis and review in an Environmental Impact Statement for the Brightwater Regional Wastewater Treatment System (King County Ordinance 14278, Dec. 13, 2001).

The present phase of site selection further evaluates the characteristics of the candidate outfall zones and associated diffuser sites and more specifically addresses the engineering and construction issues of the four outfall zones. King County collected and analyzed marine sediment samples from the candidate diffuser sites and associated nearshore areas to evaluate physical, chemical, and biological characteristics of bottom sediments in the outfall zones. Sixteen sediment samples were collected in late 2001 from the diffuser sites and submitted for analysis of conventional, metal, and organic chemistry parameters, as well as benthic infauna assemblage. Nine sediment samples were also collected from nearshore areas in the outfall zones and submitted for analysis of chemistry parameters only.

Sample collection and analytical methodologies followed accepted regional protocols to provide data that would allow comparison to Washington State sediment quality guidelines as well as data from previous studies in Puget Sound.

Evaluation of chemistry data indicates very little difference in concentrations of detected chemical constituents between the five diffuser sites and most of the nearshore areas. Slightly elevated concentrations of some chemical and physical parameters were found at two nearshore sampling stations in Zone 7, in the vicinity of a storm water outfall at Point Wells. Sediment concentrations of detected chemicals throughout the diffuser sites and associated nearshore areas meet all Washington State sediment quality guidelines.

Evaluation of benthic data indicates that the benthic infauna assemblages at the deep diffuser sites (5, 6, 7N and 7Sb) are similar, dominated to a large degree by a single species of small clam, *Macoma carlottensis*. This type of single-species dominated benthic assemblage has been found in previous studies performed on sediment collected from similar depths and with similar physical characteristics. The benthic infauna assemblage at the shallower diffuser site (7Sa) is different than the deep diffuser sites, with a wide diversity of organisms and no dominance by a single species.

1.0 INTRODUCTION

In November of 1999, the Metropolitan King County Council approved the Regional Wastewater Services Plan to upgrade King County's existing wastewater system (King County Ordinance 13680, Nov. 23, 1999). Included in this plan is the construction of a new regional wastewater treatment plant in northern King or southern Snohomish County. The new treatment plant will have a marine outfall to discharge treated effluent to Puget Sound. The County conducted two phases of outfall analysis in 2000 and 2001. During these analyses, the King County Council-adopted policy siting criteria were used to identify suitable locations along the shoreline of northern King and southern Snohomish Counties for the outfall and diffuser. At the conclusion of the second phase of outfall site selection, the King County Council accepted candidate marine outfall Zones 5, 6, 7N, and 7S for further analysis and review in an Environmental Impact Statement (EIS) for the Brightwater Regional Wastewater Treatment System (King County Ordinance 14278, Dec. 13, 2001, Figure 1). See King County 2001a, King County 2001b, and King County 2001c for complete details of the Phase 1 and Phase 2 outfall selection process to date.

This report presents results of a baseline characterization study of surface sediment quality in candidate marine outfall zones for King County's planned Brightwater wastewater treatment facilities. This sediment study was performed as part of King County's Marine Outfall Siting Study (MOSS), which is evaluating potential locations for a new outfall that will discharge secondary-treated wastewater to Puget Sound. The report includes a project background, a summary of sampling and analytical methodologies used during the study, analytical results, and conclusions. Data tables referenced in this report are grouped in a separate section, at the end of the narrative

1.1 Project Background

The purpose of this study is to perform a baseline characterization of sediment quality in candidate marine outfall zones for King County's new Brightwater wastewater treatment facilities. Information from this study will be used to evaluate potential impacts to the marine benthic environment from construction and operation of the marine outfall. Any potential impacts will be addressed in the Brightwater EIS. The study will also be used to establish a baseline for sediment quality, against which data from future sediment monitoring events will be compared.

Marine sediment samples were collected from five potential outfall diffuser sites and analyzed for both chemical constituents and benthic infauna. Additional sediment samples were collected from nine stations located in the nearshore area throughout the candidate outfall zones. The nearshore sediment samples were analyzed for chemical constituents only.

Sediment quality for this study has been evaluated by comparing sample chemical concentrations to published sediment quality numeric criteria. An evaluation comparing

species diversity and abundance of benthic infauna between potential outfall diffuser sites and with Puget Sound regional benthic data is also provided in this report.

1.3 Site Description

The candidate marine outfall zones are located offshore of southwest Snohomish County and northwest King County (Figure 1). Three zones are located near Point Wells (Zones 7N, 7SA, and 7SB), a fourth is located near Edwards Point (Zone 6), and the fifth is located north of the Edmonds-Kingston ferry terminal (Zone 5).

Bathymetry at all five outfall diffuser sites is flat to gently sloping (less than 2%). Water depths at the two northernmost sites (Sites 5 and 6) range between 400 and 650 feet (120 and 200 meters). Water depths at the two deeper Point Wells sites (Sites 7N and 7SB) range between 550 and 700 feet (170 and 210 meters). Water depths at the shallower Point Wells site (Site 7SA) range between 200 and 300 feet (60 and 90 meters).

Bathymetry at the nearshore sampling stations, which were all planned for collection from a depth of 20 feet, ranges from gently sloping in Zone 5 to steeply sloping in Zones 7N and 7S. Sparse to moderately dense eel grass is present throughout most of the nearshore sediment sampling area (Battelle, 2001).

2.0 SAMPLE COLLECTION

Marine surface sediment grab samples were collected between October 8 and 15, 2001 from fifteen stations within the five outfall diffuser sites. An additional sample was collected during this sampling event from an offshore station, which was selected to characterize sediment offshore of the five diffuser sites. Marine surface sediment grab samples were also collected December 4, 2001 from nine nearshore stations throughout the outfall zones. Station selection rationale is described in the study sampling and analysis plan (SAP) and SAP addendum (King County, 2001d and 2001e).

The study will establish a sediment quality baseline against which future sediment monitoring results may be compared, once outfall operation begins. The data quality objectives of the baseline sediment study, necessary to meet future sediment monitoring program goals, are to collect data of sufficient quantity and quality to be able to:

- evaluate the areal extent and spatial variations of sediment chemical concentrations in the candidate marine outfall zones;
- evaluate these sediment chemical concentrations in relation to current marine sediment quality standards of Chapter 173-204 WAC (Washington State Department of Ecology [Ecology], 1995) and the Puget Sound Dredged Disposal Analysis (PSDDA) program (Army Corps of Engineers [ACOE], 2000);
- evaluate the benthic infauna assemblages at the five potential outfall diffuser sites, compared to each other and to regional Puget Sound benthic infauna data; and
- compare these benthic infauna data with corresponding sediment chemical concentrations, relative to current marine sediment quality standards.

A full description of project data quality objectives may be found in the project SAP and SAP addendum. This section describes sampling activities including station positioning and sample collection and handling. All sampling activities were conducted following guidance suggested in the Puget Sound Protocols (Puget Sound Estuarine Program [PSEP], 1987, 1996a, and 1998).

2.1 Sample Locations and Station Positioning

Samples were collected for analysis of sediment chemistry and benthic infauna from 16 stations (Figure 1). Fifteen stations were located, three each, at five candidate diffuser sites. These sampling stations were selected randomly within each diffuser site. Station selection methodology is described in the project SAP. The sixteenth station was located offshore of the diffuser sites. Nine nearshore stations were located, equidistantly spaced, along the 20-foot bathymetric contour across three nearshore zones (Figure 1). Sampling locations were selected and coordinates prescribed prior to all field activities. Prescribed sampling station coordinates are shown in Table 1.

Surface sediment grab samples were collected from King County's research vessel *Liberty*, which is equipped with a differential global positioning system (DGPS). Field coordinates were recorded using DGPS for each sediment grab as the sampler contacted the seafloor. The DGPS is a satellite-based navigation system that operates using a

receiver to calculate ground position by triangulating scrambled data transmitted by a constellation of satellites operated by the Department of Defense (DOD). The ship-board "differential" receiver receives both the scrambled DOD signal and "corrected" signals originating from base stations operated by various agencies including the Coast Guard and King County. System software applies the differential correction and calculates a precise, real-time navigational position.

Coordinates for each grab deployment are shown in Table 1 where they are compared to the prescribed study coordinates.

2.2 Sample Collection and Handling

Sixteen surface sediment samples were collected between October 8 and 19, 2001 from five candidate diffuser zones and one offshore station. Nine surface sediment samples were collected December 4, 2001 from three nearshore areas associated with the diffuser zones. Sediment was obtained using two stainless-steel, modified, 0.1 m^2 van Veen grab samplers deployed in tandem from the *Liberty*. Chemistry samples were comprised of the top 10 centimeters (cm) of sediment collected from a single grab deployment at each station. Benthic infauna samples, collected only in the diffuser zones, consisted of the entire contents of a single grab deployment. Three replicate benthic infauna samples were collected at each sampling station.

A minimum sediment recovery depth of 11 cm is recommended for each acceptable chemistry grab to allow collection of the top 10 cm of sediment without sampling sediment that has touched the sides or bottom of the grab sampler. This minimum sediment recovery depth was attained in all but the sandiest of sediments, which generally make deep penetration by the grab sampler difficult. The minimum sediment recovery was 9 cm.

Sediment was removed from the grab using stainless-steel spoons and placed into a stainless-steel bowl for thorough homogenization. Chemistry sample aliquots were split out into labeled, pre-cleaned containers supplied by the King County Environmental Laboratory. A separate set of stainless-steel sampling equipment was dedicated to each station, precluding the need for decontamination of this field gear. The van Veen grab sampler was decontaminated between stations by scrubbing with a brush and ambient seawater, followed by a thorough *in situ* rinsing.

Chemistry samples were stored in ice-filled coolers from the time of collection until delivery to the King County Environmental Laboratory. Samples were delivered under chain-of-custody and were maintained as such throughout the analytical process. Samples were stored frozen at a temperature of -18°C by the laboratory until analysis, with the exception of samples for ammonia nitrogen, particle size distribution, and total sulfide analyses. These samples were stored refrigerated at approximately 4°C.

Sediment from acceptable benthic infauna grabs was flushed with ambient seawater through a 1.0-millimeter sieve to remove all fine material. The remaining sediment was then transferred into 1-liter plastic containers using a minimum amount of seawater. A 10% solution of buffered formalin was added to the sample to preserve all tissues prior to

sealing the container. Samples were labeled both on the inside and outside of the container, then recorded on chain of custody forms, and placed in coolers for at least 24 hours, but not exceeding 96 hours, prior to rescreening by contract laboratory personnel.

Benthic samples were rescreened at the contract laboratory from the 10% buffered formalin solution to 70% ethanol as recommended by Puget Sound Protocols guidance (PSEP, 1987).

3.0 SAMPLE ANALYSIS

Sixteen marine sediment samples collected from the potential outfall diffuser sites were submitted for chemical analysis of conventional, metal, and organic parameters, as well as benthic infauna analysis. Ten marine sediment samples (including one field replicate) collected from the marine outfall zones' nearshore areas were submitted for chemical analysis. This section describes the type of analyses performed, analytical methodologies used, and the associated quality assurance/quality control (QA/QC) procedures followed. Analyses were selected to allow comparison of sediment chemistry data to the Sediment Management Standards (SMS) sediment chemical criteria found in Tables 1 and 3 of Chapter 173-204 WAC, along with the PSDDA program sediment chemical criteria (ACOE, 2000). A complete list of all target analytes may be found in the project SAP and its addendum (King County, 2001d and 2001e). A complete list of all parameters analyzed along with their respective detection limits are included as Appendix A (diffuser zone sediments) and Appendix B (nearshore sediments)

3.1 Conventionals

Conventional analyses included ammonia nitrogen, particle size distribution (PSD), percent solids, total organic carbon (TOC), and total sulfides. Percent solids and TOC analyses were performed to provide data necessary to normalize sediment chemistry data to dry weight and organic carbon, respectively. Percent solids analysis was performed according to Standard Method (SM)2540-G, gravimetric determination. TOC analysis was performed following EPA Method 9060, high-temperature combustion with infrared spectroscopy. PSD analysis was performed according to ASTM Method D422, a combination of sieve and hydrometer analyses. Ammonia nitrogen and total sulfide, additional indicators of sediment quality, were analyzed according to methods SM4500-NH3-G (potassium chloride extraction with autoanalyzer) and SM4500-S2-D (colorimetric determination), respectively.

3.2 Metals

Metal analytes included antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. SMS provides regulatory criteria for arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc. PSDDA also provides regulatory criteria for antimony and nickel. The full suite of metals' analytes also included aluminum, beryllium, iron, manganese, thallium, and tin. With the exception of mercury, all metal analyses were performed following EPA Method 3050A/6010B; strong-acid digestion with inductively coupled plasma optical emission spectroscopy. Mercury was analyzed according to EPA Method 245.5, cold vapor atomic absorption spectroscopy.

3.3 Organics

Organic analytes included base/neutral/acid extractable semivolatile compounds (BNAs), chlorinated herbicides, chlorinated pesticides, oil and grease, organophosphorus

pesticides, organotin compounds, petroleum hydrocarbons, and polychlorinated biphenyls (PCBs). Organic analytical methodologies included:

- BNAs – EPA Method 3550B/8270C (SW-846), solvent extraction with sonication and analysis by gas chromatography with mass spectroscopy (GC/MS);
- chlorinated herbicides – EPA Method 8151A Modified (SW-846), solvent extraction with derivitization and analysis by GC/MS with ion trap;
- chlorinated pesticides and PCBs – EPA Method 3550/8081/8082 (SW-846), solvent extraction with sonication and analysis by gas chromatography with electron capture detection (GC/ECD);
- oil and grease – Standard Method SM5520-B,D,F (APHA, 2000), a partition-gravimetric method employing soxhlet solvent extraction and silica gel adsorption;
- organotin compounds – National Oceanic and Atmospheric Administration Method (NOAA, 1988), solvent extraction with tumbling following by derivitization and analysis by GC/MS in the Selected Ion Mode (SIM);
- petroleum hydrocarbons – Ecology Method WTPH-DX (Oregon Department of Environmental Quality, 1996), solvent extraction with sonication and analysis by gas chromatography with flame ionization detector (GC/FID).

This suite of analytes includes all organic compounds for which SMS and PSDDA provide sediment regulatory criteria, as well as a wide range of other organic compounds.

3.4 Benthic Infauna and Biomass Measurement

All benthic infauna work was performed following accepted regional guidelines (PSEP, 1987). Organisms were identified to species level, whenever possible, and then grouped into four categories or taxa for reporting purposes and calculation of total biomass. The four taxa reported are Annelida, Crustacea, Mollusca, and miscellaneous taxa. A total biomass measurement was reported for the four taxa, representing the combined weight of all organisms in each taxon.

3.5 Quality Assurance/Quality Control

All chemistry analyses were performed following guidance recommended in the Puget Sound Protocols (PSEP 1986, 1996b, and 1996c) including associated QA/QC practices. Laboratory QA/QC practices produced chemistry data of sufficient quality to pass QA1 review. Chemistry data were reviewed following QA1 guidelines (Ecology, 1989) and flagged with data qualifiers where appropriate. Comprehensive reports of chemistry analytical data, including qualifier flags are included as Appendices A (diffuser zone sediments) and B (nearshore sediments). QA review narratives are included as Appendices C (diffuser zone sediments) and D (nearshore sediments). Quality assurance/quality control procedures for benthic infauna analysis included: resorting 20 percent of each processed sample to check sorting efficiency; and sending five percent of the samples from each major taxonomic group to an independent expert for re-identification, referred to as the validation collection. A complete list of all species identified, along with biomass measurements for the four major taxa is included as Appendix E.

4.0 CHEMISTRY ANALYTICAL RESULTS

This section discusses chemistry analytical results for 25 marine surface sediment samples collected from the candidate outfall diffuser zones and associated nearshore areas. Trace metal and organic data are compared to sediment chemical criteria specified under SMS and PSDDA. Analytical results for conventional parameters and those metals and organic compounds regulated under SMS and PSDDA are discussed in this section and presented in Tables 2 and 3 (diffuser zone and nearshore samples, respectively). Complete chemistry analytical results are included as Appendices A (diffuser zone samples) and B (nearshore samples). Data in Tables 2 and 3 and Appendices A and B are reported with associated analytical detection limits. The method detection limit or MDL is defined as *the minimum concentration of a chemical constituent that can be detected*. The reporting detection limit or RDL is defined as *the minimum concentration of a chemical constituent that can be reliably quantified*.

4.1 Conventionals

Analytical results for TOC, ammonia, and total sulfides are presented normalized to dry weight in units of milligrams per kilogram (mg/Kg DW). Results for PSD are presented "as received" in units of percent on a wet weight basis.

4.1.1 Diffuser Zone Sediments – Conventionals Results

Particle size distribution is variable between the diffuser zones, with some consistencies and some inconsistencies.

Percent clay results from the 13 samples collected from the deep diffuser zones are consistent with a mean value of 17.1% and a range of 15.9 to 19.2%. Percent clay results from the three samples collected from the shallower diffuser zone (7SA) are significantly lower with a mean value of 4.5% and a range of 4.2 to 4.7%.

The percent silt/percent sand ratio varies widely, both across diffuser zones and between samples collected from the same diffuser zone. The sandiest sediments are found in the shallower diffuser zone and the sampling station offshore of the diffuser zones (OSZ-1).

Percent gravel results are generally low, ranging from 0.3 to 7.7%, with the exception of samples collected from the shallower diffuser zone stations Z7-SSA-1 and Z7-SSA-2. Percent gravel results for these two samples are 21.6 and 18.7%, respectively.

TOC concentrations are similar in samples collected from all of the deep diffuser zones (Zones 5, 6, 7N, and 7SB), ranging from 13,800 to 16,400 mg/Kg DW with a mean value of 15,200 or approximately 1.5%. The TOC concentration in the sample collected from station OSZ-1 is 10,200 mg/Kg DW or approximately 1%. TOC concentrations in the shallower diffuser zone (Zone 7SA) range from 5,720 to 7,800 mg/Kg DW with a mean value of 6,780 or approximately 0.7%.

Ammonia was detected in all 16 samples at concentrations ranging from 2.74 to 16.4 mg/Kg DW. Ammonia concentrations are fairly consistent in all of the deep diffuser zones with a mean value of 13.0 mg/Kg DW and a range of 6.43 to 16.4 mg/Kg DW. Ammonia concentrations in the shallower diffuser zone (7A) are lower than the deep diffuser zones with a mean value of 2.94 mg/Kg DW and a range of 2.74 to 3.19 mg/Kg DW. Total sulfide concentrations vary widely in the 13 samples collected from the deep diffuser zones and offshore station, ranging from 21.2 to 632 mg/Kg DW. Sulfides were not detected in the three samples collected from the shallower diffuser zone.

4.1.2 Nearshore Sediments – Conventionals Results

Particle size distribution in the nearshore areas is fairly consistent, with sediments comprised mainly of sand. Percent sand results are between 91.5 and 96.5% in seven of nine samples. Percent sand measured in samples collected from stations Z7-TRSED-1 and Z7-TRSED-2 is slightly lower at 83.0 and 83.4%, respectively.

TOC concentrations in the nearshore areas are generally lower than the diffuser zone stations with the two exceptions. TOC concentrations at Stations 1 and 2 in Zone 7 are 16,800 and 8,990 mg/Kg DW, respectively. Nearshore TOC concentrations in Zones 5, 6, and Station 3 in Zone 7 range from 1,490 to 3,730 mg/Kg DW with a mean value of 2,470 or approximately 0.25%.

Ammonia was detected in all nine nearshore samples at concentrations ranging from 0.977 to 3.35 mg/Kg DW. Sulfides were detected in three of nine samples, collected from stations Z5-TRSED-1, Z6-TRSED-3, and Z7-TRSED-1, at concentrations of 3.30, 1.6, and 15.2 mg/Kg DW, respectively.

4.2 Trace Metals

Trace metals analytical results are presented normalized to dry weight in units of mg/Kg DW. The following ten trace metals have either or both a SMS and/or PSSDA chemical criterion; antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. Results for these ten trace metals are summarized in Tables 2 and 3.

4.2.1 Diffuser Zone Sediments – Trace Metals Results

Concentrations of all detected metals in diffuser zone sediments are well below SQS and/or PSSDA chemical criteria and indicative of natural, area-wide crustal concentrations (Dexter et al, 1981). Chromium, copper, lead, mercury, nickel, and zinc were detected in each sample collected from the diffuser zones. Cadmium was detected at 11 of 16 stations, arsenic was detected at six stations, and antimony was detected at a single station. Concentrations of cadmium, arsenic, and antimony were all just slightly above their respective MDLs. Silver was not detected.

4.2.2 Nearshore Sediments – Trace Metals Results

Concentrations of detected metals in nearshore sediments are also all well below SQS and/or PSSDA chemical criteria and, again, indicative of natural, area-wide crustal concentrations. Chromium, copper, lead, nickel, and zinc were detected in each sample collected from the nearshore areas; mercury was detected at two stations, Z7-TRSED-1 and Z7-TRSED-2; and antimony, arsenic, cadmium, and silver were not detected . Concentrations of detected metals are consistent across all three outfall zones with the exception of stations Z7-TRSED-1 and Z7-TRSED-2. Concentrations of chromium, copper, lead, nickel, and zinc at these two stations are slightly elevated over other nearshore stations.

4.3 Organics

Organics results are reported in units of micrograms per kilogram normalized to dry weight (µg/Kg DW) for ionic organic compounds such as phenols, acids, and alcohols, as well as chlorinated pesticides. SMS guidance generally suggests that results for non-ionizable organic compounds be normalized to organic carbon for comparison with sediment chemical criteria (Ecology, 1995). These compounds include polynuclear aromatic hydrocarbons (PAHs), chlorobenzenes, phthalates, and polychlorinated biphenyls (PCBs). These non-ionic organic compounds are presented in units of milligrams per kilogram normalized to organic carbon (mg/Kg OC). Two non-ionic compounds, hexachloroethane and 1,3-dichlorobenzene do not have SMS chemical criteria. Results for these two compounds are presented in units of µg/Kg DW for comparison with PSDDA chemical criteria. Analytical results for those organic compounds without regulatory or guidance criteria may be found in Appendices A and B but will not be discussed in this narrative. These organic analytes include petroleum hydrocarbon compounds, oil and grease, organophosphorus pesticides, chlorinated herbicides, and butyltins.

4.3.1 Diffuser Zone Sediments – Organics Results

Organic compounds regulated under SMS and PSDDA generally were not detected or detected at concentrations well-below regulatory or guidance criteria in samples collected from the diffuser zones.

4.3.1.1 Polynuclear Aromatic Hydrocarbons (PAHs)

Anthracene (7 of 16 samples) and phenanthrene (11 of 16 samples) were the only low molecular weight PAH compounds (LPAHs) detected in diffuser zone sediments. Total LPAH concentrations range from 0.83 to 5.25 mg/Kg OC, which is well-below the associated SQS criterion of 370 mg/Kg OC.

One or more high molecular weight PAH compounds (HPAHs) were detected in all 16 diffuser zone samples. Total HPAH concentrations range from 2.0 to 65.1 mg/Kg OC, compared to the SQS criterion of 960 mg/Kg OC.

4.3.1.2 Chlorobenzenes

Chlorobenzene compounds were not detected in samples collected from diffuser zone sediments.

4.3.1.3 Phthalates

Benzyl butyl phthalate was detected in 9 of 16 samples collected from diffuser zone sediments at concentrations ranging from 1.29 to 1.5 mg/Kg OC. These concentrations are all below the SQS chemical criterion of 4.9 mg/Kg OC.

Bis(2-ethylhexyl) phthalate was detected in all 16 diffuser zone samples at concentrations ranging from 1.9 to 31.9 mg/Kg OC, all below the SQS chemical criterion of 47 mg/Kg OC. This phthalate, however, was also detected in the laboratory method blank associated with this group of samples, indicating probable laboratory contamination. When a compound is detected in a method blank, associated sample results that are less than five times the method blank concentration are considered undetected. Results for bis(2-ethylhexyl) phthalate in all but three of these 16 samples are less than five times the method blank concentration and should be discounted and viewed as undetected. Reported concentrations of bis(2-ethylhexyl) phthalate in samples collected from stations Z5-3, Z7-SSB-1, and Z7-SSB-2 are all greater than five times the method blank concentration and may be legitimately viewed as detected, however, these results *have* been impacted by laboratory contamination and may be biased high.

Di-N-butyl phthalate was also detected in all 16 samples, however, this compound was also detected in the analytical method blank. All sample results for di-N-butyl phthalate are less than five times the method blank concentration and, therefore, should be viewed as *undetected*.

Di-N-octyl phthalate was detected in two samples, collected from stations Z6-SB-1 and Z6-SB-3, at concentrations of 3.06 and 2.3 mg/Kg OK, respectively. These reported concentrations are well-below the associated SQS chemical criterion of 58 mg/Kg OC.

Diethyl phthalate and dimethyl phthalate were not detected diffuser zones sediments.

4.3.1.4 Ionic Semivolatile Compounds

Benzoic acid was the only ionic semivolatile organic compound detected in diffuser zone sediments. It was detected in all 16 samples at concentrations ranging from 140 to 268 µg/Kg DW. These data are probably biased low, based on quality control sample results, however, these concentrations are all well-below the SQS/CSL chemical criterion of 650 µg/Kg DW.

4.3.1.5 Chlorinated Pesticides and PCBs

4,4'-DDT was detected in one sample, collected from station Z7-SSB-3, at a concentration of 6.19 µg/Kg DW. The PSDDA screening level criterion for this pesticide is 6.9 µg/Kg DW. Chlorinated pesticides and PCBs (as Aroclors®) were not detected in any other sample collected from diffuser zone sediments.

4.3.2 Nearshore Sediments – Organics Results

Organic compounds regulated under SMS and PSDDA were generally not detected or detected at concentrations well-below regulatory or guidance criteria in samples collected from nearshore sediments.

4.3.2.1 Polynuclear Aromatic Hydrocarbons (PAHs)

LPAHs were not detected in four of nine nearshore sediment samples, collected from stations Z5-TRSED-1, Z6-TRSED-2, Z6-TRSED-3, and Z7-TRSED-3. Total LPAH concentrations detected at the other five stations range from 3.4 to 44 mg/Kg OC, all well-below the SQS criterion of 370 mg/Kg OC. The most frequently detected LPAHs were anthracene and phenanthrene.

HPAHs were not detected in three of nine nearshore sediment samples, collected from stations Z5-TRSED-1, Z6-TRSED-3, and Z7-TRSED-3. Total HPAH concentrations detected at the other six stations range from 24 to 432 mg/Kg OC, also all well-below the SQS criterion of 960 mg/Kg OC. The highest HPAH concentrations were detected at stations Z6-TRSED-1, Z7-TRSED-1, and Z7-TRSED-2.

4.3.2.2 Chlorobenzenes

Chlorobenzene compounds were not detected in samples collected from nearshore sediments.

4.3.2.3 Phthalates

Benzyl butyl phthalate, diethyl phthalate, dimethyl phthalate, and di-N-butyl phthalate were not detected in samples collected from the nearshore sediments.

Bis(2-ethylhexyl) phthalate was detected in seven of nine samples collected from the nearshore areas at concentrations ranging from 2.5 to 7.82 mg/Kg OC, which are all well-below the SQS chemical criterion of 47 mg/Kg OC. These bis(2-ethylhexyl) phthalate sample results are not impacted by laboratory contamination.

Di-N-butyl phthalate was detected in seven of nine samples collected from nearshore sediments, however, this compound was also detected in the analytical method blank. All di-N-butyl phthalate sample results are less than five times the method blank concentration, therefore, these results should be viewed as *undetected*.

4.3.2.4 Ionic Semivolatile Compounds

Benzoic acid was detected in all nine samples collected from nearshore sediments, at concentrations ranging from 49.2 to 147 µg/Kg DW. Phenol was detected in 3 of 9 nearshore samples (stations Z5-TRSED-1, -2, and -3) at concentrations ranging from 15 to 31.4 µg/Kg DW. These results are all well-below than the phenol SQS chemical criterion of 420 µg/Kg DW. Other ionic semivolatile organic compounds were not detected in nearshore sediment samples.

4.3.2.5 Chlorinated Pesticides and PCBs

Chlorinated pesticides were not detected in samples collected from nearshore sediments.

PCBs were detected in 2 of 9 samples collected from the nearshore areas, both results comprised of Aroclors 1254 and 1260. A concentration of 2.16 mg/Kg OC was reported in the sample collected from station Z7-TRSED-1 and a concentration of 1.42 mg/Kg OC was reported in the sample collected from station Z7-TRSED-2. Both of these results are less than the SQS chemical criterion of 12 mg/Kg OC.

5.0 BENTHIC INFAUNA ANALYTICAL RESULTS

A complete list of all species identified from this study, along with biomass results is included as Appendix E to this report. Table 4 summarizes the benthic infauna analysis results, along with summaries of physical characteristics of each sediment sample.

There are several indices that can be used to evaluate benthic infauna assemblages and compare results from sampling stations to one another. These indices include:

- Total Richness, which is the **number of species** per 0.1 m^2 (the area sampled by a standard van Veen grab sampler);
- Total Abundance, which is the **number of individual organisms** per 0.1 m^2;
- Total Biomass, which is the combined mass (weight) of all organisms found in a 0.1 m^2 sample;
- Shannon-Wiener Diversity Index, which is a measure of the relationship between taxa richness and abundance;
- Pielou's Evenness Index, which is expressed as the observed diversity in a sample as a proportion of the maximum possible diversity; and
- Swartz's Dominance Index, which is defined as the minimum number of species comprising 75% of the total abundance in a given sample.

All of these indices have been calculated for this study based on averages over the three replicate samples collected from each station.

5.1 Species Distribution and Biomass

Total richness ranges from a low of 38 species, identified at station Z6-SB-1, to a high of 146 species, identified at station Z7-SSA-4. The mean total richness value calculated for samples collected from the shallower Zone 7SA is 129 species, which is significantly higher than the deep diffuser zones. The mean value for total richness in the deep diffuser zone samples is 48 with a range of 38 to 57. The total richness value for the offshore sampling station OSZ-1 is 75. Annelida taxa represented the greatest number of species found in the shallower diffuser zone samples while species are more evenly distributed in the deep diffuser zones between Annelida, Crustacea, and Mollusca species.

Total abundance ranges from a low of 421 individuals, found at station Z5-1, to a high of 1,343 individuals, found at station Z7-SSB-3. Mollusca species dominate the total number of individuals at the deep diffuser zones, especially Zones 6, 7N, and 7SB. The shallower diffuser zone samples are dominated by Annelida species.

Total biomass is expressed in grams per 0.1 square meter (g/0.1 m^2). Reported total biomass measurements range from 7.70 g/0.1 m^2 at station Z7-SSA-1 to 90.37 g/0.1 m^2 at station Z7-SNB-3. Although always measured, total biomass is not a particularly useful comparative tool for assessing benthic infauna assemblages, given such confounding

factors as differences in shell or carapace size, or the presence of one large individual in a sample.

5.2 Benthic Infauna Indices

The Shannon-Wiener index is one of the most widely-used diversity indices due to its ease of calculation and its relative independence of sample size. This index uses the total number of species in a sample as well as the abundance of single species to determine diversity. Shannon-Wiener diversity values range from a low of 1.30 at station Z6-SB-1 to a high of 6.18 at station Z7-SSA-3. The Shannon-Wiener values calculated for samples collected from the shallower diffuser zone (5.62 to 6.18) are significantly higher that those in Zones 6, 7N, and 7SB (1.30 to 2.22). Shannon-Wiener values for Zone 5 samples and the samples collected from station OSZ-1 are similar to each other, ranging from 3.59 to 4.00.

Pielou's Evenness index is another measure of diversity that is commonly used in conjunction with the Shannon-Wiener index. Evenness is a measure of the observed diversity in a sample as a proportion of the maximum possible diversity. Evenness values close to 1.0 represent a sample composed of several different species while low evenness values indicate a sample composed of only a few dominant species. Pielou's Evenness values range from a low of 0.25 at station Z6-SB-1 to a high of 0.86 at station Z7-SSA-3. Pielou's Evenness values correlated well with the Shannon-Wiener values, again with the highest values in the shallower diffuser zone samples and the lowest values calculated for samples collected from Zones 6, 7N, and 7SB.

Swartz's Dominance index is the third diversity indicator, which measures the minimum number of species whose abundance comprises 75% of the total sample abundance. Low values indicate a sample with little diversity while higher numbers indicate a sample comprised of many species. Swartz's Dominance values ranged from a low of 1 at seven stations to a high of 47 at station Z7-SSA-3. The Swartz's Dominance values correlate well with Shannon-Wiener and Pielou's Evenness values.

The individual species comprising the Swartz's Dominance index for each station are shown in Table 5. This table has been color-coded to provide a quick comparative tool for evaluating benthic infauna assemblages between sampling stations.

Zones 6, 7N, and 7SB are almost exclusively dominated by the mollusk *Macoma carlottensis*, a small bivalve (clam). This single species accounts for greater than 75% of the total abundance at every sampling station in Zones 7N and 7SB, as well as station Z6-SB-1 in Zone 6. *M. carlottensis* is also very dominant at stations Z6-SB-2 and Z6-SB-3, representing 70.5 and 66.6% of the individuals, respectively, and dominates the remainder of the sampling stations in the deep diffuser zones although not to as great an extent.

Samples collected from Zone 5 and the offshore sampling station OSZ-1 show slightly more diversity, with a mix of Mollusca and Crustacea species. After *M. carlottensis*, the dominant species at these locations are *Euphilomedes producta*, a small ostracod

crustacean, *Axinopsida serricata*, another clam species, and *Pinnixa schmitti*, a small pea crab.

By far, the greatest diversity is found in Zone 7SA with very high numbers for all three diversity indices. No one species accounts for greater than 12% of all individuals at all three sampling stations in Zone 7SA. This zone is dominated by Annelida taxa, with *Exogone lourei*, a polychaete worm, representing the greatest number of individual organisms at all three sampling stations.

6.0 COMPARISON OF CANDIDATE MARINE OUTFALL ZONES

This section presents a discussion of similarities and differences between the candidate marine outfall zones, both in terms of sediment chemistry and benthic infauna assemblages.

6.1 Sediment Chemistry

Sediment chemical concentrations are consistent throughout and across the diffuser zones and offshore sampling station. Detected concentrations of trace metals and organic compounds are all well-below associated regulatory and guidance criteria. A sediment sample was collected in 1998 near King County sampling station Z7-SNB-1 as part of the Puget Sound Ambient Monitoring Program (PSAMP) sediment task (NOAA, 2000). Sediment chemical concentrations in the PSAMP sample were consistent with those detected in the diffuser zone samples with one exception. An elevated concentration of 4-methylphenol was detected in the PSAMP sample while this compound was not detected in any of King County's diffuser zone sediment samples.

Physical properties and concentrations of most chemical constituents in nearshore sediments are consistent throughout Zones 5 and 6, and at station Z7-TRSED-3 in Zone 7. Slightly elevated concentrations of HPAHs were detected in the sample collected from station Z6-TRSED-1 near the Unocal oil pier at Point Edwards. Sediment chemical concentrations in Zones 5 and 6, and at station Z7-TRSED-3, are all well-below associated regulatory or guidance criteria. A nearshore sediment sample was collected in 1998 at a location midway between King County's Zone 6 and 7 stations as part of PSMAP (NOAA, 2000). The PSAMP sample was collected from a depth similar to King County's study and sediment physical properties and chemical concentrations are consistent with those presented in this report.

Concentrations of several trace metals (chromium, copper, lead, nickel, and zinc) detected in the samples collected from nearshore stations Z7-TRSED-1 and Z7-TRSED-2 are elevated compared to other nearshore samples. Elevated concentrations of most PAH compounds were detected in these two samples as well. Mercury and PCBs were detected in these two samples but not detected in any other nearshore samples. Although these chemical concentrations are elevated, all detected chemicals are below associated regulatory or guidance criteria. Fluoranthene was detected in the sample collected from station Z7-TRSED-1 at a concentration of 159 mg/Kg OC, which is just below the SQS chemical criterion of 160 mg/Kg OC. Nearshore stations Z7-TRSED-1 and Z7-TRSED-2 are in the vicinity of a storm water outfall at Point Wells.

6.2 Benthic Infauna

The benthic infauna assemblages found in Zones 6, 7N, and 7SB are virtually identical, almost completely dominated by a single species of small clam, *Macoma carlottensis*. Sampling stations in these three zones are all located at depths within a range of 30 meters (173 to 213) and physical sediment properties such as particle size distribution and organic carbon content are consistent. Previous benthic studies performed in Puget Sound have documented the domination by *M. carlottensis* in deep, muddy, clayey sediments such as those found in Zones 6, 7N, and 7SB (Lie, 1974; Nichols, 1988 and 2001; Llanso et al., 1998; King County unpublished data, 2001).

The benthic infauna assemblages found in Zone 5 and at the offshore sampling station OSZ-1 were slightly more diverse than in the other deep diffuser zones, however, the dominant species was still *M. carlottensis*. The co-dominant species found in Zone 5 and at station OSZ-1 (*E. producta*, and *A. serricata*) are also well-documented and wide-spread in Puget Sound. The main differences between the deep diffuser zones and sampling locations in Zone 5 and the offshore station is depth and the higher proportion of sand at station OSZ-1. The slight differences in benthic infauna assemblages could be attributed to these variables but could also be influenced by differences in current and bathymetry.

The benthic infauna assemblages found in Zone 7SA were very different than those found in the deep diffuser zones. A high degree of diversity was found at all three sampling stations, with Annelida species representing the dominant group of organisms. Sampling stations in Zone 7SA are located only half as deep as sampling stations in the other zones and sediments are somewhat sandier in the shallower diffuser zone. A benthic community with a high number of species and no dominant species, in general, is typical of sandier sediments (Llanso et al., 1998).

7.0 SUMMARY AND CONCLUSIONS

Sixteen marine sediment samples were collected in October 2001 from candidate outfall diffuser zones for King County's planned Brightwater wastewater treatment facility. An additional nine sediment samples were collected in December 2001 from associated nearshore areas. All diffuser zone and nearshore sediment samples were submitted for analysis of chemical constituents and physical properties to establish a baseline for sediment quality prior to construction and operation of the outfall as well as to evaluate any differences between potential diffuser sites. Samples collected from the potential diffuser zones were also submitted for analysis of benthic infauna, both to establish a baseline and to aid in evaluating potential environmental impacts to these organisms from construction or operation of the outfall.

Samples were collected from the 0 to 10 cm depth stratum at each station to evaluate sediment chemical concentrations and benthic infauna assemblage over the major biologically-active zone. Chemistry analytes consisted of trace metals and organic compounds and included all parameters regulated under SMS and PSDDA. Physical analyses included particle size distribution and total organic carbon to aid in evaluating the structure of the benthos. Benthic infauna analysis included identification to species (if feasible) of all organisms found in the sediment samples and measurement of the total biomass of organisms in four taxonomic categories; Annelida, Crustacea, Mollusca, and "miscellaneous taxa."

Analysis of chemistry data included normalization of certain analytical results to either dry weight or organic carbon and comparison of these normalized results to published sediment quality criteria. Analysis of benthic infauna data included calculation of several diversity indices and comparison of indices between sampling stations and with regional Puget Sound benthic data.

7.1 Diffuser Zones Sediments

Analytical results from chemical and physical testing and analysis of the benthic infauna found in sixteen sediment samples indicate the following characteristics of marine sediments in the candidate Brightwater marine outfall diffuser zones.

- Sediments in the deep diffuser zones (Zones 5, 6, 7N, and 7SB) are mainly comprised of silty-sand with a relatively large clay fraction, indicating areas of deposition. The organic carbon content in these zones is consistent, ranging from 1.4 to 1.6%. The sample collected from the offshore area (OSZ-1) indicates a sandier environment with a slightly lower organic carbon content of 1%. Sediments in the shallower diffuser zone (Zone 7SA) are generally sandier than the deep diffuser zones with a significantly lower organic carbon content, ranging from 0.6 to 0.8%.
- Concentrations of trace metals and organic compounds meet all regulatory and guidance criteria.
- The benthic infauna assemblages in the deep diffuser zones (Zones 6, 7N, and 7SB) are homogenous, dominated to a great extent by a single species of small clam,

Macoma carlottensis. These results are comparable with data from other areas in Puget Sound with similar depths and physical sediment characteristics

- The benthic infauna assemblages in deep Zone 5 and at the offshore sampling station OSZ-1 are slightly more diverse than Zones 6, 7N, and 7SB, dominated to a lesser extent by *M. carlottensis* along with *Euphilomedes producta*, a small ostracod crustacean, and *Axinopsida serricata*, another clam species.
- The benthic infauna assemblage in Zone 7SA, the shallower diffuser zone, is very diverse with a large number of species found and no one species representing more than 12% of the total number of individual organisms found in a sample.

7.2 Nearshore Sediments

Analytical results from chemical and physical testing of nine sediment samples indicate the following characteristics of nearshore sediments in Zones 5, 6, and 7.

- Nearshore sediments in Zones 5, 6, and 7 are comprised mainly of sand and contain low concentrations of organic carbon, ammonia, and sulfides.
- Concentrations of trace metals and organic compounds meet all regulatory and guidance criteria.
- A greater proportion of fine-grained material, along with higher concentrations of organic carbon, trace metals, and some organic compounds, were found in two nearshore samples in Zone 7, located in the vicinity of a Point Wells storm water outfall.

8.0 REFERENCES

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Tables

Table 1
Sampling Station Coordinates (NAD83)
Baseline Sediment Characterization Study
Brightwater Candidate Marine Outfall Zones

BrightWater
Marine Outfall Siting Study

Diffuser Zone Sediments

	Prescribed Coordinates		Actual Coordinates		
Locator	**Northing**	**Easting**	**Northing**	**Easting**	**Comments**
Z5-1	305650	1254750	305652	1254771	Cast 1 - 2 benthic samples
			305649	1254761	Cast 2 - 1 benthic sample/1 chemistry sample
Z5-2	304750	1255750	304747	1255763	Cast 1 - 1 benthic sample
			304742	1255743	Cast 2 - 2 benthic samples
			304740	1255746	Cast 3 - 1 chemistry sample
Z5-3	304850	1256850	304845	1256840	Cast 1 - 2 benthic samples
			304845	1256832	Cast 2 - 1 benthic sample
			304852	1256846	Cast 3 - 1 chemistry sample
Z6-SB-1	298950	1251850	298961	1251858	Cast 1 - 2 benthic samples
			298967	1251851	Cast 2 - 1 benthic sample/1 chemistry sample
Z6-SB-2	299050	1252650	299051	1252657	Cast 1 - 2 benthic samples
			299058	1252653	Cast 2 - 1 benthic sample
			299042	1252662	Cast 3 - 1 chemistry sample
Z6-SB-3	298450	1252650	298444	1252661	Cast 1 - 2 benthic samples
			298453	1252644	Cast 2 - 1 benthic sample/1 chemistry sample
Z7-SNB-1	290550	1252150	290532	1252152	Cast 1 - 2 benthic samples
			290553	1252160	Cast 2 - 1 benthic sample/1 chemistry sample
Z7-SNB-2	289850	1252250	289848	1252237	Cast 1 - 1 benthic sample/1 chemistry sample
			289859	1252251	Cast 2 - 2 benthic samples
Z7-SNB-3	289550	1252250	289557	1252244	Cast 1 - 2 benthic samples
			289559	1252249	Cast 2 - 1 benthic sample/1 chemistry sample
Z7-SSA-1	289550	1254250	289587	1254257	Cast 1 - 1 benthic sample/1 chemistry sample
			289541	1254250	Cast 2 - 1 benthic sample
			289545	1254248	Cast 3 - 1 benthic sample
Z7-SSA-2	289450	1254350	289451	1254355	Cast 1 - 2 benthic samples
			289446	1254357	Cast 2 - 1 benthic sample/1 chemistry sample
Z7-SSA-3	289250	1254150	289248	1254151	Cast 1 - 2 benthic samples
			289253	1254153	Cast 2 - 1 benthic sample/1 chemistry sample
Z7-SSB-1	287650	1252650	287665	1252644	Cast 1 - 2 benthic samples
			287650	1252651	Cast 2 - 1 chemistry sample
			287653	1252647	Cast 3 - 1 benthic sample
Z7-SSB-2	286850	1252650	286871	1252656	Cast 1 - 2 benthic samples
			286863	1252648	Cast 2 - 1 chemistry sample
			286853	1252646	Cast 3 - 1 benthic sample
Z7-SSB-3	286550	1252850	286552	1252835	Cast 1 - 2 benthic samples
			286569	1252852	Cast 2 - 1 benthic sample/1 chemistry sample
OSZ-1	306050	1246250	306055	1246233	Cast 1 - 2 benthic samples
			306034	1246252	Cast 2 - 1 benthic sample/1 chemistry sample

Table 1
Sampling Station Coordinates (NAD83)
Baseline Sediment Characterization Study
Brightwater Candidate Marine Outfall Zones

Marine Outfall Siting Study

Nearshore Sediments

	Prescribed Coordinates		Actual Coordinates		
Locator	**Northing**	**Easting**	**Northing**	**Easting**	**Comment**
Z5-TRSED-1	303610	1260645	303612	1260653	
Z5-TRSED-2	302750	1260099	302768	1260087	
Z5-TRSED-3	301761	1259630	301926	1259205	station relocated in field to avoid underwater park
Z6-TRSED-1	297933	1256114	297921	1256090	
Z6-TRSED-2	296162	1255567	296171	1255557	
Z6-TRSED-3	294573	1255411	294583	1255383	
Z7-TRSED-1	289808	1256166	289812	1256135	station relocated in field due to presence of pier
Z7-TRSED-2	288740	1255567	288791	1255484	station relocated in field due to presence of pier
Z7-TRSED-3	287568	1255515	287580	1255512	

Table 2
Marine Sediment Chemistry Results - *Diffuser Zone Sediments*
Baseline Sediment Characterization Study
Brightwater Candidate Marine Outfall Zones

BrightWater
Marine Outfall Siting Study

	Z5-1	Z5-2	Z5-3	Z6-SB-1	Z6-SB-2	Z6-SB-3	Z7-SNB-1	Z7-SNB-2	Z7-SNB-3	Z7-SSA-1	Z7-SSA-2	Z7-SSA-3	Z7-SSB-1	Z7-SSB-2	Z7-SSB-3	OSZ-1	SQS/SL(1)	CSL/ML(2)
Conventionals (see units below)																		
Solids (%)	45.6	46.4	47.1	42.6	45.8	44.2	39.2	38.0	41.1	69.4	74.0	74.9	39.8	40.8	40.4	56.1	n/a	n/a
Volatile Solids (%)	2.26	2.29	1.99	2.37	2.26	2.35	2.31	2.24	2.42	1.24	1.26	1.19	2.38	2.40	2.49	2.02	n/a	n/a
Total Organic Carbon (mg/Kg DW)	13,800	14,400	14,200	15,700	14,500	14,700	16,000	16,400	15,700	5,720	6,810	7,800	16,100	15,100	16,000	10,200	n/a	n/a
Clay (%)	16.0	17.7	15.0	17.6	16.9	16.7	17.1	17.4	19.2	4.7	4.5	4.2	17.9	17.0	17.4	16.5	n/a	n/a
Silt (%)	32.7	35.8	26.5	44.2	33.0	33.7	36.3	54.6	43.8	9.6	8.2	34.5	37.7	44.5	38.5	11.6	n/a	n/a
Sand (%)	50.3	45.2	50.9	37.4	49.3	47.6	45.8	27.5	36.9	84.2	65.8	42.7	43.1	37.8	43.1	70.9	n/a	n/a
Gravel (%)	1.0, E	1.2, E	7.7, E	0.6, E	0.9, E	2.0, E	0.6, E	0.6, E	0.3, E	1.3, E	21.6, E	18.7, E	1.2, E	0.6, E	1.3, E	1.2, E	n/a	n/a
Ammonia (mg/Kg DW)	9.28	11.5	6.43	14.6	11.4	14.8	16.4	13.8	15.7	2.74	2.89	3.19	15.2	14.4	15.5	9.61	n/a	n/a
Total Sulfides (mg/Kg DW)	92.1	36.6	21.2	141	262	201	196	632	153	<MDL (4.3)	<MDL (2.7)	<MDL (2.7)	128	294	228	214	n/a	n/a
Metals (mg/Kg DW)																		
Antimony	<MDL (3.3)	<MDL (3.0)	<MDL (3.2)	<MDL (3.5)	<MDL (3.3)	<MDL (3.6)	<MDL (3.8)	<MDL (3.9)	<MDL (3.6)	<MDL (2.2)	2.3, G	<MDL (1.9)	<MDL (3.8)	<MDL (3.4)	<MDL (3.7)	<MDL (2.7)	150	200
Arsenic	5.5	<MDL (5.2)	<MDL (5.3)	<MDL (5.9)	6.8	<MDL (5.9)	<MDL (6.4)	<MDL (6.6)	<MDL (6.1)	<MDL (3.6)	4.2	<MDL (3.2)	7.5	5.9	<MDL (5.9)	4.6	57	93
Cadmium	0.48	0.45	0.38	0.63	0.46	0.57	0.48	0.58	<MDL (0.36)	0.27	<MDL (0.19)	0.25	<MDL (0.38)	<MDL (0.34)	<MDL (0.37)	0.46	5.1	6.7
Chromium	37.1	37.3	38.4	36.4	37.8	34.8	36.0	41.3	35.5	25.9	20.3	20.4	35.9	36.3	38.6	32.3	260	270
Copper	27.2	27.8	25.9	27.0	27.1	25.6	27.0	31.8	27.5	10.0	12.0	13.2	26.6	27.2	29.2	18.4	390	390
Lead	17.9	18.9	17.3	14	15	12	15	17	14	7.5	8.2	18.7	13	14	16	9.4	450	530
Mercury	0.12	0.13	0.10	0.096	0.10	0.090	0.089	0.095	0.13	0.040	0.038	0.044	0.11	0.091	0.089	0.057	0.41	0.59
Nickel	35.3	34.5	36.5	34.3	35.6	34.2	33.4	38.4	33.3	25.4	25.4	22.0	33.4	32.8	35.6	35.8	140	370
Silver	<MDL (0.44)	<MDL (0.41)	<MDL (0.42)	<MDL (0.47)	<MDL (0.44)	<MDL (0.48)	<MDL (0.51)	<MDL (0.53)	<MDL (0.49)	<MDL (0.29)	<MDL (0.26)	<MDL (0.25)	<MDL (0.50)	<MDL (0.47)	<MDL (0.47)	<MDL (0.37)	6.1	6.1
Zinc	80.3	79.7	74.9	81.0	79.0	73.8	78.8	91.8	78.8	38.6	36.8	39.5	78.6	78.7	83.9	68.3	410	960
LPAHs (mg/Kg OC)																		
Acenaphthene	<MDL (1.1)	<MDL (1.0)	<MDL (1.1)	<MDL (1.0)	<MDL (1.0)	<MDL (1.1)	<MDL (1.1)	<MDL (1.1)	<MDL (1.1)	<MDL (1.7)	<MDL (1.4)	<MDL (1.2)	<MDL (1.1)	<MDL (1.1)	<MDL (1.1)	<MDL (1.2)	16	57
Acenaphthylene	<MDL (2.4)	<MDL (2.2)	<MDL (2.2)	<MDL (2.2)	<MDL (2.3)	<MDL (2.3)	<MDL (2.4)	<MDL (2.4)	<MDL (2.3)	<MDL (3.8)	<MDL (2.9)	<MDL (2.6)	<MDL (2.4)	<MDL (2.5)	<MDL (2.3)	<MDL (2.6)	66	66
Anthracene	1.78	1.66	1.57	<MDL (0.60)	<MDL (0.60)	<MDL (0.61)	<MDL (0.63)	<MDL (0.67)	<MDL (0.62)	1.7	1.4, G	1.51	<MDL (0.62)	<MDL (0.65)	<MDL (0.62)	2.10	220	1,200
Fluorene	<MDL (2.1)	<MDL (1.9)	<MDL (2.0)	<MDL (1.9)	<MDL (2.0)	<MDL (2.0)	<MDL (2.1)	<MDL (2.1)	<MDL (2.0)	<MDL (3.3)	<MDL (2.6)	<MDL (2.2)	<MDL (2.0)	<MDL (2.1)	<MDL (2.0)	<MDL (2.3)	23	79
2-Methylnaphthalene	<MDL (2.2)	<MDL (2.1)	<MDL (2.1)	<MDL (2.1)	<MDL (2.1)	<MDL (2.2)	<MDL (2.3)	<MDL (2.3)	<MDL (2.2)	<MDL (3.5)	<MDL (2.8)	<MDL (2.4)	<MDL (2.2)	<MDL (2.3)	<MDL (2.2)	<MDL (2.5)	38	64
Naphthalene	<MDL (2.2)	<MDL (2.1)	<MDL (2.1)	<MDL (2.1)	<MDL (2.1)	<MDL (2.2)	<MDL (2.3)	<MDL (2.3)	<MDL (2.2)	<MDL (3.5)	<MDL (2.8)	<MDL (2.4)	<MDL (2.2)	<MDL (2.3)	<MDL (2.2)	<MDL (2.5)	99	170
Phenanthrene	2.86	2.51	2.58	1.0, G	0.83, G	<MDL (0.61)	<MDL (0.63)	<MDL (0.67)	<MDL (0.62)	1.2	<MDL (0.79)	1.1	1.1, G	1.51	0.94	3.15	100	480
Total LPAHs	4.64	4.17	4.15	1.0	0.83	<MDL(0.61-2.3)	<MDL(0.63-2.4)	<MDL(0.67-2.4)	<MDL(0.62-2.3)	2.9	1.4	2.6	1.1	1.51	0.94	5.25	370	780
HPAHs (mg/Kg OC)																		
Benzo(a)anthracene	3.36	6.06	2.75	1.45, G	1.03, G	0.769	0.806, G	0.805	0.949	1.60	1.26, G	1.90	1.17, G	1.38	1.19	1.90	110	270
Benzo(a)pyrene	4.50, B	8.82, B	3.26, B	0.924, B, G	0.83, B, E, G	<MDL (0.46)	<MDL (0.48)	<MDL (0.48)	<MDL (0.46)	<MDL (0.75)	<MDL (0.60)	<MDL (0.51)	1.80, B, G	2.79, B	2.01, B	2.59, B	99	210
Benzo(g,h,i)perylene	1.4	3.69	<MDL (1.2)	<MDL (1.2)	<MDL (1.2)	<MDL (1.2)	<MDL (1.3)	<MDL (1.3)	<MDL (1.2)	<MDL (2.1)	<MDL (1.6)	<MDL (1.4)	<MDL (1.2)	<MDL (1.3)	<MDL (1.3)	<MDL (1.4)	31	78
Total Benzofluoranthenes	4.83	12.4	4.49	1.7, G	<MDL (0.46)	<MDL (0.46)	<MDL (0.48)	<MDL (0.48)	<MDL (0.46)	<MDL (0.75)	<MDL (0.60)	1.3	2.4, G	3.26	2.1	2.3	230	450
Chrysene	3.51	6.06	3.14	1.51, G	0.76, G	<MDL (0.61)	<MDL (0.63)	<MDL (0.67)	<MDL (0.62)	<MDL (1.0)	<MDL (0.79)	1.3	0.87, G	1.56	1.1	1.53	110	460
Dibenzo(a,h)anthracene	1.9, B, L	2.50, B, L	1.8, B, L	<MDL (1.0)	<MDL (1.0)	<MDL (1.1)	<MDL (1.1)	<MDL (1.1)	<MDL (1.1)	<MDL (1.7)	<MDL (1.4)	<MDL (1.2)	1.9, B, G, L	2.35, B, L	<MDL (1.1)	<MDL (1.2)	12	33
Fluoranthene	5.74	7.08	5.14	3.02, G	1.52, G	<MDL (1.2)	<MDL (1.3)	<MDL (1.3)	1.5	2.1	<MDL (1.6)	3.27	1.7, G	2.77	1.9	4.06	160	1,200
Indeno(1,2,3-c,d)pyrene	3.02	5.33	2.5	<MDL (1.3)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.5)	<MDL (1.4)	<MDL (2.3)	<MDL (1.8)	<MDL (1.5)	<MDL (1.4)	2.1	<MDL (1.4)	1.7	34	88
Pyrene	7.09	13.2	6.30	1.80, G	1.32, G	1.2	1.2, G	1.3	1.27	2.05	1.6, G	1.67	1.40, G	3.26	2.97	4.25	1,000	1,400
Total HPAHs	35	65.1	29	10	5.5	2.0	2.0	2.1	3.7	5.8	2.9	9.4	11	19	11	18	960	5,300
Phthalates (mg/Kg OC)																		
Benzyl Butyl Phthalate	1.4	1.4	<MDL (0.92)	<MDL (0.89)	<MDL (0.90)	1.29	1.4, G	1.4	1.3	<MDL (1.5)	<MDL (1.2)	<MDL (1.0)	1.5, G	1.3	1.3	<MDL (1.1)	4.9	64
Bis(2-ethylhexyl) Phthalate	1.9, B	4.21, B	30.1, B	6.04, B, G	2.76, B, G	3.17, B	5.29, B, G	4.80, B	6.37, B	17.8, B	18.9, B, G	2.4, B	31.9, B, G	27.6, B	2.2, B	10.3, B	47	78
Diethyl Phthalate	<MDL (0.94)	<MDL (0.90)	<MDL (0.92)	<MDL (0.89)	<MDL (0.90)	<MDL (0.95)	<MDL (0.94)	<MDL (0.96)	<MDL (0.96)	<MDL (1.5)	<MDL (1.2)	<MDL (1.0)	<MDL (0.93)	<MDL (0.99)	<MDL (0.94)	<MDL (1.1)	61	110
Dimethyl Phthalate	<MDL (1.7)	<MDL (1.7)	<MDL (1.6)	<MDL (1.7)	<MDL (1.7)	<MDL (1.7)	<MDL (1.8)	<MDL (1.8)	<MDL (1.7)	<MDL (2.8)	<MDL (2.2)	<MDL (1.9)	<MDL (1.7)	<MDL (1.8)	<MDL (1.7)	<MDL (2.0)	53	53
Di-N-butyl Phthalate	2.13, B	1.87, B	2.02, B	2.14, B, G	1.90, B, G	2.35, B	2.49, B, G	2.47, B	2.00, B	3.83, B	3.16, B, G	2.35, B	2.64, B, G	2.47, B	2.21, B	2.76, B	220	1,700
Di-N-octyl Phthalate	<MDL (1.3)	<MDL (1.2)	<MDL (1.2)	3.06, G	<MDL (1.2)	2.3	<MDL (1.3)	<MDL (1.3)	<MDL (1.2)	<MDL (2.1)	<MDL (1.6)	<MDL (1.4)	<MDL (1.2)	<MDL (1.3)	<MDL (1.3)	<MDL (1.4)	58	4,500
Chlorobenzenes (mg/Kg OC)																		
1,2-Dichlorobenzene	<MDL (0.041)	<MDL (0.039)	<MDL (0.039)	<MDL (0.039)	<MDL (0.039)	<MDL (0.040)	<MDL (0.041)	<MDL (0.041)	<MDL (0.040)	<MDL (0.065)	<MDL (0.051)	<MDL (0.045)	<MDL (0.040)	<MDL (0.042)	<MDL (0.040)	<MDL (0.045)	2.3	2.3
1,3-Dichlorobenzene(4)	<MDL (0.57)	<MDL (0.56)	<MDL (0.55)	<MDL (0.61)	<MDL (0.57)	<MDL (0.59)	<MDL (0.66)	<MDL (0.68)	<MDL (0.63)	<MDL (0.37)	<MDL (0.35)	<MDL (0.35)	<MDL (0.65)	<MDL (0.64)	<MDL (0.64)	<MDL (0.46)	170	1,241(3)
1,4-Dichlorobenzene	<MDL (0.021)	<MDL (0.019)	<MDL (0.020)	<MDL (0.020)	<MDL (0.019)	<MDL (0.020)	<MDL (0.021)	<MDL (0.021)	<MDL (0.020)	,MDL (0.033)	<MDL (0.026)	<MDL (0.022)	<MDL (0.020)	<MDL (0.021)	<MDL (0.020)	<MDL (0.023)	3.1	9
1,2,4-Trichlorobenzene	<MDL (0.041)	<MDL (0.039)	<MDL (0.039)	<MDL (0.039)	<MDL (0.039)	<MDL (0.040)	<MDL (0.041)	<MDL (0.041)	<MDL (0.040)	<MDL (0.065)	<MDL (0.051)	<MDL (0.045)	<MDL (0.040)	<MDL (0.042)	<MDL (0.040)	<MDL (0.045)	0.81	1.8
Hexachlorobenzene	<MDL (0.10)	<MDL (0.097)	<MDL (0.099)	<MDL (0.096)	<MDL (0.097)	<MDL (0.10)	<MDL (0.11)	<MDL (0.10)	<MDL (0.10)	<MDL (0.17)	<MDL (0.13)	<MDL (0.11)	<MDL (0.11)	<MDL (0.11)	<MDL (0.10)	<MDL (0.12)	0.38	2.3

Table 2
Marine Sediment Chemistry Results - *Diffuser Zone Sediments*
Baseline Sediment Characterization Study
Brightwater Candidate Marine Outfall Zones

BrightWater
Marine Outfall Siting Study

	Z5-1	Z5-2	Z5-3	Z6-SB-1	Z6-SB-2	Z6-SB-3	Z7-SNB-1	Z7-SNB-2	Z7-SNB-3	Z7-SSA-1	Z7-SSA-2	Z7-SSA-3	Z7-SSB-1	Z7-SSB-2	Z7-SSB-3	OSZ-1	SQS/SL(1)	CSL/ML(2)
Other Non-Ionic Organics (mg/Kg OC)																		
Dibenzofuran	<MDL (2.2)	<MDL (2.1)	<MDL (2.1)	<MDL (2.1)	<MDL (2.1)	<MDL (2.2)	<MDL (2.3)	<MDL (2.3)	<MDL (2.2)	<MDL (3.5)	<MDL (2.8)	<MDL (2.4)	<MDL (2.2)	<MDL (2.3)	<MDL (2.2)	<MDL (2.5)	15	58
Hexachlorobutadiene	<MDL (0.12)	<MDL (0.11)	<MDL (0.11)	<MDL (0.11)	<MDL (0.11)	<MDL (0.12)	<MDL (0.12)	<MDL (0.12)	<MDL (0.11)	<MDL (0.19)	<MDL (0.15)	<MDL (0.13)	<MDL (0.12)	<MDL (0.12)	<MDL (0.12)	<MDL (0.13)	3.9	6.2
Hexachloroethane(4)	<MDL (33)	<MDL (32)	<MDL (32)	<MDL (35)	<MDL (33)	<MDL (34)	<MDL (38)	<MDL (39)	<MDL (36)	<MDL (22)	<MDL (20)	<MDL (20)	<MDL (38)	<MDL (37)	<MDL (37)	<MDL (27)	1,400	14,000
N-Nitrosodiphenylamine	<MDL (3.2)	<MDL (3.0)	<MDL (3.0)	<MDL (3.0)	<MDL (3.0)	<MDL (3.1)	<MDL (3.2)	<MDL (3.2)	<MDL (3.1)	<MDL (5.1)	<MDL (4.0)	<MDL (3.5)	<MDL (3.1)	<MDL (3.2)	(MDL (3.1)	<MDL (3.5)	11	11
PCBs (mg/Kg OC)																		
Aroclor 1016	<MDL (0.21)	<MDL (0.19)	<MDL (0.20)	<MDL (0.20)	<MDL (0.19)	<MDL (0.20)	<MDL (0.21)	<MDL (0.21)	<MDL (0.20)	<MDL (0.33)	<MDL (0.26)	<MDL (0.22)	<MDL (0.20)	<MDL (0.21)	<MDL (0.20)	<MDL (0.23)	n/a	n/a
Aroclor 1221	<MDL (0.40)	<MDL (0.38)	<MDL (0.37)	<MDL (0.38)	<MDL (0.38)	<MDL (0.39)	<MDL (0.40)	<MDL (0.40)	<MDL (0.39)	<MDL (0.63)	<MDL (0.50)	<MDL (0.42)	<MDL (0.39)	<MDL (0.40)	<MDL (0.39)	<MDL (0.44)	n/a	n/a
Aroclor 1232	<MDL (0.40)	<MDL (0.38)	<MDL (0.37)	<MDL (0.38)	<MDL (0.38)	<MDL (0.39)	<MDL (0.40)	<MDL (0.40)	<MDL (0.39)	<MDL (0.63)	<MDL (0.50)	<MDL (0.42)	<MDL (0.39)	<MDL (0.40)	<MDL (0.39)	<MDL (0.44)	n/a	n/a
Aroclor 1242	<MDL (0.21)	<MDL (0.19)	<MDL (0.20)	<MDL (0.20)	<MDL (0.19)	<MDL (0.20)	<MDL (0.21)	<MDL (0.21)	<MDL (0.20)	<MDL (0.33)	<MDL (0.26)	<MDL (0.22)	<MDL (0.20)	<MDL (0.21)	<MDL (0.20)	<MDL (0.23)	n/a	n/a
Aroclor 1248	<MDL (0.21)	<MDL (0.19)	<MDL (0.20)	<MDL (0.20)	<MDL (0.19)	<MDL (0.20)	<MDL (0.21)	<MDL (0.21)	<MDL (0.20)	<MDL (0.33)	<MDL (0.26)	<MDL (0.22)	<MDL (0.20)	<MDL (0.21)	<MDL (0.20)	<MDL (0.23)	n/a	n/a
Aroclor 1254	<MDL (0.21)	<MDL (0.19)	<MDL (0.20)	<MDL (0.20)	<MDL (0.19)	<MDL (0.20)	<MDL (0.21)	<MDL (0.21)	<MDL (0.20)	<MDL (0.33)	<MDL (0.26)	<MDL (0.22)	<MDL (0.20)	<MDL (0.21)	<MDL (0.20)	<MDL (0.23)	n/a	n/a
Aroclor 1260	<MDL (0.21)	<MDL (0.19)	<MDL (0.20)	<MDL (0.20)	<MDL (0.19)	<MDL (0.20)	<MDL (0.21)	<MDL (0.21)	<MDL (0.20)	<MDL (0.33)	<MDL (0.26)	<MDL (0.22)	<MDL (0.20)	<MDL (0.21)	<MDL (0.20)	<MDL (0.23)	n/a	n/a
Total PCBs	<MDL(0.21-0.40)	<MDL(0.19-0.38)	<MDL(0.20-0.37)	<MDL(0.20-0.38)	<MDL(0.19-0.38)	<MDL(0.20-0.39)	<MDL(0.21-0.40)	<MDL(0.21-0.40)	<MDL(0.20-0.39)	<MDL(0.33-0.63)	<MDL(0.26-0.50)	<MDL(0.22-0.42)	<MDL(0.20-0.39)	<MDL(0.21-0.40)	<MDL(0.20-0.39)	<MDL(0.23-0.44)	12	65
Ionic Organics (µg/Kg DW)																		
Benzoic Acid	239, X	213, X	210, X	232, X	225, G, X	262, G, X	263, G, X	268, G, X	253, X	146, G, X	142, G, X	140, G, X	247, G, X	237, X	243, X	193, X	650	650
Benzyl Alcohol	<MDL (13)	<MDL (13)	<MDL (13)	<MDL (14)	<MDL (13)	<MDL (14)	<MDL (15)	<MDL (16)	<MDL (15)	<MDL (8.6)	<MDL (8.1)	<MDL (8.0)	<MDL (15)	<MDL (15)	<MDL (15)	<MDL (11)	57	73
2-Methylphenol	<MDL (42)	<MDL (41)	<MDL (40)	<MDL (45)	<MDL (41)	<MDL (43)	<MDL (48)	<MDL (50)	<MDL (46)	<MDL (27)	<MDL (26)	<MDL (25)	<MDL (48)	<MDL (47)	<MDL (47)	<MDL (34)	63	63
4-Methylphenol	<MDL (35)	<MDL (34)	<MDL (34)	<MDL (38)	<MDL (35)	<MDL (36)	<MDL (41)	<MDL (42)	<MDL (39)	<MDL (23)	<MDL (22)	<MDL (21)	<MDL (40)	<MDL (39)	<MDL (40)	<MDL (29)	670	670
2,4-Dimethylphenol	<MDL (15)	<MDL (15)	<MDL (15)	<MDL (16)	<MDL (15)	<MDL (16)	<MDL (18)	<MDL (18)	<MDL (17)	<MDL (10)	<MDL (9.5)	<MDL (9.3)	<MDL (18)	<MDL (17)	<MDL (17)	<MDL (12)	29	29
Pentachlorophenol	<MDL (11)	<MDL (11)	<MDL (11)	<MDL (12)	<MDL (11)	<MDL (11)	<MDL (13)	<MDL (13)	<MDL (12)	<MDL (7.2)	<MDL (6.8)	<MDL (6.7)	<MDL (13)	<MDL (12)	<MDL (12)	<MDL (8.9)	360	690
Phenol	<MDL (20)	<MDL (19)	<MDL (19)	<MDL (21)	<MDL (20)	<MDL (20)	<MDL (23)	<MDL (24)	<MDL (22)	<MDL (13)	<MDL (12)	<MDL (12)	<MDL (23)	<MDL (22)	<MDL (22)	<MDL (16)	420	1,200
Pesticides (µg/Kg DW)																		
4,4'-DDD	<MDL (2.2)	<MDL (2.2)	<MDL (2.1)	<MDL (2.3)	<MDL (2.2)	<MDL (2.3)	<MDL (2.6)	<MDL (2.6)	<MDL (2.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.3)	<MDL (2.5)	<MDL (2.5)	<MDL (2.5)	<MDL (1.8)	n/a	n/a
4,4'-DDE	<MDL (2.2)	<MDL (2.2)	<MDL (2.1)	<MDL (2.3)	<MDL (2.2)	<MDL (2.3)	<MDL (2.6)	<MDL (2.6)	<MDL (2.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.3)	<MDL (2.5)	<MDL (2.5)	<MDL (2.5)	<MDL (1.8)	n/a	n/a
4,4'-DDT	<MDL (2.2)	<MDL (2.2)	<MDL (2.1)	<MDL (2.3)	<MDL (2.2)	<MDL (2.3)	<MDL (2.6)	<MDL (2.6)	<MDL (2.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.3)	<MDL (2.5)	<MDL (2.5)	6.19	<MDL (1.8)	n/a	n/a
Total DDT	<MDL (2.2)	<MDL (2.2)	<MDL (2.1)	<MDL (2.3)	<MDL (2.2)	<MDL (2.3)	<MDL (2.6)	<MDL (2.6)	<MDL (2.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.3)	<MDL (2.5)	<MDL (2.5)	6.19	<MDL (1.8)	6.9	69
Aldrin	<MDL (2.2)	<MDL (2.2)	<MDL (2.1)	<MDL (2.3)	<MDL (2.2)	<MDL (2.3)	<MDL (2.6)	<MDL (2.6)	<MDL (2.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.3)	<MDL (2.5)	<MDL (2.5)	<MDL (2.5)	<MDL (1.8)	10	37(3)
Chlordane	<MDL (1.1)	<MDL (1.1)	<MDL (1.1)	<MDL (1.2)	<MDL (1.1)	<MDL (1.1)	<MDL (1.3)	<MDL (1.3)	<MDL (1.2)	<MDL (0.72)	<MDL (0.68)	<MDL (0.67)	<MDL (1.3)	<MDL (1.2)	<MDL (1.2)	<MDL (0.89)	10	37(3)
Dieldrin	<MDL (2.2)	<MDL (2.2)	<MDL (2.1)	<MDL (2.3)	<MDL (2.2)	<MDL (2.3)	<MDL (2.6)	<MDL (2.6)	<MDL (2.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.3)	<MDL (2.5)	<MDL (2.5)	<MDL (2.5)	<MDL (1.8)	10	37(3)
Gamma-BHC (Lindane)	<MDL (1.1)	<MDL (1.1)	<MDL (1.1)	<MDL (1.2)	<MDL (1.1)	<MDL (1.1)	<MDL (1.3)	<MDL (1.3)	<MDL (1.2)	<MDL (0.72)	<MDL (0.68)	<MDL (0.67)	<MDL (1.3)	<MDL (1.2)	<MDL (1.2)	<MDL (0.89)	10	n/a
Heptachlor	<MDL (1.1)	<MDL (1.1)	<MDL (1.1)	<MDL (1.2)	<MDL (1.1)	<MDL (1.1)	<MDL (1.3)	<MDL (1.3)	<MDL (1.2)	<MDL (0.72)	<MDL (0.68)	<MDL (0.67)	<MDL (1.3)	<MDL (1.2)	<MDL (1.2)	<MDL (0.89)	10	37(3)

Notes

(1) - Criteria from Chapter 173-204 WAC - Sediment Quality Standard (SQS) values with the exception of antimony, nickel, 1,3-dichlorobenzene, hexachloroethane, pesticides, and butyltin isomers. Exceptions are PSDDA Screening Level (SL) values.
(2) - Criteria from Chapter 173-204 WAC - Cleanup Screening Level (CSL) values with the exception of antimony, nickel, 1,3-dichlorobenzene, hexachloroethane, pesticides, and butyltin isomers. Exceptions are PSDDA Maximum Level (ML) values.
(3) - Maximum Level criterion not provided. Numeric criterion is PSDDA Bioaccumulation Trigger (BT).
(4) - Analytical results for 1,3-dichlorobenzene and hexachloroethane provided in µg/Kg DW (not mg/Kg OC) for comparison to dry weight PSDDA criteria.
mg/Kg DW - Milligrams per kilogram normalized to dry weight (based on sample-specific percent solids analysis).
µg/Kg DW - Micrograms per kilogram normalized to dry weight (based on sample-specific percent solids analysis).
mg/Kg OC - Milligrams per kilogram normalized to organic carbon (based on sample-specific total organic carbon analysis).
n/a - Not applicable (no criterion available).
<MDL (#) - Analytical result is less than the *method detection limit* (MDL). Value in parentheses is numeric MDL.
LPAHs - Low molecular weight polynuclear aromatic hydrocarbons.
HPAHs - High molecular weight polynuclear aromatic hydrocarbons.
PCBs - Polychlorinated biphenyls.
B - Sample analysis compromised by probable laboratory contamination with target analyte.
E - Result is considered an estimate due to quality control sample results.
G - Possible low-biased datapoint due to quality control sample results.
L - Possible high-biased datapoint due to quality control sample results.
X - Probable low-biased datapoint due to quality control sample results.

Table 3
Marine Sediment Chemistry Results - *Nearshore Sediments*
Baseline Sediment Characterization Study
Brightwater Candidate Marine Outfall Zones

BrightWater
Marine Outfall Siting Study

	Z5-TRSED-1	Z5-TRSED-2	Z5-TRSED-3	Z6-TRSED-1	Z6-TRSED-2	Z6-TRSED-3*	Z7-TRSED-1	Z7-TRSED-2	Z7-TRSED-3	SQS/SL(1)	CSL/ML(2)
Conventionals (see units below)											
Solids (%)	75.7	72.4	71.4	73.8	72.6	71.5	60.0	65.1	71.7	n/a	n/a
Volatile Solids (%)	0.639	0.666	0.920	0.981	0.865	0.621	2.40	1.59	0.614	n/a	n/a
Total Organic Carbon (mg/Kg DW)	2,020	2,320	3,730	3,620	2,130	2,010	16,800	8,990	1,490	n/a	n/a
Clay (%)	<MDL (0.1)	0.1	0.1	<MDL (0.1)	<MDL (0.1)	<MDL (0.1)	3.6	3.2	<MDL (0.1)	n/a	n/a
Silt (%)	2.8, E	2.0, E	3.7, E	6.6, E	2.5, E	3.7, E	11.7, E	11.5, E	3.4, E	n/a	n/a
Sand (%)	96.5	96.3	92.3	91.5	94.6	96.3	83.0	83.4	95.7	n/a	n/a
Gravel (%)	0.8	1.6	3.9	1.8	2.9	<MDL (0.1)	1.7	1.9	0.8	n/a	n/a
Ammonia (mg/Kg DW)	2.42	2.39	2.49	0.977	0.992	2.89	3.35	2.89	1.94	n/a	n/a
Total Sulfides (mg/Kg DW)	3.30	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	1.6	15.2	<MDL (1.5)	<MDL (1.4)	n/a	n/a
Metals (mg/Kg DW)											
Antimony	<MDL (2.0)	<MDL (2.1)	<MDL (2.1)	<MDL (2.0)	<MDL (2.1)	<MDL (2.1)	<MDL (2.5)	<MDL (2.3)	<MDL (2.1)	150	200
Arsenic	<MDL (3.3)	<MDL (3.6)	<MDL (3.5)	<MDL (3.5)	<MDL (3.4)	<MDL (3.5)	<MDL (4.2)	<MDL (3.8)	<MDL (3.6)	57	93
Cadmium	<MDL (0.20)	<MDL (0.21)	<MDL (0.21)	<MDL (0.20)	<MDL (0.21)	<MDL (0.21)	<MDL (0.25)	<MDL (0.23)	<MDL (0.21)	5.1	6.7
Chromium	12.4	13.0	16.8	16.9	15.4	10.1	28.2	22.0	15.1	260	270
Copper	6.57	5.66	4.24	7.09	5.70	3.52	33.3	16.7	5.09	390	390
Lead	3.2	3.2	4.9	4.5	3.6	2.8	29.2	15.7	4.2	450	530
Mercury	<MDL (0.026)	<MDL (0.028)	<MDL (0.028)	<MDL (0.027)	<MDL (0.028)	<MDL (0.028)	0.11	0.12	<MDL (0.028)	0.41	0.59
Nickel	9.35	8.66	12.1	20.9	17.5	10.0	33.3	25.5	16.5	140	370
Silver	<MDL (0.26)	<MDL (0.29)	<MDL (0.28)	<MDL (0.27)	<MDL (0.28)	<MDL (0.28)	<MDL (0.33)	<MDL (0.31)	<MDL (0.28)	6.1	6.1
Zinc	21.0	19.2	18.5	26.3	21.3	15.8	63.2	38.1	19.2	410	960
LPAHs (mg/Kg OC)											
Acenaphthene	<MDL (4.6)	<MDL (4.2)	<MDL (2.6)	<MDL (2.6)	<MDL (4.5)	<MDL (5.0)	<MDL (0.71)	<MDL (1.2)	<MDL (6.6)	16	57
Acenaphthylene	<MDL (9.9)	<MDL (9.1)	<MDL (5.6)	<MDL (5.5)	<MDL (9.9)	<MDL (11)	2.8	<MDL (2.6)	<MDL (14)	66	66
Anthracene	<MDL (2.6)	<MDL (2.4)	<MDL (1.5)	4.39, G	<MDL (2.6)	<MDL (2.8)	11.3, G	5.14, G	<MDL (3.8)	220	1,200
Fluorene	<MDL (8.4)	<MDL (7.8)	<MDL (4.8)	<MDL (5.0)	<MDL (8.5)	<MDL (9.1)	3.04	<MDL (2.2)	<MDL (12)	23	79
2-Methylnaphthalene	<MDL (8.9)	<MDL (8.2)	<MDL (5.4)	<MDL (5.2)	<MDL (8.9)	<MDL (9.9)	<MDL (1.4)	<MDL (2.4)	<MDL (13)	38	64
Naphthalene	<MDL (8.9)	<MDL (8.2)	<MDL (5.4)	<MDL (5.2)	<MDL (8.9)	<MDL (9.9)	<MDL (1.4)	<MDL (2.4)	<MDL (13)	99	170
Phenanthrene	<MDL (2.6)	3.4	2.5	14.3, G	<MDL (2.6)	<MDL (2.8)	27.0	11.2	<MDL (3.8)	100	480
Total LPAHs	<MDL (2.6-9.9)	3.4	2.5	18.7	<MDL (2.6-9.9)	<MDL (2.8-11)	44	16.3	<MDL (3.8-14)	370	780
HPAHs (mg/Kg OC)											
Benzo(a)anthracene	<MDL (1.3)	3.62	2.45	13.2, G	5.40	<MDL (1.4)	28.4	14.1	<MDL (1.9)	110	270
Benzo(a)pyrene	<MDL (2.0)	4.48, B	3.35, B	12.9, B, G	5.77, B	<MDL (2.1)	26.3, B	15.5, B	<MDL (2.8)	99	210
Benzo(g,h,i)perylene	<MDL (5.4)	<MDL (4.7)	<MDL (2.9)	6.93, G	<MDL (5.2)	<MDL (5.6)	11.2	6.53	<MDL (7.4)	31	78
Total Benzofluoranthenes	<MDL (2.0)	6.7, B	4.9, B	22.3, B, G	10, B	<MDL (2.1)	58.3, B	24.0, B	<MDL (2.8)	230	450
Chrysene	<MDL (2.6)	3.1	2.7	25.2, G	3.7	<MDL (2.8)	46.3	17.9	<MDL (3.8)	110	460
Dibenzo(a,h)anthracene	<MDL (4.6)	<MDL (4.2)	<MDL (2.6)	<MDL (2.6)	<MDL (4.5)	<MDL (5.0)	4.04	1.7	<MDL (6.6)	12	33
Fluoranthene	<MDL (5.4)	9.5, L	6.0, L	43.4, G, L	6.6, L	<MDL (5.6)	159, E, L	44.9, L	<MDL (7.4)	160	1,200
Indeno(1,2,3-c,d)pyrene	<MDL (5.9)	<MDL (5.2)	<MDL (3.5)	6.4, G	<MDL (5.6)	<MDL (6.3)	11.4	5.87	<MDL (8.7)	34	88
Pyrene	<MDL (2.6)	5.47	4.13	25.4, G	3.2	<MDL (2.8)	87.5	27.5	<MDL (3.8)	1,000	1,400
Total HPAHs	<MDL (1.3-5.9)	33	24	160	35	<MDL (1.4-6.3)	432	160	<MDL (1.9-8.7)	960	5,300
Phthalates (mg/Kg OC)											
Benzyl Butyl Phthalate	<MDL (3.9)	<MDL (3.6)	<MDL (2.3)	<MDL (2.2)	<MDL (3.9)	<MDL (4.3)	<MDL (0.60)	<MDL (1.0)	<MDL (5.6)	4.9	64
Bis(2-ethylhexyl) Phthalate	<MDL (4.4)	4.3	2.5	7.82, G	8.5	3.5	5.54	3.19	<MDL (6.2)	47	78
Diethyl Phthalate	<MDL (3.9)	<MDL (3.6)	<MDL (2.3)	<MDL (2.2)	<MDL (3.9)	<MDL (4.3)	<MDL (0.60)	<MDL (1.0)	<MDL (5.6)	61	110
Dimethyl Phthalate	<MDL (7.4)	<MDL (6.5)	<MDL (4.0)	<MDL (4.1)	<MDL (7.0)	<MDL (7.8)	<MDL (1.1)	<MDL (1.9)	<MDL (10)	53	53
Di-N-butyl Phthalate	<MDL (3.3)	6.42, B	4.8, B	2.8, B, G	4.3, B	5.10, B	0.83, B	1.7, B	<MDL (4.7)	220	1,700
Di-N-octyl Phthalate	<MDL (5.4)	<MDL (4.7)	<MDL (2.9)	<MDL (3.0)	<MDL (5.2)	<MDL (5.6)	<MDL (0.77)	<MDL (1.3)	<MDL (7.4)	58	4,500
Chlorobenzenes (mg/Kg OC)											
1,2-Dichlorobenzene	<MDL (0.17)	<MDL (0.16)	<MDL (0.10)	<MDL (0.10)	<MDL (0.17)	<MDL (0.18)	<MDL (0.026)	<MDL (0.044)	<MDL (0.24)	2.3	2.3
1,3-Dichlorobenzene(4)	<MDL (0.34)	<MDL (0.36)	<MDL (0.36)	<MDL (0.35)	<MDL (0.36)	<MDL (0.37)	<MDL (0.43)	<MDL (0.40)	<MDL (0.36)	170	1,241(3)
1,4-Dichlorobenzene	<MDL (0.084)	<MDL (0.077)	<MDL (0.048)	<MDL (0.050)	<MDL (0.085)	<MDL (0.091)	<MDL (0.013)	<MDL (0.022)	<MDL (0.12)	3.1	9
1,2,4-Trichlorobenzene	<MDL (0.17)	<MDL (0.16)	<MDL (0.10)	<MDL (0.10)	<MDL (0.17)	<MDL (0.18)	<MDL (0.026)	<MDL (0.044)	<MDL (0.24)	0.81	1.8
Hexachlorobenzene	<MDL (0.43)	<MDL (0.39)	<MDL (0.25)	<MDL (0.25)	<MDL (0.43)	<MDL (0.47)	<MDL (0.065)	<MDL (0.11)	<MDL (0.62)	0.38	2.3

Table 3
Marine Sediment Chemistry Results - *Nearshore Sediments*
Baseline Sediment Characterization Study
Brightwater Candidate Marine Outfall Zones

BrightWater
Marine Outfall Siting Study

	Z5-TRSED-1	Z5-TRSED-2	Z5-TRSED-3	Z6-TRSED-1	Z6-TRSED-2	Z6-TRSED-3*	Z7-TRSED-1	Z7-TRSED-2	Z7-TRSED-3	SQS/SL(1)	CSL/ML(2)
Other Non-Ionic Organics (mg/Kg OC)											
Dibenzofuran	<MDL (8.9)	<MDL (8.2)	<MDL (5.4)	<MDL (5.2)	<MDL (8.9)	<MDL (10)	1.5	<MDL (2.4)	<MDL (13)	15	58
Hexachlorobutadiene	<MDL (0.49)	<MDL (0.43)	<MDL (0.29)	<MDL (0.28)	<MDL (0.47)	<MDL (0.53)	<MDL (0.077)	<MDL (0.13)	<MDL (0.67)	3.9	6.2
Hexachloroethane(4)	<MDL (20)	<MDL (21)	<MDL (21)	<MDL (20)	<MDL (21)	<MDL (21)	<MDL (25)	<MDL (23)	<MDL (21)	1,400	14,000
N-Nitrosodiphenylamine	<MDL (13)	<MDL (12)	<MDL (7.5)	<MDL (7.5)	<MDL (13)	<MDL (14)	<MDL (2.0)	<MDL (3.4)	<MDL (19)	11	11
PCBs (mg/Kg OC)											
Aroclor 1016	<MDL (0.84)	<MDL (0.78)	<MDL (0.48)	<MDL (0.50)	<MDL (0.85)	<MDL (0.90)	<MDL (0.13)	<MDL (0.22)	<MDL (1.2)	n/a	n/a
Aroclor 1221	<MDL (1.6)	<MDL (1.5)	<MDL (0.94)	<MDL (0.94)	<MDL (1.6)	<MDL (1.8)	<MDL (0.25)	<MDL (0.42)	<MDL (2.3)	n/a	n/a
Aroclor 1232	<MDL (1.6)	<MDL (1.5)	<MDL (0.94)	<MDL (0.94)	<MDL (1.6)	<MDL (1.8)	<MDL (0.25)	<MDL (0.42)	<MDL (2.3)	n/a	n/a
Aroclor 1242	<MDL (0.84)	<MDL (0.78)	<MDL (0.48)	<MDL (0.50)	<MDL (0.85)	<MDL (0.90)	<MDL (0.13)	<MDL (0.22)	<MDL (1.2)	n/a	n/a
Aroclor 1248	<MDL (0.84)	<MDL (0.78)	<MDL (0.48)	<MDL (0.50)	<MDL (0.85)	<MDL (0.90)	<MDL (0.13)	<MDL (0.22)	<MDL (1.2)	n/a	n/a
Aroclor 1254	<MDL (0.84)	<MDL (0.78)	<MDL (0.48)	<MDL (0.50)	<MDL (0.85)	<MDL (0.90)	1.33	0.768	<MDL (1.2)	n/a	n/a
Aroclor 1260	<MDL (0.84)	<MDL (0.78)	<MDL (0.48)	<MDL (0.50)	<MDL (0.85)	<MDL (0.90)	0.827	0.653	<MDL (1.2)	n/a	n/a
Total PCBs	<MDL (0.84-1.6)	<MDL (0.78-1.5)	<MDL (0.48-0.94)	<MDL (0.50-0.94)	<MDL (0.85-1.6)	<MDL (0.90-1.8)	2.16	1.42	<MDL (1.2-2.3)	12	65
Ionic Organics (µg/Kg DW)											
Benzoic Acid	147, G	146, G	106, G	49.2, G	60.7, G	93.5, G	105, G	102, G	60.1, G	650	650
Benzyl Alcohol	<MDL (7.9)	<MDL (8.3)	<MDL (8.4)	<MDL (8.1)	<MDL (8.3)	<MDL (8.4)	<MDL (10)	<MDL (9.2)	<MDL (8.4)	57	73
2-Methylphenol	<MDL (25)	<MDL (26)	<MDL (27)	<MDL (26)	<MDL (26)	<MDL (27)	<MDL (32)	<MDL (29)	<MDL (26)	63	63
4-Methylphenol	<MDL (21)	<MDL (22)	<MDL (22)	<MDL (22)	<MDL (22)	<MDL (23)	<MDL (27)	<MDL (25)	<MDL (22)	670	670
2,4-Dimethylphenol	<MDL (9.2)	<MDL (9.7)	<MDL (9.8)	<MDL (9.5)	<MDL (9.6)	<MDL (9.8)	<MDL (12)	<MDL (11)	<MDL (9.8)	29	29
Pentachlorophenol	<MDL (6.6)	<MDL (6.9)	<MDL (7.0)	<MDL (6.8)	<MDL (6.9)	<MDL (7.0)	<MDL (8.3)	<MDL (7.7)	<MDL (7.0)	360	690
Phenol	31.4, E	26.5, E	15, E	<MDL (12)	<MDL (12)	<MDL (13)	<MDL (15)	<MDL (14)	<MDL (13)	420	1,200
Chlorinated Pesticides (µg/Kg DW)											
4,4'-DDD	<MDL (1.3)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.7)	<MDL (1.5)	<MDL (1.4)	n/a	n/a
4,4'-DDE	<MDL (1.3)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.7)	<MDL (1.5)	<MDL (1.4)	n/a	n/a
4,4'-DDT	<MDL (1.3)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.7)	<MDL (1.5)	<MDL (1.4)	n/a	n/a
Total DDT	<MDL (1.3)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.7)	<MDL (1.5)	<MDL (1.4)	6.9	69
Aldrin	<MDL (1.3)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.7)	<MDL (1.5)	<MDL (1.4)	10	37(3)
Chlordane	<MDL (0.66)	<MDL (0.69)	<MDL (0.70)	<MDL (0.68)	<MDL (0.69)	<MDL (0.71)	<MDL (0.83)	<MDL (0.77)	<MDL (0.70)	10	37(3)
Dieldrin	<MDL (1.3)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.4)	<MDL (1.7)	<MDL (1.5)	<MDL (1.4)	10	37(3)
Gamma-BHC (Lindane)	<MDL (0.66)	<MDL (0.69)	<MDL (0.70)	<MDL (0.68)	<MDL (0.69)	<MDL (0.71)	<MDL (0.83)	<MDL (0.77)	<MDL (0.70)	10	n/a
Heptachlor	<MDL (0.66)	<MDL (0.69)	<MDL (0.70)	<MDL (0.68)	<MDL (0.69)	<MDL (0.71)	<MDL (0.83)	<MDL (0.77)	<MDL (0.70)	10	37(3)

Notes

(1) - Criteria from Chapter 173-204 WAC - Sediment Quality Standard (SQS) values with the exception of antimony, nickel, 1,3-dichlorobenzene, hexachloroethane, pesticides, and butyltin isomers. Exceptions are PSDDA Screening Level (SL) values.
(2) - Criteria from Chapter 173-204 WAC - Cleanup Screening Level (CSL) values with the exception of antimony, nickel, 1,3-dichlorobenzene, hexachloroethane, pesticides, and butyltin isomers. Exceptions are PSDDA Maximum Level (ML) values.
(3) - Maximum Level criterion not provided. Numeric criterion is PSDDA Bioaccumulation Trigger (BT).
(4) - Analytical results for 1,3-dichlorobenzene and hexachloroethane provided in µg/Kg DW (not mg/Kg OC) for comparison to dry weight PSDDA criteria.
mg/Kg DW - Milligrams per kilogram normalized to dry weight (based on sample-specific percent solids analysis).
µg/Kg DW - Micrograms per kilogram normalized to dry weight (based on sample-specific percent solids analysis).
mg/Kg OC - Milligrams per kilogram normalized to organic carbon (based on sample-specific total organic carbon analysis).
n/a - Not applicable (no criterion available).
<MDL (#) - Analytical result is less than the *method detection limit* (MDL). Value in parentheses is numeric MDL.
LPAHs - Low molecular weight polynuclear aromatic hydrocarbons.
HPAHs - High molecular weight polynuclear aromatic hydrocarbons.
PCBs - Polychlorinated biphenyls.
* - Chemistry results for station Z6-TRSED-3 are the average of analytical results from two replicate samples collected for the purpose of field quality control.
B - Sample analysis compromised by probable laboratory contamination with target analyte.
E - Result is considered an estimate due to quality control sample results.
G - Possible low-biased datapoint due to quality control sample results.
L - Possible high-biased datapoint due to quality control sample results.

Table 4
Benthic Infauna Analysis Summary - *Diffuser Zone Sediments*
Baseline Sediment Characterization Study
Brightwater Candidate Marine Outfall Zones

BrightWater
Marine Outfall Siting Study

Physical Characteristics

Parameter (wet weight except for carbon)	Z5-1	Z5-2	Z5-3	Z6-SB-1	Z6-SB-2	Z6-SB-3	Z7-SNB-1	Z7-SNB-2	Z7-SNB-3	Z7-SSA-1	Z7-SSA-2	Z7-SSA-3	Z7-SSB-1	Z7-SSB-2	Z7-SSB-3	OSZ-1
Percent Solids	45.6	46.4	47.1	42.6	45.8	44.2	39.2	38.0	41.1	69.4	74.0	74.9	39.8	40.8	40.4	56.1
Percent Clay	16.0	17.7	15.0	17.6	16.9	16.7	17.1	17.4	19.2	4.7	4.5	4.2	17.9	17.0	17.4	16.5
Percent Silt	32.7	35.8	26.5	44.2	33.0	33.7	36.3	54.6	43.8	9.6	8.2	34.5	37.7	44.5	38.5	11.6
Percent Sand	50.3	45.2	50.9	37.4	49.3	47.6	45.8	27.5	36.9	84.2	65.8	42.7	43.1	37.8	43.1	70.9
Percent Gravel	1.0	1.2	7.7	0.6	0.9	2.0	0.6	0.6	0.3	1.3	21.6	18.7	1.2	0.6	1.3	1.2
Total Organic Carbon (mg/Kg dry weight)	13,800	14,400	14,200	15,700	14,500	14,700	16,000	16,400	15,700	5,720	6,810	7,800	16,100	15,100	16,000	10,200
Percent Total Organic Carbon (dry weight)	1.4	1.4	1.4	1.6	1.5	1.5	1.6	1.6	1.6	0.6	0.7	0.8	1.6	1.5	1.6	1.0
Station Depth (m)	**155**	**145**	**125**	**182**	**173**	**173**	**184**	**179**	**181**	**86**	**85**	**89**	**200**	**206**	**213**	**175**

Benthic Community Indices

Parameter	Z5-1	Z5-2	Z5-3	Z6-SB-1	Z6-SB-2	Z6-SB-3	Z7-SNB-1	Z7-SNB-2	Z7-SNB-3	Z7-SSA-1	Z7-SSA-2	Z7-SSA-3	Z7-SSB-1	Z7-SSB-2	Z7-SSB-3	OSZ-1
Total Richness (# of species/0.1 m^2)	**51**	**57**	**63**	**38**	**45**	**47**	**42**	**45**	**44**	**112**	**130**	**146**	**43**	**47**	**49**	**75**
Annelida Richness	21	25	30	14	19	21	12	17	19	63	70	81	17	19	19	29
Crustacea Richness	16	17	18	12	14	12	16	15	12	20	25	31	12	14	14	25
Mollusca Richness	13	13	12	9	11	12	12	12	11	22	25	21	13	12	13	15
Miscellaneous Taxa Richness	1	2	3	3	1	2	2	1	2	7	10	13	1	2	3	6
Total Abundance (# of individuals/0.1 m^2)	**421**	**444**	**514**	**1,029**	**768**	**809**	**1,262**	**1,141**	**930**	**564**	**637**	**774**	**1,006**	**1,136**	**1,343**	**775**
Annelida Abundance	52	66	102	30	39	46	23	41	29	356	373	462	33	44	48	106
Crustacea Abundance	147	140	121	123	116	132	155	140	119	49	68	92	112	133	153	255
Mollusca Abundance	221	236	287	873	612	627	1,081	958	779	144	163	146	860	957	1,136	406
Miscellaneous Abundance	1	2	4	3	1	4	3	2	3	15	33	74	1	2	6	8
Total Biomass (g/0.1 m^2)	**18.06**	**19.87**	**16.87**	**73.77**	**15.49**	**24.57**	**11.35**	**20.29**	**90.37**	**7.7**	**8.3**	**10.22**	**18.64**	**53.36**	**17.15**	**116.14**
Annelida Biomass	13.24	13.95	12.79	1.65	11.06	10.51	3.68	11.86	5.50	3.91	4.43	7.14	5.40	3.39	3.78	16.58
Crustacea Biomass	1.54	0.79	0.88	0.13	0.44	0.55	0.24	0.3	0.11	0.33	0.25	0.39	0.18	0.19	0.29	1.10
Mollusca Biomass	3.18	4.81	3.12	9.05	3.99	11.19	7.42	8.13	6.28	3.37	3.22	2.27	6.21	7.67	9.31	16.86
Miscellaneous Biomass	0.10	0.32	0.08	62.94	<0.01	2.32	0.01	<0.01	78.48	0.09	0.40	0.42	6.85	42.11	3.77	81.60
Shannon-Wiener Diversity Index	**3.59**	**3.81**	**4.00**	**1.30**	**2.06**	**2.22**	**1.43**	**1.59**	**1.52**	**5.62**	**5.96**	**6.18**	**1.60**	**1.57**	**1.67**	**3.64**
Pielou's Evenness Index	**0.63**	**0.65**	**0.67**	**0.25**	**0.38**	**0.40**	**0.26**	**0.29**	**0.28**	**0.83**	**0.85**	**0.86**	**0.30**	**0.28**	**0.30**	**0.59**
Swartz's Dominance Index	**6**	**8**	**10**	**1**	**2**	**2**	**1**	**1**	**1**	**35**	**45**	**47**	**1**	**1**	**1**	**9**

Total Richness is the average number of species per 0.1 square meter found in three replicate samples at each station.

Total Abundance is the average number of individual organisms per 0.1 square meter found in three replicate samples at each station.

Total Biomass is the average biomass measured over three replicate samples at each station and is expressed in grams per 0.1 square meter.

The Shannon-Wiener Diversity Index is a measure of the relationship between taxa richness and abundance.

Pielou's Evenness Index is expressed as the observed diversity of a sample as a proportion of the maximum possible diversity.

Swartz's Dominance Index is the minimum number of species comprising 75% of the total abundance.

Table 5
Benthic Infauna Dominant Species - *Diffuser Zone Sediments*
Baseline Sediment Characterization Study
Brightwater Candidate Marine Outfall Zones

BrightWater
Marine Outfall Siting Study

Z5-1 Taxa	Group	Number	Percent
Macoma carlottensis	Mollusca	167	39.6
Euphilomedes producta	Crustacea	61	14.5
Pinnixa schmitti/occidentalis	Crustacea	33	7.9
Axinopsida serricata	Mollusca	30	7.1
Eudorella pacifica	Crustacea	16	3.7
Praxillella pacifica	Annelida	10	2.4

Z5-2 Taxa	Group	Number	Percent
Macoma carlottensis	Mollusca	118	26.6
Axinopsida serricata	Mollusca	89	20.0
Euphilomedes producta	Crustacea	64	14.5
Pinnixa schmitti/occidentalis	Crustacea	32	7.1
Praxillella pacifica	Annelida	8	1.9
Eudorella pacifica	Crustacea	8	1.8
Lirobittium eschrichtii	Mollusca	8	1.7
Pectinaria californiensis	Annelida	7	1.7

Z5-3 Taxa	Group	Number	Percent
Axinopsida serricata	Mollusca	138	26.9
Macoma carlottensis	Mollusca	107	20.8
Pinnixa schmitti/occidentalis	Crustacea	42	8.2
Euphilomedes producta	Crustacea	40	7.8
Adontorhina cyclia	Mollusca	18	3.6
Microclymene caudata	Annelida	10	1.9
Praxillella pacifica	Annelida	9	1.8
Prionospio lighti	Annelida	9	1.8
Parvilucina tenuisculpta	Crustacea	9	1.7
Onuphis iridescens	Annelida	6	1.2

OSZ-1	Group	Number	Percent
Macoma carlottensis	Mollusca	361	46.5
Euphilomedes producta	Crustacea	73	9.4
Pinnixa schmitti/occidentalis	Crustacea	35	4.5
Orchomene pacificus	Crustacea	26	3.3
Eudorella pacifica	Crustacea	25	3.2
Photis lacia	Crustacea	24	3.1
Prionospio lighti	Annelida	18	2.3
Macoma elimata	Mollusca	18	2.3
Pectinaria californiensis	Annelida	15	2.0

Z7-SNB-1	Group	Number	Percent
Macoma carlottensis	Mollusca	1,024	81.2

Z7-SNB-2	Group	Number	Percent
Macoma carlottensis	Mollusca	904	79.3

Z7-SNB-3	Group	Number	Percent
Macoma carlottensis	Mollusca	737	79.3

Z7-SSB-1	Group	Number	Percent
Macoma carlottensis	Mollusca	783	77.8

Z7-SSB-2	Group	Number	Percent
Macoma carlottensis	Mollusca	898	79.0

Z7-SSB-3	Group	Number	Percent
Macoma carlottensis	Mollusca	1,045	77.8

Z7-SSA-1	Group	Number	Percent
Exogone lourei	Annelida	65	11.6
Ampharete sp	Annelida	44	7.8
Adontorhina cyclia	Mollusca	38	6.7
Myriochele heeri	Annelida	32	5.7
Proclea graffi	Annelida	24	4.2
Lirobittium eschrichtii	Mollusca	21	3.7
Spiophanes bombyx	Annelida	20	3.5
Macoma elimata	Mollusca	19	3.4
Trichobranchus glacialis	Annelida	13	2.3
Nemocardium centifilosum	Mollusca	11	1.9
Notomastus hemipodus	Annelida	10	1.7
Lyonsia californica	Mollusca	9	1.7
Dipolydora caulleryi	Annelida	8	1.4
Owenia fusiformis	Annelida	8	1.4
Ampelisca careyi	Crustacea	7	1.3
Axinopsida serricata	Mollusca	7	1.3
Prionospio steenstrupi	Annelida	7	1.2
Megalomma splendida	Annelida	6	1.1
Parvilucina tenuisculpta	Crustacea	6	1.1
Maldane sarsi	Annelida	6	1.0
Typosyllis caeca (=hyperioni)	Annelida	6	1.0
Photis sp.	Crustacea	6	1.0
Pinnixa schmitti/occidentalis	Crustacea	5	0.9
Nuculana minuta	Mollusca	5	0.9
Rhodine bitorquata	Annelida	5	0.8
Mediomastus sp	Annelida	4	0.8
Polycirrus sp A, sensu Phillips 199	Annelida	4	0.8
Glycera nana	Annelida	4	0.7
Macoma carlottensis	Mollusca	4	0.7
Odostomia spp.	Mollusca	4	0.7
Amphipholis squamata	Miscellaneous	4	0.7
Laonome kroyeri	Annelida	3	0.6
Nephtys ferruginea	Annelida	3	0.6
Lumbrineris californiensis	Annelida	3	0.5
Maldanidae	Annelida	3	0.5
Polycirrus sp V, sensu Banse, 198	Annelida	3	0.5
Prionospio lighti	Annelida	3	0.5
Spio cirrifera	Annelida	3	0.5
Euphilomedes producta	Crustacea	3	0.5
Tritella pilimana	Crustacea	3	0.5

Z6-SB-1	Group	Number	Percent
Macoma carlottensis	Mollusca	848	82.0

Z6-SB-2	Group	Number	Percent
Macoma carlottensis	Mollusca	542	70.5
Euphilomedes producta	Crustacea	66	8.6

Z6-SB-3	Group	Number	Percent
Macoma carlottensis	Mollusca	538	66.6
Euphilomedes producta	Crustacea	86	10.6

Z7-SSA-2	Group	Number	Percent
Exogone lourei	Annelida	67	10.5
Ampharete sp	Annelida	40	6.3
Adontorhina cyclia	Mollusca	39	6.1
Notomastus hemipodus	Annelida	18	2.8
Rutiderma lomae	Crustacea	17	2.7
Macoma elimata	Mollusca	17	2.7
Lirobittium eschrichtii	Mollusca	16	2.5
Lumbrineris californiensis	Annelida	15	2.4
Golfingiidae sp.	Miscellaneous	13	2.1
Cyclocardia ventricosa	Crustacea	13	2.0
Maldane sarsi	Annelida	12	1.9
Trichobranchus glacialis	Annelida	12	1.9
Spiophanes bombyx	Annelida	11	1.8
Lyonsia californica	Mollusca	11	1.7
Notoproctus pacificus	Annelida	9	1.5
Prionospio steenstrupi	Annelida	9	1.4
Spio cirrifera	Annelida	9	1.4
Proclea graffi	Annelida	9	1.4
Rhodine bitorquata	Annelida	9	1.4
Nemocardium centifilosum	Mollusca	8	1.3
Nephtys ferruginea	Annelida	8	1.2
Parvilucina tenuisculpta	Crustacea	8	1.2
Nematoda unid.	Miscellaneous	7	1.2
Tharyx sp N1	Annelida	7	1.0
Myriochele heeri	Annelida	6	1.0
Macoma carlottensis	Mollusca	6	1.0
Macoma sp. juv.	Mollusca	6	1.0
Typosyllis caeca (=hyperioni)	Annelida	6	0.9
Neosabellaria cementarium	Annelida	6	0.9
Monticellina sp N1	Annelida	5	0.8
Polycirrus sp	Annelida	5	0.8
Typosyllis heterochaeta	Annelida	5	0.8
Galathowenia oculata	Annelida	4	0.7
Glycera nana	Annelida	4	0.7
Mediomastus sp	Annelida	4	0.7
Rochefortia tumida	Mollusca	4	0.7
Tritella pilimana	Crustacea	4	0.6
Pinnixa schmitti/occidentalis	Crustacea	4	0.6
Ampelisca careyi	Crustacea	4	0.6
Magelona longicornis	Annelida	3	0.5
Megalomma splendida	Annelida	3	0.5
Pinnixa sp.	Crustacea	3	0.5
Solamen columbianum	Mollusca	3	0.5
Polycirrus sp V, sensu Banse, 198	Annelida	3	0.5
Byblis millsi	Crustacea	3	0.5
Metaphoxus frequens	Crustacea	3	0.5
Astyris gausapata	Mollusca	3	0.5

Z7-SSA-3	Group	Number	Percent
Exogone lourei	Annelida	56	7.3
Adontorhina cyclia	Mollusca	42	5.4
Notoproctus pacificus	Annelida	38	4.9
Golfingiidae sp.	Miscellaneous	28	3.7
Neosabellaria cementarium	Annelida	24	3.1
Maldanidae	Annelida	23	3.0
Pholoides asperus	Annelida	21	2.8
Cyclocardia ventricosa	Crustacea	19	2.4
Ampharete sp	Annelida	18	2.3
Maldane sarsi	Annelida	16	2.0
Nematoda unid.	Miscellaneous	16	2.0
Hiatella arctica	Mollusca	14	1.8
Macoma elimata	Mollusca	14	1.8
Megalomma splendida	Annelida	14	1.8
Rhodine bitorquata	Annelida	13	1.6
Notomastus hemipodus	Annelida	12	1.6
Polycirrus sp	Annelida	12	1.5
Rutiderma lomae	Crustacea	11	1.4
Monticellina sp N1	Annelida	10	1.3
Tritella pilimana	Crustacea	10	1.3
Lumbrineris californiensis	Annelida	10	1.2
Petaloproctus borealis	Annelida	9	1.2
Trichobranchus glacialis	Annelida	9	1.1
Nemocardium centifilosum	Mollusca	9	1.1
Galathowenia oculata	Annelida	8	1.0
Proclea graffi	Annelida	8	1.0
Typosyllis heterochaeta	Annelida	8	1.0
Byblis millsi	Crustacea	8	1.0
Macoma carlottensis	Mollusca	8	1.0
Asabellides lineatus	Annelida	7	0.9
Idanthyrsus saxicavus	Annelida	7	0.9
Nuculana minuta	Mollusca	7	0.9
Amphipholis squamata	Miscellaneous	7	0.9
Glycera nana	Annelida	6	0.8
Macoma sp. juv.	Mollusca	6	0.8
Onuphis iridescens	Annelida	5	0.6
Spiophanes bombyx	Annelida	5	0.6
Mayerella banksia	Crustacea	5	0.6
Lyonsia californica	Mollusca	5	0.6
Asclerocheilus beringianus	Annelida	5	0.6
Lanassa nordenskioeldi	Annelida	5	0.6
Typosyllis caeca (=hyperioni)	Annelida	5	0.6
Ampelisca careyi	Crustacea	5	0.6
Pinnixa sp.	Crustacea	5	0.6
Lineidae spp.	Miscellaneous	5	0.6
Dipolydora socialis	Annelida	4	0.6
Lanassa venusta	Annelida	4	0.6
Magelona longicornis	Annelida	4	0.6
Caprella mendax	Crustacea	4	0.6

Notes

1. The species listed for each sampling station are the dominant species that comprise 75% of the total abundance (number of individuals) as indicated by the Swartz's Dominance Index (SDI) number in Table 4. The numbers of species listed for stations Z7-SSA-1, -2, and -3 are higher than the corresponding SDI numbers in Table 4 due to the inclusion of all species with the same number of individuals at the lowest percent.
2. The **number** listed for each species is the average number of individuals found in three replicate samples at each station.
3. The **percent** listed for each species is calculated by dividing the number of species' individuals by the total number of organisms in each sample (averaged over three replicate samples).
4. Species' lists have been color-coded by zone.

Appendix A
Complete Chemistry Analytical Results
Diffuser Zone Sediments

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z5-1	Z5-2	Z5-3	Z6-SB-1
Descrip:	Zone 5 - Station 1	Zone 5 - Station 2	Zone 5 - Station 3	Zone 6 - Site B - Station 1
Sampled:	Oct 11, 2001	Oct 11, 2001	Oct 15, 2001	Oct 09, 2001
Lab ID:	L22395-1	L22395-2	L22395-3	L22395-4
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	45.6	46.4	47.1	42.6

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																				
Clay *	16		0.1	0.1	%	17.7		0.1	0.1	%	15		0.1	0.1	%	17.6		0.1	0.1	%
Gravel *	1	E	0.1	0.1	%	1.2	E	0.1	0.1	%	7.7	E	0.1	0.1	%	0.6	E	0.1	0.1	%
p+0.00 *	0.2		0.1	0.1	%	0.4		0.1	0.1	%	0.7		0.1	0.1	%	0.2		0.1	0.1	%
p+1.00 *	0.4		0.1	0.1	%	0.4		0.1	0.1	%	1.5		0.1	0.1	%	0.5		0.1	0.1	%
p+10.0 *	3.1		0.1	0.1	%	3		0.1	0.1	%	3.2		0.1	0.1	%	3.5		0.1	0.1	%
p+10.0(more than) *	7		0.1	0.1	%	8.9		0.1	0.1	%	6		0.1	0.1	%	7.9		0.1	0.1	%
p+2.00 *	4.2		0.1	0.1	%	3.2		0.1	0.1	%	5.4		0.1	0.1	%	4.7		0.1	0.1	%
p+3.00 *	35.3		0.1	0.1	%	30.4		0.1	0.1	%	33.1		0.1	0.1	%	12.5		0.1	0.1	%
p+4.00 *	10.2		0.1	0.1	%	10.8		0.1	0.1	%	10.2		0.1	0.1	%	19.5		0.1	0.1	%
p+5.00 *	2.4		0.1	0.1	%	3.6		0.1	0.1	%	0.1	RDL	0.1	0.1	%	11.6		0.1	0.1	%
p+6.00 *	13		0.1	0.1	%	10.5		0.1	0.1	%	9.9		0.1	0.1	%	11.5		0.1	0.1	%
p+7.00 *	7.8		0.1	0.1	%	11.4		0.1	0.1	%	7.4		0.1	0.1	%	11.9		0.1	0.1	%
p+8.00 *	9.5		0.1	0.1	%	10.3		0.1	0.1	%	9.1		0.1	0.1	%	9.2		0.1	0.1	%
p+9.00 *	5.9		0.1	0.1	%	5.8		0.1	0.1	%	5.8		0.1	0.1	%	6.2		0.1	0.1	%
p-1.00 *	0.4		0.1	0.1	%	0.4		0.1	0.1	%	0.6		0.1	0.1	%	0.2		0.1	0.1	%
p-2.00 *	0.2		0.1	0.1	%	0.2		0.1	0.1	%	0.2		0.1	0.1	%	0.2		0.1	0.1	%
p-2.00(less than) *	0.4		0.1	0.1	%	0.6		0.1	0.1	%	6.9		0.1	0.1	%	0.2		0.1	0.1	%
Sand *	50.3		0.1	0.1	%	45.2		0.1	0.1	%	50.9		0.1	0.1	%	37.4		0.1	0.1	%
Silt *	32.7		0.1	0.1	%	35.8		0.1	0.1	%	26.5		0.1	0.1	%	44.2		0.1	0.1	%
M=CV EPA9060-PSEP96 (03-04-002-001)																				
Total Organic Carbon	13800		1300	2630	mg/Kg	14400		1300	2590	mg/Kg	14200		1500	2970	mg/Kg	15700		1400	2820	mg/Kg
M=CV SM2540-G (03-01-007-001)																				
Total Solids *	45.6		0.005	0.01	%	46.4		0.005	0.01	%	47.1		0.005	0.01	%	42.6		0.005	0.01	%
Total Volatile Solids	4.96		0.011	0.0219	%	4.94		0.0108	0.0216	%	4.23		0.0106	0.0212	%	5.56		0.0117	0.0235	%
M=CV SM4500-NH3-G(03-03-014-000)KCL																				
Ammonia Nitrogen	9.28		0.22	0.439	mg/Kg	11.5		0.22	0.431	mg/Kg	6.43		0.21	0.425	mg/Kg	14.6		0.23	0.469	mg/Kg
M=CV SM4500S2-D, EPA376.2																				
Total Sulfide	92.1		8.8	8.77	mg/Kg	36.6		8.6	8.62	mg/Kg	21.2		2.1	2.12	mg/Kg	141		9.4	9.39	mg/Kg
M=ES NONE																				
Easting 1 (NAD83) *	1254771				ft	1255763				ft	1256840				ft	1251858				ft
Easting 2 (NAD83) *	1254761				ft	1255743				ft	1256832				ft	1251851				ft
Easting 3 (NAD83) *						1255746				ft	1256846				ft					
Northing 1 (NAD83) *	305652				ft	304747				ft	304845				ft	298961				ft
Northing 2 (NAD83) *	305649				ft	304742				ft	304845				ft	298967				ft
Northing 3 (NAD83) *						304740				ft	304852				ft					
Sample Depth *	155				m	145				m	125				m	182				m
Sample Start Time *	1228				hr	1305				hr	1040				hr	1429				hr
Sediment Sampling Depth *	16				cm	16				cm	16				cm	17				cm
Sediment Sampling Range *	0-10				cm	0-10				cm	0-10				cm	0-10				cm
Tidal Condition *	S				none	S				none	S				none	E				none
Tide Height *	11				ft	11				ft	2				ft	8				ft
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA	0.12	<RDL	0.044	0.432	mg/Kg	0.13	<RDL	0.043	0.42	mg/Kg	0.1	<RDL	0.04	0.414	mg/Kg	0.096	<RDL	0.047	0.458	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z5-1	Z5-2	Z5-3	Z6-SB-1
Descrip:	Zone 5 - Station 1	Zone 5 - Station 2	Zone 5 - Station 3	Zone 6 - Site B - Station 1
Sampled:	Oct 11, 2001	Oct 11, 2001	Oct 15, 2001	Oct 09, 2001
Lab ID:	L22395-1	L22395-2	L22395-3	L22395-4
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	45.6	46.4	47.1	42.6

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																				
Aluminum, Total, ICP	15500	L	11	55.3	mg/Kg	15300	L	10	51.7	mg/Kg	15400	L	10	52.2	mg/Kg	15500	L	12	58.9	mg/Kg
Antimony, Total, ICP		<MDL,G	3.3	16.6	mg/Kg		<MDL,G	3	15.5	mg/Kg		<MDL,G	3.2	15.6	mg/Kg		<MDL,G	3.5	17.7	mg/Kg
Arsenic, Total, ICP	5.5	<RDL	5.5	27.6	mg/Kg		<MDL	5.2	25.9	mg/Kg		<MDL	5.3	26.1	mg/Kg		<MDL	5.9	29.6	mg/Kg
Beryllium, Total, ICP	0.42	<RDL	0.11	0.553	mg/Kg	0.39	<RDL	0.1	0.517	mg/Kg	0.4	<RDL	0.1	0.522	mg/Kg	0.4	<RDL	0.12	0.589	mg/Kg
Cadmium, Total, ICP	0.48	<RDL	0.33	1.66	mg/Kg	0.45	<RDL	0.3	1.55	mg/Kg	0.38	<RDL	0.32	1.56	mg/Kg	0.63	<RDL	0.35	1.77	mg/Kg
Chromium, Total, ICP	37.1		0.55	2.76	mg/Kg	37.3		0.52	2.59	mg/Kg	38.4		0.53	2.61	mg/Kg	36.4		0.59	2.96	mg/Kg
Copper, Total, ICP	27.2		0.44	2.21	mg/Kg	27.8		0.41	2.07	mg/Kg	25.9		0.42	2.09	mg/Kg	27		0.47	2.35	mg/Kg
Iron, Total, ICP	25400		5.5	27.6	mg/Kg	24800		5.2	25.9	mg/Kg	25300		5.3	26.1	mg/Kg	25100		5.9	29.6	mg/Kg
Lead, Total, ICP	17.9		3.3	16.6	mg/Kg	18.9		3	15.5	mg/Kg	17.3		3.2	15.6	mg/Kg	14	<RDL	3.5	17.7	mg/Kg
Manganese, Total, ICP	309		0.22	1.1	mg/Kg	300		0.21	1.04	mg/Kg	299		0.21	1.04	mg/Kg	350		0.23	1.18	mg/Kg
Nickel, Total, ICP	35.3		2.2	11	mg/Kg	34.5		2.1	10.4	mg/Kg	36.5		2.1	10.4	mg/Kg	34.3		2.3	11.8	mg/Kg
Selenium, Total, ICP		<MDL	5.5	27.6	mg/Kg		<MDL	5.2	25.9	mg/Kg		<MDL	5.3	26.1	mg/Kg		<MDL	5.9	29.6	mg/Kg
Silver, Total, ICP		<MDL	0.44	2.21	mg/Kg		<MDL	0.41	2.07	mg/Kg		<MDL	0.42	2.09	mg/Kg		<MDL	0.47	2.35	mg/Kg
Thallium, Total, ICP		<MDL	22	110	mg/Kg		<MDL	21	104	mg/Kg		<MDL	21	104	mg/Kg		<MDL	23	118	mg/Kg
Tin, Total, ICP		<MDL	7.7	38.6	mg/Kg		<MDL	7.3	36.2	mg/Kg		<MDL	7.2	36.5	mg/Kg		<MDL	8.2	41.3	mg/Kg
Zinc, Total, ICP	80.3		0.55	2.76	mg/Kg	79.7		0.52	2.59	mg/Kg	74.9		0.53	2.61	mg/Kg	81		0.59	2.96	mg/Kg
M=OR EPA 3540C/8141A (7-3-04-000)																				
Chlorpyrifos		<MDL	72	146	ug/Kg		<MDL	71	144	ug/Kg		<MDL	70	142	ug/Kg		<MDL	77	157	ug/Kg
Diazinon		<MDL	44	73	ug/Kg		<MDL	43	71.8	ug/Kg		<MDL	42	70.7	ug/Kg		<MDL	47	78.2	ug/Kg
Disulfoton		<MDL	44	73	ug/Kg		<MDL	43	71.8	ug/Kg		<MDL	42	70.7	ug/Kg		<MDL	47	78.2	ug/Kg
Malathion		<MDL	120	219	ug/Kg		<MDL	110	216	ug/Kg		<MDL	110	212	ug/Kg		<MDL	120	235	ug/Kg
Parathion-Ethyl		<MDL	120	219	ug/Kg		<MDL	110	216	ug/Kg		<MDL	110	212	ug/Kg		<MDL	120	235	ug/Kg
Parathion-Methyl		<MDL	120	219	ug/Kg		<MDL	110	216	ug/Kg		<MDL	110	212	ug/Kg		<MDL	120	235	ug/Kg
Phorate		<MDL	72	146	ug/Kg		<MDL	71	144	ug/Kg		<MDL	70	142	ug/Kg		<MDL	77	157	ug/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL,G	0.57	1.16	ug/Kg		<MDL,G	0.56	1.14	ug/Kg		<MDL,G	0.55	1.13	ug/Kg		<MDL,G	0.61	1.24	ug/Kg
1,2-Dichlorobenzene		<MDL,G	0.57	1.16	ug/Kg		<MDL,G	0.56	1.14	ug/Kg		<MDL,G	0.55	1.13	ug/Kg		<MDL,G	0.61	1.24	ug/Kg
1,2-Diphenylhydrazine		<MDL	22	43.9	ug/Kg		<MDL	22	43.1	ug/Kg		<MDL	21	42.5	ug/Kg		<MDL,G	23	46.9	ug/Kg
1,3-Dichlorobenzene		<MDL,G	0.57	1.16	ug/Kg		<MDL,G	0.56	1.14	ug/Kg		<MDL,G	0.55	1.13	ug/Kg		<MDL,G	0.61	1.24	ug/Kg
1,4-Dichlorobenzene		<MDL,G	0.29	0.579	ug/Kg		<MDL,G	0.28	0.569	ug/Kg		<MDL,G	0.28	0.561	ug/Kg		<MDL,G	0.31	0.62	ug/Kg
2,4,5-Trichlorophenol		<MDL	26	52.6	ug/Kg		<MDL	26	51.7	ug/Kg		<MDL	25	51	ug/Kg		<MDL	28	56.3	ug/Kg
2,4,6-Trichlorophenol		<MDL	29	57	ug/Kg		<MDL	28	56	ug/Kg		<MDL	28	55.2	ug/Kg		<MDL	31	61	ug/Kg
2,4-Dichlorophenol		<MDL	35	70.2	ug/Kg		<MDL	34	69	ug/Kg		<MDL	34	67.9	ug/Kg		<MDL	38	75.1	ug/Kg
2,4-Dimethylphenol		<MDL	15	30.7	ug/Kg		<MDL	15	30.2	ug/Kg		<MDL	15	29.7	ug/Kg		<MDL	16	32.9	ug/Kg
2,4-Dinitrotoluene		<MDL	6.6	13.2	ug/Kg		<MDL	6.5	12.9	ug/Kg		<MDL	6.4	12.7	ug/Kg		<MDL,G	7	14.1	ug/Kg
2,6-Dinitrotoluene		<MDL	22	43.9	ug/Kg		<MDL	22	43.1	ug/Kg		<MDL	21	42.5	ug/Kg		<MDL,G	23	46.9	ug/Kg
2-Chloronaphthalene		<MDL	35	70.2	ug/Kg		<MDL	34	69	ug/Kg		<MDL	34	67.9	ug/Kg		<MDL,G	38	75.1	ug/Kg
2-Chlorophenol		<MDL,G	18	35.1	ug/Kg		<MDL,G	17	34.5	ug/Kg		<MDL,G	17	34	ug/Kg		<MDL,G	19	37.6	ug/Kg
2-Methylnaphthalene		<MDL	31	61.4	ug/Kg		<MDL	30	60.3	ug/Kg		<MDL	30	59.4	ug/Kg		<MDL,G	33	65.7	ug/Kg
2-Methylphenol		<MDL	42	83.3	ug/Kg		<MDL	41	81.9	ug/Kg		<MDL	40	80.7	ug/Kg		<MDL	45	89.2	ug/Kg
2-Nitrophenol		<MDL	33	65.8	ug/Kg		<MDL	32	64.7	ug/Kg		<MDL	32	63.7	ug/Kg		<MDL	35	70.4	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	20	39.5	ug/Kg		<MDL	19	38.8	ug/Kg		<MDL	19	38.2	ug/Kg		<MDL,G	21	42.3	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	29	57	ug/Kg		<MDL	28	56	ug/Kg		<MDL	28	55.2	ug/Kg		<MDL,G	31	61	ug/Kg
4-Methylphenol		<MDL	35	70.2	ug/Kg		<MDL	34	69	ug/Kg		<MDL	34	67.9	ug/Kg		<MDL	38	75.1	ug/Kg
Acenaphthene		<MDL	15	30.7	ug/Kg		<MDL	15	30.2	ug/Kg		<MDL	15	29.7	ug/Kg		<MDL,G	16	32.9	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z5-1	Z5-2	Z5-3	Z6-SB-1
Descrip:	Zone 5 - Station 1	Zone 5 - Station 2	Zone 5 - Station 3	Zone 6 - Site B - Station 1
Sampled:	Oct 11, 2001	Oct 11, 2001	Oct 15, 2001	Oct 09, 2001
Lab ID:	L22395-1	L22395-2	L22395-3	L22395-4
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	45.6	46.4	47.1	42.6

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																				
Acenaphthylene		<MDL	33	65.8	ug/Kg		<MDL	32	64.7	ug/Kg		<MDL	32	63.7	ug/Kg		<MDL,G	35	70.4	ug/Kg
Aniline		<MDL,X	42	83.3	ug/Kg		<MDL,X	41	81.9	ug/Kg		<MDL,X	40	80.7	ug/Kg		<MDL,G,X	45	89.2	ug/Kg
Anthracene	24.6		8.8	17.5	ug/Kg	23.9		8.6	17.2	ug/Kg	22.3		8.5	17	ug/Kg		<MDL,G	9.4	18.8	ug/Kg
Benzo(a)anthracene	46.3		4.4	8.77	ug/Kg	87.3		4.3	8.62	ug/Kg	39.1		4.2	8.49	ug/Kg	22.7	G	4.7	9.39	ug/Kg
Benzo(a)pyrene	62.1	B	6.6	13.2	ug/Kg	127	B	6.5	12.9	ug/Kg	46.3	B	6.4	12.7	ug/Kg	14.5	G,B	7	14.1	ug/Kg
Benzo(b)fluoranthene	39		6.6	13.2	ug/Kg	101		6.5	12.9	ug/Kg	39.5		6.4	12.7	ug/Kg	15.5	G	7	14.1	ug/Kg
Benzo(g,h,i)perylene	19	<RDL	18	35.1	ug/Kg	53.2		17	34.5	ug/Kg		<MDL	17	34	ug/Kg		<MDL,G	19	37.6	ug/Kg
Benzo(k)fluoranthene	27.6		6.6	13.2	ug/Kg	78		6.5	12.9	ug/Kg	24.2		6.4	12.7	ug/Kg	11	<RDL,G	7	14.1	ug/Kg
Benzoic Acid	239	X	13	26.3	ug/Kg	213	X	13	25.9	ug/Kg	210	X	13	25.5	ug/Kg	232	X	14	28.2	ug/Kg
Benzyl Alcohol		<MDL	13	26.3	ug/Kg		<MDL	13	25.9	ug/Kg		<MDL	13	25.5	ug/Kg		<MDL,G	14	28.2	ug/Kg
Benzyl Butyl Phthalate	19	<RDL	13	26.3	ug/Kg	20	<RDL	13	25.9	ug/Kg		<MDL	13	25.5	ug/Kg		<MDL,G	14	28.2	ug/Kg
Bis(2-Chloroethoxy)Methane		<MDL,G	37	74.6	ug/Kg		<MDL,G	37	73.3	ug/Kg		<MDL,G	36	72.2	ug/Kg		<MDL,G	40	79.8	ug/Kg
Bis(2-Chloroethyl)Ether		<MDL,G	33	65.8	ug/Kg		<MDL,G	32	64.7	ug/Kg		<MDL,G	32	63.7	ug/Kg		<MDL,G	35	70.4	ug/Kg
Bis(2-Chloroisopropyl)Ether		<MDL,G	33	65.8	ug/Kg		<MDL,G	32	64.7	ug/Kg		<MDL,G	32	63.7	ug/Kg		<MDL,G	35	70.4	ug/Kg
Bis(2-Ethylhexyl)Phthalate	26	<RDL,B	15	30.7	ug/Kg	60.6	B	14	30.2	ug/Kg	427	B	14	29.7	ug/Kg	94.8	G,B	16	32.9	ug/Kg
Caffeine		<MDL	13	26.3	ug/Kg		<MDL	13	25.9	ug/Kg		<MDL	13	25.5	ug/Kg		<MDL,G	14	28.2	ug/Kg
Carbazole		<MDL	15	30.7	ug/Kg		<MDL	15	30.2	ug/Kg		<MDL	15	29.7	ug/Kg		<MDL,G	16	32.9	ug/Kg
Chrysene	48.5		8.8	17.5	ug/Kg	87.3		8.6	17.2	ug/Kg	44.6		8.5	17	ug/Kg	23.7	G	9.4	18.8	ug/Kg
Coprostanol		<MDL	31	61.4	ug/Kg		<MDL	30	60.3	ug/Kg		<MDL	30	59.4	ug/Kg		<MDL,G	33	65.7	ug/Kg
Dibenzo(a,h)anthracene	26	<RDL,B,L	15	30.7	ug/Kg	36	B,L	15	30.2	ug/Kg	25	<RDL,B,L	15	29.7	ug/Kg		<MDL,G,B,L	16	32.9	ug/Kg
Dibenzofuran		<MDL	31	61.4	ug/Kg		<MDL	30	60.3	ug/Kg		<MDL	30	59.4	ug/Kg		<MDL,G	33	65.7	ug/Kg
Diethyl Phthalate		<MDL	13	26.3	ug/Kg		<MDL	13	25.9	ug/Kg		<MDL	13	25.5	ug/Kg		<MDL,G	14	28.2	ug/Kg
Dimethyl Phthalate		<MDL	24	48.2	ug/Kg		<MDL	24	47.4	ug/Kg		<MDL	23	46.7	ug/Kg		<MDL,G	26	51.6	ug/Kg
Di-N-Butyl Phthalate	29.4	B	11	21.9	ug/Kg	26.9	B	11	21.6	ug/Kg	28.7	B	11	21.2	ug/Kg	33.6	G,B	12	23.5	ug/Kg
Di-N-Octyl Phthalate		<MDL	18	35.1	ug/Kg		<MDL	17	34.5	ug/Kg		<MDL	17	34	ug/Kg	48.1	G	19	37.6	ug/Kg
Fluoranthene	79.2		18	35.1	ug/Kg	102		17	34.5	ug/Kg	73		17	34	ug/Kg	47.4	G	19	37.6	ug/Kg
Fluorene		<MDL	29	57	ug/Kg		<MDL	28	56	ug/Kg		<MDL	28	55.2	ug/Kg		<MDL,G	31	61	ug/Kg
Hexachlorobenzene		<MDL	1.4	2.92	ug/Kg		<MDL	1.4	2.87	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL,G	1.5	3.12	ug/Kg
Hexachlorobutadiene		<MDL,G	1.6	3.29	ug/Kg		<MDL,G	1.6	3.23	ug/Kg		<MDL,G	1.6	3.18	ug/Kg		<MDL,G	1.8	3.52	ug/Kg
Hexachloroethane		<MDL,G	33	65.8	ug/Kg		<MDL,G	32	64.7	ug/Kg		<MDL,G	32	63.7	ug/Kg		<MDL,G	35	70.4	ug/Kg
Indeno(1,2,3-Cd)Pyrene	41.7		20	39.5	ug/Kg	76.7		19	38.8	ug/Kg	36	<RDL	19	38.2	ug/Kg		<MDL,G	21	42.3	ug/Kg
Isophorone		<MDL	42	83.3	ug/Kg		<MDL	41	81.9	ug/Kg		<MDL	40	80.7	ug/Kg		<MDL,G	45	89.2	ug/Kg
Naphthalene		<MDL,G	31	61.4	ug/Kg		<MDL,G	30	60.3	ug/Kg		<MDL,G	30	59.4	ug/Kg		<MDL,G	33	65.7	ug/Kg
Nitrobenzene		<MDL,X	35	70.2	ug/Kg		<MDL,X	34	69	ug/Kg		<MDL,X	34	67.9	ug/Kg		<MDL,G,X	38	75.1	ug/Kg
N-Nitrosodimethylamine		<MDL,G	44	87.7	ug/Kg		<MDL,G	43	86.2	ug/Kg		<MDL,G	42	84.9	ug/Kg		<MDL,G	47	93.9	ug/Kg
N-Nitrosodi-N-Propylamine		<MDL	20	39.5	ug/Kg		<MDL	19	38.8	ug/Kg		<MDL	19	38.2	ug/Kg		<MDL,G	21	42.3	ug/Kg
N-Nitrosodiphenylamine		<MDL	44	87.7	ug/Kg		<MDL	43	86.2	ug/Kg		<MDL	42	84.9	ug/Kg		<MDL,G	47	93.9	ug/Kg
Pentachlorophenol		<MDL	11	21.9	ug/Kg		<MDL	11	21.6	ug/Kg		<MDL	11	21.2	ug/Kg		<MDL	12	23.5	ug/Kg
Phenanthrene	39.5		8.8	17.5	ug/Kg	36.2		8.6	17.2	ug/Kg	36.7		8.5	17	ug/Kg	16	<RDL,G	9.4	18.8	ug/Kg
Phenol		<MDL	20	39.5	ug/Kg		<MDL	19	38.8	ug/Kg		<MDL	19	38.2	ug/Kg		<MDL	21	42.3	ug/Kg
Pyrene	97.8		8.8	17.5	ug/Kg	190		8.6	17.2	ug/Kg	89.4		8.5	17	ug/Kg	28.2	G	9.4	18.8	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg
4,4'-DDE		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg
4,4'-DDT		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z5-1					Locator:	Z5-2					Locator:	Z5-3					Locator:	Z6-SB-1			
Descrip:	Zone 5 - Station 1					Descrip:	Zone 5 - Station 2					Descrip:	Zone 5 - Station 3					Descrip:	Zone 6 - Site B - Station 1			
Sampled:	Oct 11, 2001					Sampled:	Oct 11, 2001					Sampled:	Oct 15, 2001					Sampled:	Oct 09, 2001			
Lab ID:	L22395-1					Lab ID:	L22395-2					Lab ID:	L22395-3					Lab ID:	L22395-4			
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED			
% Solids:	45.6					% Solids:	46.4					% Solids:	47.1					% Solids:	42.6			
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																				
Aldrin		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg
Alpha-BHC		<MDL	1.1	2.19	ug/Kg		<MDL	1.1	2.16	ug/Kg		<MDL	1.1	2.12	ug/Kg		<MDL	1.2	2.35	ug/Kg
Aroclor 1016		<MDL	2.9	5.48	ug/Kg		<MDL	2.8	5.39	ug/Kg		<MDL	2.8	5.31	ug/Kg		<MDL	3.1	5.87	ug/Kg
Aroclor 1221		<MDL	5.5	11	ug/Kg		<MDL	5.4	10.8	ug/Kg		<MDL	5.3	10.6	ug/Kg		<MDL	5.9	11.7	ug/Kg
Aroclor 1232		<MDL	5.5	11	ug/Kg		<MDL	5.4	10.8	ug/Kg		<MDL	5.3	10.6	ug/Kg		<MDL	5.9	11.7	ug/Kg
Aroclor 1242		<MDL	2.9	5.48	ug/Kg		<MDL	2.8	5.39	ug/Kg		<MDL	2.8	5.31	ug/Kg		<MDL	3.1	5.87	ug/Kg
Aroclor 1248		<MDL	2.9	5.48	ug/Kg		<MDL	2.8	5.39	ug/Kg		<MDL	2.8	5.31	ug/Kg		<MDL	3.1	5.87	ug/Kg
Aroclor 1254		<MDL	2.9	5.48	ug/Kg		<MDL	2.8	5.39	ug/Kg		<MDL	2.8	5.31	ug/Kg		<MDL	3.1	5.87	ug/Kg
Aroclor 1260		<MDL	2.9	5.48	ug/Kg		<MDL	2.8	5.39	ug/Kg		<MDL	2.8	5.31	ug/Kg		<MDL	3.1	5.87	ug/Kg
Beta-BHC		<MDL	1.1	2.19	ug/Kg		<MDL	1.1	2.16	ug/Kg		<MDL	1.1	2.12	ug/Kg		<MDL	1.2	2.35	ug/Kg
Chlordane		<MDL	1.1	2.19	ug/Kg		<MDL	1.1	2.16	ug/Kg		<MDL	1.1	2.12	ug/Kg		<MDL	1.2	2.35	ug/Kg
Delta-BHC		<MDL	1.1	2.19	ug/Kg		<MDL	1.1	2.16	ug/Kg		<MDL	1.1	2.12	ug/Kg		<MDL	1.2	2.35	ug/Kg
Dieldrin		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg
Endosulfan I		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg
Endosulfan II		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg
Endosulfan Sulfate		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg
Endrin		<MDL	2.2	4.39	ug/Kg		<MDL	2.2	4.31	ug/Kg		<MDL	2.1	4.25	ug/Kg		<MDL	2.3	4.69	ug/Kg
Endrin Aldehyde		<MDL,X	4.4	8.77	ug/Kg		<MDL,X	4.3	8.62	ug/Kg		<MDL,X	4.2	8.49	ug/Kg		<MDL,X	4.7	9.39	ug/Kg
Gamma-BHC (Lindane)		<MDL	1.1	2.19	ug/Kg		<MDL	1.1	2.16	ug/Kg		<MDL	1.1	2.12	ug/Kg		<MDL	1.2	2.35	ug/Kg
Heptachlor		<MDL	1.1	2.19	ug/Kg		<MDL	1.1	2.16	ug/Kg		<MDL	1.1	2.12	ug/Kg		<MDL	1.2	2.35	ug/Kg
Heptachlor Epoxide		<MDL	1.1	2.19	ug/Kg		<MDL	1.1	2.16	ug/Kg		<MDL	1.1	2.12	ug/Kg		<MDL	1.2	2.35	ug/Kg
Methoxychlor		<MDL	11	21.9	ug/Kg		<MDL	11	21.6	ug/Kg		<MDL	11	21.2	ug/Kg		<MDL	12	23.5	ug/Kg
Toxaphene		<MDL	22	43.9	ug/Kg		<MDL	22	43.1	ug/Kg		<MDL	21	42.5	ug/Kg		<MDL	23	46.9	ug/Kg
M=OR KRONE 1989 (07-03-012-000)																				
Di-n-Butyltin (as dibutyltin ion)	1.2	<RDL,E	0.77	1.54	ug/Kg	1.84	E	0.75	1.51	ug/Kg	1.4	<RDL,E	0.74	1.49	ug/Kg	1.84	E	0.82	1.64	ug/Kg
Mono-n-Butyltin (as monobutyltin ion)	9.12		3.7	7.39	ug/Kg	7.74		3.7	7.26	ug/Kg	10.1		3.6	7.15	ug/Kg	8.87		4	7.91	ug/Kg
Tetra-n-Butyltin (as tetrabutyltin)		<MDL	0.88	1.76	ug/Kg		<MDL	0.86	1.73	ug/Kg		<MDL	0.85	1.7	ug/Kg		<MDL	0.94	1.88	ug/Kg
Tri-n-Butyltin (as tributyltin ion)	0.86	<RDL,E	0.46	0.91	ug/Kg	1.28	E	0.45	0.894	ug/Kg	0.72	<RDL,E	0.45	0.881	ug/Kg	0.94	<RDL,E	0.49	0.974	ug/Kg
M=OR SM5520-B,D,F (07-03-014-000)																				
Oil And Grease, Total	1870		220	548	mg/Kg	2020		220	539	mg/Kg	1390		210	531	mg/Kg	608		230	587	mg/Kg
M=OR SW-846 8151A GC/MS MODIFIED																				
2,4,5-T		<MDL	2.9	13.4	ug/Kg		<MDL	3	14.1	ug/Kg		<MDL	3	13.2	ug/Kg		<MDL	3.3	14.6	ug/Kg
2,4,5-TP (Silvex)		<MDL	4.4	13.4	ug/Kg		<MDL	4.5	14.1	ug/Kg		<MDL	4.2	13.2	ug/Kg		<MDL	4.7	14.6	ug/Kg
2,4-D		<MDL	1.1	13.4	ug/Kg		<MDL	1.2	14.1	ug/Kg		<MDL	1.1	13.2	ug/Kg		<MDL	1.2	14.6	ug/Kg
2,4-DB		<MDL	1.9	13.4	ug/Kg		<MDL	2	14.1	ug/Kg		<MDL	1.8	13.2	ug/Kg		<MDL	2	14.6	ug/Kg
Dalapon		<MDL,G	4.2	13.4	ug/Kg		<MDL,G	4.3	14.1	ug/Kg		<MDL,G	4	13.2	ug/Kg		<MDL,G	4.5	14.6	ug/Kg
Dicamba		<MDL	3.3	13.4	ug/Kg		<MDL	3.4	14.1	ug/Kg		<MDL	3.2	13.2	ug/Kg		<MDL	3.5	14.6	ug/Kg
Dichloroprop		<MDL	1.4	13.4	ug/Kg		<MDL	1.5	14.1	ug/Kg		<MDL	1.4	13.2	ug/Kg		<MDL	1.5	14.6	ug/Kg
Dinoseb		<MDL	1.1	13.4	ug/Kg		<MDL	1.2	14.1	ug/Kg		<MDL	1.1	13.2	ug/Kg		<MDL	1.2	14.6	ug/Kg
MCPA		<MDL	2	13.4	ug/Kg		<MDL	2.1	14.1	ug/Kg		<MDL	2	13.2	ug/Kg		<MDL	2.2	14.6	ug/Kg
MCPP		<MDL	3.7	13.4	ug/Kg		<MDL	3.9	14.1	ug/Kg		<MDL	3.6	13.2	ug/Kg		<MDL	4	14.6	ug/Kg
M=OR WDOE NWTPH-DX (7-3-06-001)																				
Diesel Range (>C12-C24)		<MDL	55	55	mg/Kg		<MDL	54	54	mg/Kg		<MDL	53	53	mg/Kg		<MDL	59	59	mg/Kg
Lube Oil Range (>C24)		<MDL	55	55	mg/Kg		<MDL	54	54	mg/Kg		<MDL	53	53	mg/Kg		<MDL	59	59	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

	Z5-1	Z5-2	Z5-3	Z6-SB-1
Locator:	Z5-1	Z5-2	Z5-3	Z6-SB-1
Descrip:	Zone 5 - Station 1	Zone 5 - Station 2	Zone 5 - Station 3	Zone 6 - Site B - Station 1
Sampled:	Oct 11, 2001	Oct 11, 2001	Oct 15, 2001	Oct 09, 2001
Lab ID:	L22395-1	L22395-2	L22395-3	L22395-4
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	45.6	46.4	47.1	42.6

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																				

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z6-SB-2					Z6-SB-3					Z7-SNB-1					Z7-SNB-2				
Descrip:	Zone 6 - Site B - Station 2					Zone 6 - Station B - Site 3					Zone 7N - Site B - Station 1					Zone 7N - Site B - Station 2				
Sampled:	Oct 11, 2001					Oct 11, 2001					Oct 09, 2001					Oct 08, 2001				
Lab ID:	L22395-5					L22395-6					L22395-7					L22395-8				
Matrix:	SALTWTRSED					SALTWTRSED					SALTWTRSED					SALTWTRSED				
% Solids:	45.8					% Solids:	44.2				% Solids:	39.2				% Solids:	38			
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																				
Clay *	16.9		0.1	0.1	%	16.7		0.1	0.1	%	17.1		0.1	0.1	%	17.4		0.1	0.1	%
Gravel *	0.9	E	0.1	0.1	%	2	E	0.1	0.1	%	0.6	E	0.1	0.1	%	0.6	E	0.1	0.1	%
p+0.00 *	0.2		0.1	0.1	%	0.4		0.1	0.1	%	0.2		0.1	0.1	%	0.3		0.1	0.1	%
p+1.00 *	0.7		0.1	0.1	%	0.9		0.1	0.1	%	2		0.1	0.1	%	1.1		0.1	0.1	%
p+10.0 *	3.3		0.1	0.1	%	2.2		0.1	0.1	%	2.4		0.1	0.1	%	2.6		0.1	0.1	%
p+10.0(more than) *	7.4		0.1	0.1	%	10.1		0.1	0.1	%	9.9		0.1	0.1	%	9.4		0.1	0.1	%
p+2.00 *	5.1		0.1	0.1	%	7.1		0.1	0.1	%	6.4		0.1	0.1	%	1.8		0.1	0.1	%
p+3.00 *	28.3		0.1	0.1	%	16.4		0.1	0.1	%	3.7		0.1	0.1	%	6.1		0.1	0.1	%
p+4.00 *	15		0.1	0.1	%	22.8		0.1	0.1	%	33.5		0.1	0.1	%	18.2		0.1	0.1	%
p+5.00 *	0.6		0.1	0.1	%	8		0.1	0.1	%	5.5		0.1	0.1	%	24.1		0.1	0.1	%
p+6.00 *	13.4		0.1	0.1	%	9.8		0.1	0.1	%	12.8		0.1	0.1	%	10.5		0.1	0.1	%
p+7.00 *	9.6		0.1	0.1	%	7.9		0.1	0.1	%	8.7		0.1	0.1	%	8.8		0.1	0.1	%
p+8.00 *	9.4		0.1	0.1	%	8		0.1	0.1	%	9.3		0.1	0.1	%	11.2		0.1	0.1	%
p+9.00 *	6.2		0.1	0.1	%	4.4		0.1	0.1	%	4.8		0.1	0.1	%	5.4		0.1	0.1	%
p-1.00 *		<MDL	0.1	0.1	%	0.7		0.1	0.1	%	0.2		0.1	0.1	%	0.3		0.1	0.1	%
p-2.00 *	0.2		0.1	0.1	%	0.4		0.1	0.1	%	0.2		0.1	0.1	%		<MDL	0.1	0.1	%
p-2.00(less than) *	0.7		0.1	0.1	%	0.9		0.1	0.1	%	0.2		0.1	0.1	%	0.3		0.1	0.1	%
Sand *	49.3		0.1	0.1	%	47.6		0.1	0.1	%	45.8		0.1	0.1	%	27.5		0.1	0.1	%
Silt *	33		0.1	0.1	%	33.7		0.1	0.1	%	36.3		0.1	0.1	%	54.6		0.1	0.1	%
M=CV EPA9060-PSEP96 (03-04-002-001)																				
Total Organic Carbon	14500		1300	2620	mg/Kg	14700		1400	2710	mg/Kg	16000		1300	2550	mg/Kg	16400		1300	2630	mg/Kg
M=CV SM2540-G (03-01-007-001)																				
Total Solids *	45.8		0.005	0.01	%	44.2		0.005	0.01	%	39.2		0.005	0.01	%	38		0.005	0.01	%
Total Volatile Solids	4.93		0.0109	0.0218	%	5.32		0.0113	0.0226	%	5.89		0.0128	0.0255	%	5.89		0.0132	0.0263	%
M=CV SM4500-NH3-G(03-03-014-000)KCL																				
Ammonia Nitrogen	11.4		0.22	0.437	mg/Kg	14.8		0.23	0.452	mg/Kg	16.4		0.26	0.51	mg/Kg	13.8		0.26	0.526	mg/Kg
M=CV SM4500S2-D, EPA376.2																				
Total Sulfide	262		22	21.8	mg/Kg	201		11	11.3	mg/Kg	196		15	15.3	mg/Kg	632		79	78.9	mg/Kg
M=ES NONE																				
Easting 1 (NAD83) *	1252657				ft	1252661				ft	1252152				ft	1252237				ft
Easting 2 (NAD83) *	1252653				ft	1252644				ft	1252160				ft	1252251				ft
Easting 3 (NAD83) *	1252662				ft															
Northing 1 (NAD83) *	299051				ft	298444				ft	290532				ft	289848				ft
Northing 2 (NAD83) *	299058				ft	298453				ft	290553				ft	289859				ft
Northing 3 (NAD83) *	299042				ft															
Sample Depth *	173				m	173				m	184				m	179				m
Sample Start Time *	1014				hr	1104				hr	955				hr	1455				hr
Sediment Sampling Depth *	15				cm	15				cm	17				cm	17				cm
Sediment Sampling Range *	0-10				cm	0-10				cm	0-10				cm	0-10				cm
Tidal Condition *	F				none	F				none	F				none	E				none
Tide Height *	8.5				ft	10				ft	9				ft	7				ft
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA	0.1	<RDL	0.041	0.424	mg/Kg	0.09	<RDL	0.045	0.448	mg/Kg	0.089	<RDL	0.051	0.505	mg/Kg	0.095	<RDL	0.05	0.511	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z6-SB-2	Z6-SB-3	Z7-SNB-1	Z7-SNB-2
Descrip:	Zone 6 - Site B - Station 2	Zone 6 - Station B - Site 3	Zone 7N - Site B - Station 1	Zone 7N - Site B - Station 2
Sampled:	Oct 11, 2001	Oct 11, 2001	Oct 09, 2001	Oct 08, 2001
Lab ID:	L22395-5	L22395-6	L22395-7	L22395-8
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	45.8	44.2	39.2	38

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																				
Aluminum, Total, ICP	15500	L	11	53.7	mg/Kg	14300	L	12	59.3	mg/Kg	15300	L	13	63	mg/Kg	17900	L	13	64.7	mg/Kg
Antimony, Total, ICP		<MDL,G	3.3	16.1	mg/Kg		<MDL,G	3.6	17.8	mg/Kg		<MDL,G	3.8	18.9	mg/Kg		<MDL,G	3.9	19.4	mg/Kg
Arsenic, Total, ICP	6.8	<RDL	5.5	26.9	mg/Kg		<MDL	5.9	29.6	mg/Kg		<MDL	6.4	31.4	mg/Kg		<MDL	6.6	32.4	mg/Kg
Beryllium, Total, ICP	0.39	<RDL	0.11	0.537	mg/Kg	0.36	<RDL	0.12	0.593	mg/Kg	0.41	<RDL	0.13	0.63	mg/Kg	0.45	<RDL	0.13	0.647	mg/Kg
Cadmium, Total, ICP	0.46	<RDL	0.33	1.61	mg/Kg	0.57	<RDL	0.36	1.78	mg/Kg	0.48	<RDL	0.38	1.89	mg/Kg	0.58	<RDL	0.39	1.94	mg/Kg
Chromium, Total, ICP	37.8		0.55	2.69	mg/Kg	34.8		0.59	2.96	mg/Kg	36		0.64	3.14	mg/Kg	41.3		0.66	3.24	mg/Kg
Copper, Total, ICP	27.1		0.44	2.15	mg/Kg	25.6		0.48	2.38	mg/Kg	27		0.51	2.52	mg/Kg	31.8		0.53	2.59	mg/Kg
Iron, Total, ICP	24700		5.5	26.9	mg/Kg	23300		5.9	29.6	mg/Kg	24900		6.4	31.4	mg/Kg	28900		6.6	32.4	mg/Kg
Lead, Total, ICP	15	<RDL	3.3	16.1	mg/Kg	12	<RDL	3.6	17.8	mg/Kg	15	<RDL	3.8	18.9	mg/Kg	17	<RDL	3.9	19.4	mg/Kg
Manganese, Total, ICP	317		0.22	1.08	mg/Kg	317		0.23	1.19	mg/Kg	360		0.25	1.26	mg/Kg	358		0.26	1.3	mg/Kg
Nickel, Total, ICP	35.6		2.2	10.8	mg/Kg	34.2		2.3	11.9	mg/Kg	33.4		2.5	12.6	mg/Kg	38.4		2.6	13	mg/Kg
Selenium, Total, ICP		<MDL	5.5	26.9	mg/Kg		<MDL	5.9	29.6	mg/Kg		<MDL	6.4	31.4	mg/Kg		<MDL	6.6	32.4	mg/Kg
Silver, Total, ICP		<MDL	0.44	2.15	mg/Kg		<MDL	0.48	2.38	mg/Kg		<MDL	0.51	2.52	mg/Kg		<MDL	0.53	2.59	mg/Kg
Thallium, Total, ICP		<MDL	22	108	mg/Kg		<MDL	23	119	mg/Kg		<MDL	25	126	mg/Kg		<MDL	26	130	mg/Kg
Tin, Total, ICP		<MDL	7.4	37.6	mg/Kg		<MDL	8.4	41.4	mg/Kg		<MDL	8.9	44.1	mg/Kg		<MDL	8.9	45.3	mg/Kg
Zinc, Total, ICP	79		0.55	2.69	mg/Kg	73.8		0.59	2.96	mg/Kg	78.8		0.64	3.14	mg/Kg	91.8		0.66	3.24	mg/Kg
M=OR EPA 3540C/8141A (7-3-04-000)																				
Chlorpyrifos		<MDL	72	146	ug/Kg		<MDL	75	151	ug/Kg		<MDL	84	170	ug/Kg		<MDL	87	176	ug/Kg
Diazinon		<MDL	44	72.7	ug/Kg		<MDL	45	75.3	ug/Kg		<MDL	51	84.9	ug/Kg		<MDL	53	87.6	ug/Kg
Disulfoton		<MDL	44	72.7	ug/Kg		<MDL	45	75.3	ug/Kg		<MDL	51	84.9	ug/Kg		<MDL	53	87.6	ug/Kg
Malathion		<MDL	120	218	ug/Kg		<MDL	120	226	ug/Kg		<MDL	140	255	ug/Kg		<MDL	140	263	ug/Kg
Parathion-Ethyl		<MDL	120	218	ug/Kg		<MDL	120	226	ug/Kg		<MDL	140	255	ug/Kg		<MDL	140	263	ug/Kg
Parathion-Methyl		<MDL	120	218	ug/Kg		<MDL	120	226	ug/Kg		<MDL	140	255	ug/Kg		<MDL	140	263	ug/Kg
Phorate		<MDL	72	146	ug/Kg		<MDL	75	151	ug/Kg		<MDL	84	170	ug/Kg		<MDL	87	176	ug/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL,G	0.57	1.16	ug/Kg		<MDL,G	0.59	1.2	ug/Kg		<MDL,G	0.66	1.35	ug/Kg		<MDL,G	0.68	1.39	ug/Kg
1,2-Dichlorobenzene		<MDL,G	0.57	1.16	ug/Kg		<MDL,G	0.59	1.2	ug/Kg		<MDL,G	0.66	1.35	ug/Kg		<MDL,G	0.68	1.39	ug/Kg
1,2-Diphenylhydrazine		<MDL,G	22	43.7	ug/Kg		<MDL	23	45.2	ug/Kg		<MDL,G	26	51	ug/Kg		<MDL	26	52.6	ug/Kg
1,3-Dichlorobenzene		<MDL,G	0.57	1.16	ug/Kg		<MDL,G	0.59	1.2	ug/Kg		<MDL,G	0.66	1.35	ug/Kg		<MDL,G	0.68	1.39	ug/Kg
1,4-Dichlorobenzene		<MDL,G	0.28	0.576	ug/Kg		<MDL,G	0.29	0.597	ug/Kg		<MDL,G	0.33	0.673	ug/Kg		<MDL,G	0.34	0.695	ug/Kg
2,4,5-Trichlorophenol		<MDL,G	26	52.4	ug/Kg		<MDL,G	27	54.3	ug/Kg		<MDL,G	31	61.2	ug/Kg		<MDL,G	32	63.2	ug/Kg
2,4,6-Trichlorophenol		<MDL,G	28	56.8	ug/Kg		<MDL,G	29	58.8	ug/Kg		<MDL,G	33	66.3	ug/Kg		<MDL,G	34	68.4	ug/Kg
2,4-Dichlorophenol		<MDL,G	35	69.9	ug/Kg		<MDL,G	36	72.4	ug/Kg		<MDL,G	41	81.6	ug/Kg		<MDL,G	42	84.2	ug/Kg
2,4-Dimethylphenol		<MDL,G	15	30.6	ug/Kg		<MDL,G	16	31.7	ug/Kg		<MDL,G	18	35.7	ug/Kg		<MDL,G	18	36.8	ug/Kg
2,4-Dinitrotoluene		<MDL,G	6.6	13.1	ug/Kg		<MDL	6.8	13.6	ug/Kg		<MDL,G	7.7	15.3	ug/Kg		<MDL	7.9	15.8	ug/Kg
2,6-Dinitrotoluene		<MDL,G	22	43.7	ug/Kg		<MDL	23	45.2	ug/Kg		<MDL,G	26	51	ug/Kg		<MDL	26	52.6	ug/Kg
2-Chloronaphthalene		<MDL,G	35	69.9	ug/Kg		<MDL	36	72.4	ug/Kg		<MDL,G	41	81.6	ug/Kg		<MDL	42	84.2	ug/Kg
2-Chlorophenol		<MDL,G	17	34.9	ug/Kg		<MDL,G	18	36.2	ug/Kg		<MDL,G	20	40.8	ug/Kg		<MDL,G	21	42.1	ug/Kg
2-Methylnaphthalene		<MDL,G	31	61.1	ug/Kg		<MDL	32	63.3	ug/Kg		<MDL,G	36	71.4	ug/Kg		<MDL	37	73.7	ug/Kg
2-Methylphenol		<MDL,G	41	83	ug/Kg		<MDL,G	43	86	ug/Kg		<MDL,G	48	96.9	ug/Kg		<MDL,G	50	100	ug/Kg
2-Nitrophenol		<MDL,G	33	65.5	ug/Kg		<MDL,G	34	67.9	ug/Kg		<MDL,G	38	76.5	ug/Kg		<MDL,G	39	78.9	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL,G	20	39.3	ug/Kg		<MDL	20	40.7	ug/Kg		<MDL,G	23	45.9	ug/Kg		<MDL	24	47.4	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL,G	28	56.8	ug/Kg		<MDL	29	58.8	ug/Kg		<MDL,G	33	66.3	ug/Kg		<MDL	34	68.4	ug/Kg
4-Methylphenol		<MDL,G	35	69.9	ug/Kg		<MDL,G	36	72.4	ug/Kg		<MDL,G	41	81.6	ug/Kg		<MDL,G	42	84.2	ug/Kg
Acenaphthene		<MDL,G	15	30.6	ug/Kg		<MDL	16	31.7	ug/Kg		<MDL,G	18	35.7	ug/Kg		<MDL	18	36.8	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z6-SB-2	Z6-SB-3	Z7-SNB-1	Z7-SNB-2
Descrip:	Zone 6 - Site B - Station 2	Zone 6 - Station B - Site 3	Zone 7N - Site B - Station 1	Zone 7N - Site B - Station 2
Sampled:	Oct 11, 2001	Oct 11, 2001	Oct 09, 2001	Oct 08, 2001
Lab ID:	L22395-5	L22395-6	L22395-7	L22395-8
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	45.8	44.2	39.2	38

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																				
Acenaphthylene		<MDL,G	33	65.5	ug/Kg		<MDL	34	67.9	ug/Kg		<MDL,G	38	76.5	ug/Kg		<MDL	39	78.9	ug/Kg
Aniline		<MDL,G,X	41	83	ug/Kg		<MDL,X	43	86	ug/Kg		<MDL,G,X	48	96.9	ug/Kg		<MDL,X	50	100	ug/Kg
Anthracene		<MDL,G	8.7	17.5	ug/Kg		<MDL	9	18.1	ug/Kg		<MDL,G	10	20.4	ug/Kg		<MDL	11	21.1	ug/Kg
Benzo(a)anthracene	14.9	G	4.4	8.73	ug/Kg	11.3		4.5	9.05	ug/Kg	12.9	G	5.1	10.2	ug/Kg	13.2		5.3	10.5	ug/Kg
Benzo(a)pyrene	12	<RDL,G,B,E	6.6	13.1	ug/Kg		<MDL,B	6.8	13.6	ug/Kg		<MDL,G,B	7.7	15.3	ug/Kg		<MDL,B	7.9	15.8	ug/Kg
Benzo(b)fluoranthene		<MDL,G,E	6.6	13.1	ug/Kg		<MDL	6.8	13.6	ug/Kg		<MDL,G	7.7	15.3	ug/Kg		<MDL	7.9	15.8	ug/Kg
Benzo(g,h,i)perylene		<MDL,G,E	17	34.9	ug/Kg		<MDL	18	36.2	ug/Kg		<MDL,G	20	40.8	ug/Kg		<MDL	21	42.1	ug/Kg
Benzo(k)fluoranthene		<MDL,G,E	6.6	13.1	ug/Kg		<MDL	6.8	13.6	ug/Kg		<MDL,G	7.7	15.3	ug/Kg		<MDL	7.9	15.8	ug/Kg
Benzoic Acid	225	G,X	13	26.2	ug/Kg	262	G,X	14	27.1	ug/Kg	263	G,X	15	30.6	ug/Kg	268	G,X	16	31.6	ug/Kg
Benzyl Alcohol		<MDL,G	13	26.2	ug/Kg		<MDL	14	27.1	ug/Kg		<MDL,G	15	30.6	ug/Kg		<MDL	16	31.6	ug/Kg
Benzyl Butyl Phthalate		<MDL,G	13	26.2	ug/Kg	19	<RDL	14	27.1	ug/Kg	23	<RDL,G	15	30.6	ug/Kg	23	<RDL	16	31.6	ug/Kg
Bis(2-Chloroethoxy)Methane		<MDL,G	37	74.2	ug/Kg		<MDL,G	38	76.9	ug/Kg		<MDL,G	43	86.7	ug/Kg		<MDL,G	45	89.5	ug/Kg
Bis(2-Chloroethyl)Ether		<MDL,G	33	65.5	ug/Kg		<MDL,G	34	67.9	ug/Kg		<MDL,G	38	76.5	ug/Kg		<MDL,G	39	78.9	ug/Kg
Bis(2-Chloroisopropyl)Ether		<MDL,G	33	65.5	ug/Kg		<MDL,G	34	67.9	ug/Kg		<MDL,G	38	76.5	ug/Kg		<MDL,G	39	78.9	ug/Kg
Bis(2-Ethylhexyl)Phthalate	40	G,B	15	30.6	ug/Kg	46.6	B	15	31.7	ug/Kg	84.7	G,B	17	35.7	ug/Kg	78.7	B	18	36.8	ug/Kg
Caffeine		<MDL,G	13	26.2	ug/Kg		<MDL	14	27.1	ug/Kg		<MDL,G	15	30.6	ug/Kg		<MDL	16	31.6	ug/Kg
Carbazole		<MDL,G	15	30.6	ug/Kg		<MDL	16	31.7	ug/Kg		<MDL,G	18	35.7	ug/Kg		<MDL	18	36.8	ug/Kg
Chrysene	11	<RDL,G	8.7	17.5	ug/Kg		<MDL	9	18.1	ug/Kg		<MDL,G	10	20.4	ug/Kg		<MDL	11	21.1	ug/Kg
Coprostanol		<MDL,G	31	61.1	ug/Kg		<MDL	32	63.3	ug/Kg		<MDL,G	36	71.4	ug/Kg		<MDL	37	73.7	ug/Kg
Dibenzo(a,h)anthracene		<MDL,G,B,L	15	30.6	ug/Kg		<MDL,B,L	16	31.7	ug/Kg		<MDL,G,B,L	18	35.7	ug/Kg		<MDL,B,L	18	36.8	ug/Kg
Dibenzofuran		<MDL,G	31	61.1	ug/Kg		<MDL	32	63.3	ug/Kg		<MDL,G	36	71.4	ug/Kg		<MDL	37	73.7	ug/Kg
Diethyl Phthalate		<MDL,G	13	26.2	ug/Kg		<MDL	14	27.1	ug/Kg		<MDL,G	15	30.6	ug/Kg		<MDL	16	31.6	ug/Kg
Dimethyl Phthalate		<MDL,G	24	48	ug/Kg		<MDL	25	49.8	ug/Kg		<MDL,G	28	56.1	ug/Kg		<MDL	29	57.9	ug/Kg
Di-N-Butyl Phthalate	27.5	G,B	11	21.8	ug/Kg	34.6	B	11	22.6	ug/Kg	39.8	G,B	13	25.5	ug/Kg	40.5	B	13	26.3	ug/Kg
Di-N-Octyl Phthalate		<MDL,G,E	17	34.9	ug/Kg	34	<RDL	18	36.2	ug/Kg		<MDL,G	20	40.8	ug/Kg		<MDL	21	42.1	ug/Kg
Fluoranthene	22	<RDL,G	17	34.9	ug/Kg		<MDL	18	36.2	ug/Kg		<MDL,G	20	40.8	ug/Kg		<MDL	21	42.1	ug/Kg
Fluorene		<MDL,G	28	56.8	ug/Kg		<MDL	29	58.8	ug/Kg		<MDL,G	33	66.3	ug/Kg		<MDL	34	68.4	ug/Kg
Hexachlorobenzene		<MDL,G	1.4	2.9	ug/Kg		<MDL	1.5	3.01	ug/Kg		<MDL,G	1.7	3.39	ug/Kg		<MDL	1.7	3.5	ug/Kg
Hexachlorobutadiene		<MDL,G	1.6	3.28	ug/Kg		<MDL,G	1.7	3.39	ug/Kg		<MDL,G	1.9	3.83	ug/Kg		<MDL,G	2	3.95	ug/Kg
Hexachloroethane		<MDL,G	33	65.5	ug/Kg		<MDL,G	34	67.9	ug/Kg		<MDL,G	38	76.5	ug/Kg		<MDL,G	39	78.9	ug/Kg
Indeno(1,2,3-Cd)Pyrene		<MDL,G,E	20	39.3	ug/Kg		<MDL	20	40.7	ug/Kg		<MDL,G	23	45.9	ug/Kg		<MDL	24	47.4	ug/Kg
Isophorone		<MDL,G	41	83	ug/Kg		<MDL	43	86	ug/Kg		<MDL,G	48	96.9	ug/Kg		<MDL	50	100	ug/Kg
Naphthalene		<MDL,G	31	61.1	ug/Kg		<MDL,G	32	63.3	ug/Kg		<MDL,G	36	71.4	ug/Kg		<MDL,G	37	73.7	ug/Kg
Nitrobenzene		<MDL,G,X	35	69.9	ug/Kg		<MDL,X	36	72.4	ug/Kg		<MDL,G,X	41	81.6	ug/Kg		<MDL,X	42	84.2	ug/Kg
N-Nitrosodimethylamine		<MDL,G	44	87.3	ug/Kg		<MDL,G	45	90.5	ug/Kg		<MDL,G	51	102	ug/Kg		<MDL,G	53	105	ug/Kg
N-Nitrosodi-N-Propylamine		<MDL,G	20	39.3	ug/Kg		<MDL	20	40.7	ug/Kg		<MDL,G	23	45.9	ug/Kg		<MDL	24	47.4	ug/Kg
N-Nitrosodiphenylamine		<MDL,G	44	87.3	ug/Kg		<MDL	45	90.5	ug/Kg		<MDL,G	51	102	ug/Kg		<MDL	53	105	ug/Kg
Pentachlorophenol		<MDL,G	11	21.8	ug/Kg		<MDL,G	11	22.6	ug/Kg		<MDL,G	13	25.5	ug/Kg		<MDL,G	13	26.3	ug/Kg
Phenanthrene	12	<RDL,G	8.7	17.5	ug/Kg		<MDL	9	18.1	ug/Kg		<MDL,G	10	20.4	ug/Kg		<MDL	11	21.1	ug/Kg
Phenol		<MDL,G	20	39.3	ug/Kg		<MDL,G	20	40.7	ug/Kg		<MDL,G	23	45.9	ug/Kg		<MDL,G	24	47.4	ug/Kg
Pyrene	19.1	G	8.7	17.5	ug/Kg	17	<RDL	9	18.1	ug/Kg	19	<RDL,G	10	20.4	ug/Kg	21	<RDL	11	21.1	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg
4,4'-DDE		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg
4,4'-DDT		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z6-SB-2					Locator:	Z6-SB-3				Locator:	Z7-SNB-1				Locator:	Z7-SNB-2			
Descrip:	Zone 6 - Site B - Station 2					Descrip:	Zone 6 - Station B - Site 3				Descrip:	Zone 7N - Site B - Station 1				Descrip:	Zone 7N - Site B - Station 2			
Sampled:	Oct 11, 2001					Sampled:	Oct 11, 2001				Sampled:	Oct 09, 2001				Sampled:	Oct 08, 2001			
Lab ID:	L22395-5					Lab ID:	L22395-6				Lab ID:	L22395-7				Lab ID:	L22395-8			
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED				Matrix:	SALTWTRSED				Matrix:	SALTWTRSED			
% Solids:	45.8					% Solids:	44.2				% Solids:	39.2				% Solids:	38			
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																				
Aldrin		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg
Alpha-BHC		<MDL	1.1	2.18	ug/Kg		<MDL	1.1	2.26	ug/Kg		<MDL	1.3	2.55	ug/Kg		<MDL	1.3	2.63	ug/Kg
Aroclor 1016		<MDL	2.8	5.46	ug/Kg		<MDL	2.9	5.66	ug/Kg		<MDL	3.3	6.38	ug/Kg		<MDL	3.4	6.58	ug/Kg
Aroclor 1221		<MDL	5.5	10.9	ug/Kg		<MDL	5.7	11.3	ug/Kg		<MDL	6.4	12.8	ug/Kg		<MDL	6.6	13.2	ug/Kg
Aroclor 1232		<MDL	5.5	10.9	ug/Kg		<MDL	5.7	11.3	ug/Kg		<MDL	6.4	12.8	ug/Kg		<MDL	6.6	13.2	ug/Kg
Aroclor 1242		<MDL	2.8	5.46	ug/Kg		<MDL	2.9	5.66	ug/Kg		<MDL	3.3	6.38	ug/Kg		<MDL	3.4	6.58	ug/Kg
Aroclor 1248		<MDL	2.8	5.46	ug/Kg		<MDL	2.9	5.66	ug/Kg		<MDL	3.3	6.38	ug/Kg		<MDL	3.4	6.58	ug/Kg
Aroclor 1254		<MDL	2.8	5.46	ug/Kg		<MDL	2.9	5.66	ug/Kg		<MDL	3.3	6.38	ug/Kg		<MDL	3.4	6.58	ug/Kg
Aroclor 1260		<MDL	2.8	5.46	ug/Kg		<MDL	2.9	5.66	ug/Kg		<MDL	3.3	6.38	ug/Kg		<MDL	3.4	6.58	ug/Kg
Beta-BHC		<MDL	1.1	2.18	ug/Kg		<MDL	1.1	2.26	ug/Kg		<MDL	1.3	2.55	ug/Kg		<MDL	1.3	2.63	ug/Kg
Chlordane		<MDL	1.1	2.18	ug/Kg		<MDL	1.1	2.26	ug/Kg		<MDL	1.3	2.55	ug/Kg		<MDL	1.3	2.63	ug/Kg
Delta-BHC		<MDL	1.1	2.18	ug/Kg		<MDL	1.1	2.26	ug/Kg		<MDL	1.3	2.55	ug/Kg		<MDL	1.3	2.63	ug/Kg
Dieldrin		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg
Endosulfan I		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg
Endosulfan II		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg
Endosulfan Sulfate		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg
Endrin		<MDL	2.2	4.37	ug/Kg		<MDL	2.3	4.52	ug/Kg		<MDL	2.6	5.1	ug/Kg		<MDL	2.6	5.26	ug/Kg
Endrin Aldehyde		<MDL,X	4.4	8.73	ug/Kg		<MDL,X	4.5	9.05	ug/Kg		<MDL,X	5.1	10.2	ug/Kg		<MDL,X	5.3	10.5	ug/Kg
Gamma-BHC (Lindane)		<MDL	1.1	2.18	ug/Kg		<MDL	1.1	2.26	ug/Kg		<MDL	1.3	2.55	ug/Kg		<MDL	1.3	2.63	ug/Kg
Heptachlor		<MDL	1.1	2.18	ug/Kg		<MDL	1.1	2.26	ug/Kg		<MDL	1.3	2.55	ug/Kg		<MDL	1.3	2.63	ug/Kg
Heptachlor Epoxide		<MDL	1.1	2.18	ug/Kg		<MDL	1.1	2.26	ug/Kg		<MDL	1.3	2.55	ug/Kg		<MDL	1.3	2.63	ug/Kg
Methoxychlor		<MDL	11	21.8	ug/Kg		<MDL	11	22.6	ug/Kg		<MDL	13	25.5	ug/Kg		<MDL	13	26.3	ug/Kg
Toxaphene		<MDL	22	43.7	ug/Kg		<MDL	23	45.2	ug/Kg		<MDL	26	51	ug/Kg		<MDL	26	52.6	ug/Kg
M=OR KRONE 1989 (07-03-012-000)																				
Di-n-Butyltin (as dibutyltin ion)	1.56	E	0.76	1.53	ug/Kg	1.74	E	0.79	1.58	ug/Kg	2.88	E	0.89	1.79	ug/Kg	1.98	E	0.92	1.84	ug/Kg
Mono-n-Butyltin (as monobutyltin ion)	8.86		3.7	7.36	ug/Kg	7.94		3.8	7.62	ug/Kg	11.3		4.3	8.6	ug/Kg	10.1		4.5	8.87	ug/Kg
Tetra-n-Butyltin (as tetrabutyltin)		<MDL	0.87	1.75	ug/Kg		<MDL	0.9	1.81	ug/Kg		<MDL	1	2.04	ug/Kg		<MDL	1.1	2.11	ug/Kg
Tri-n-Butyltin (as tributyltin ion)	0.79	<RDL,E	0.46	0.906	ug/Kg	0.993	E	0.48	0.939	ug/Kg	0.79	<RDL,E	0.54	1.06	ug/Kg	1	<RDL,E	0.55	1.09	ug/Kg
M=OR SM5520-B,D,F (07-03-014-000)																				
Oil And Grease, Total	917		220	546	mg/Kg	654		230	566	mg/Kg	1350		260	638	mg/Kg	660	RDL	260	658	mg/Kg
M=OR SW-846 8151A GC/MS MODIFIED																				
2,4,5-T		<MDL	2.8	13.2	ug/Kg		<MDL	3.2	14.1	ug/Kg		<MDL	3.6	16	ug/Kg		<MDL	3.7	17.3	ug/Kg
2,4,5-TP (Silvex)		<MDL	4.1	13.2	ug/Kg		<MDL	4.5	14.1	ug/Kg		<MDL	5.1	16	ug/Kg		<MDL	5.5	17.3	ug/Kg
2,4-D		<MDL	1.1	13.2	ug/Kg		<MDL	1.2	14.1	ug/Kg		<MDL	1.3	16	ug/Kg		<MDL	1.4	17.3	ug/Kg
2,4-DB		<MDL	1.9	13.2	ug/Kg		<MDL	2	14.1	ug/Kg		<MDL	2.2	16	ug/Kg		<MDL	2.4	17.3	ug/Kg
Dalapon		<MDL,G	4.1	13.2	ug/Kg		<MDL,G	4.3	14.1	ug/Kg		<MDL,G	4.8	16	ug/Kg		<MDL,G	5.3	17.3	ug/Kg
Dicamba		<MDL	3.3	13.2	ug/Kg		<MDL	3.4	14.1	ug/Kg		<MDL	3.8	16	ug/Kg		<MDL	4.2	17.3	ug/Kg
Dichloroprop		<MDL	1.4	13.2	ug/Kg		<MDL	1.5	14.1	ug/Kg		<MDL	1.7	16	ug/Kg		<MDL	1.8	17.3	ug/Kg
Dinoseb		<MDL	1.1	13.2	ug/Kg		<MDL	1.2	14.1	ug/Kg		<MDL	1.3	16	ug/Kg		<MDL	1.4	17.3	ug/Kg
MCPA		<MDL	2	13.2	ug/Kg		<MDL	2.1	14.1	ug/Kg		<MDL	2.4	16	ug/Kg		<MDL	2.6	17.3	ug/Kg
MCPP		<MDL	3.7	13.2	ug/Kg		<MDL	3.8	14.1	ug/Kg		<MDL	4.3	16	ug/Kg		<MDL	4.7	17.3	ug/Kg
M=OR WDOE NWTPH-DX (7-3-06-001)																				
Diesel Range (>C12-C24)		<MDL	55	55	mg/Kg		<MDL	57	57	mg/Kg		<MDL	64	64	mg/Kg		<MDL	66	66	mg/Kg
Lube Oil Range (>C24)		<MDL	55	55	mg/Kg		<MDL	57	57	mg/Kg		<MDL	64	64	mg/Kg		<MDL	66	66	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

	Locator: Z6-SB-2	Locator: Z6-SB-3	Locator: Z7-SNB-1	Locator: Z7-SNB-2
	Descrip: Zone 6 - Site B - Station 2	Descrip: Zone 6 - Station B - Site 3	Descrip: Zone 7N - Site B - Station 1	Descrip: Zone 7N - Site B - Station 2
	Sampled: Oct 11, 2001	Sampled: Oct 11, 2001	Sampled: Oct 09, 2001	Sampled: Oct 08, 2001
	Lab ID: L22395-5	Lab ID: L22395-6	Lab ID: L22395-7	Lab ID: L22395-8
	Matrix: SALTWTRSED	Matrix: SALTWTRSED	Matrix: SALTWTRSED	Matrix: SALTWTRSED
	% Solids: 45.8	% Solids: 44.2	% Solids: 39.2	% Solids: 38
Parameters	Value Qual MDL RDL Units - Dry Weight Basis	Value Qual MDL RDL Units - Dry Weight Basis	Value Qual MDL RDL Units - Dry Weight Basis	Value Qual MDL RDL Units - Dry Weight Basis
COMBINED LABS				

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z7-SNB-3					Locator:	Z7-SSA-1					Locator:	Z7-SSA-2					Locator:	Z7-SSA-3			
Descrip:	Zone 7N - Site B - Station 3					Descrip:	Zone 7S - Site A - Station 1					Descrip:	Zone 7S - Site A - Station 2					Descrip:	Zone 7S - Site A - Station 3			
Sampled:	Oct 08, 2001					Sampled:	Oct 09, 2001					Sampled:	Oct 09, 2001					Sampled:	Oct 09, 2001			
Lab ID:	L22395-9					Lab ID:	L22395-10					Lab ID:	L22395-11					Lab ID:	L22395-12			
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED			
% Solids:	41.1					% Solids:	69.4					% Solids:	74					% Solids:	74.9			
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																				
Clay *	19.2		0.1	0.1	%	4.7		0.1	0.1	%	4.5		0.1	0.1	%	4.2		0.1	0.1	%
Gravel *	0.3	E	0.1	0.1	%	1.3	E	0.1	0.1	%	21.6	E	0.1	0.1	%	18.7	E	0.1	0.1	%
p+0.00 *		<MDL	0.1	0.1	%	1		0.1	0.1	%	4.9		0.1	0.1	%	6		0.1	0.1	%
p+1.00 *	0.3		0.1	0.1	%	5.2		0.1	0.1	%	6.5		0.1	0.1	%	5.5		0.1	0.1	%
p+10.0 *	2.4		0.1	0.1	%	0.7		0.1	0.1	%	0.7		0.1	0.1	%	0.6		0.1	0.1	%
p+10.0(more than) *	11.4		0.1	0.1	%	2.6		0.1	0.1	%	2.5		0.1	0.1	%	2.4		0.1	0.1	%
p+2.00 *	3.8		0.1	0.1	%	33.5		0.1	0.1	%	14.5		0.1	0.1	%	10.3		0.1	0.1	%
p+3.00 *	7		0.1	0.1	%	33.4		0.1	0.1	%	33.1		0.1	0.1	%	16.1		0.1	0.1	%
p+4.00 *	25.8		0.1	0.1	%	11.1		0.1	0.1	%	6.8		0.1	0.1	%	4.8		0.1	0.1	%
p+5.00 *	13.2		0.1	0.1	%	4.6		0.1	0.1	%	3.4		0.1	0.1	%	28.7		0.1	0.1	%
p+6.00 *	11.2		0.1	0.1	%	0.2		0.1	0.1	%	0.8		0.1	0.1	%	1.3		0.1	0.1	%
p+7.00 *	8.2		0.1	0.1	%	2.4		0.1	0.1	%	1.7		0.1	0.1	%	2.1		0.1	0.1	%
p+8.00 *	11.2		0.1	0.1	%	2.4		0.1	0.1	%	2.3		0.1	0.1	%	2.4		0.1	0.1	%
p+9.00 *	5.4		0.1	0.1	%	1.4		0.1	0.1	%	1.3		0.1	0.1	%	1.2		0.1	0.1	%
p-1.00 *		<MDL	0.1	0.1	%	0.6		0.1	0.1	%	10.5		0.1	0.1	%	13.2		0.1	0.1	%
p-2.00 *	0.3		0.1	0.1	%	0.3		0.1	0.1	%	4.5		0.1	0.1	%	4.8		0.1	0.1	%
p-2.00(less than) *		<MDL	0.1	0.1	%	0.4		0.1	0.1	%	6.6		0.1	0.1	%	0.7		0.1	0.1	%
Sand *	36.9		0.1	0.1	%	84.2		0.1	0.1	%	65.8		0.1	0.1	%	42.7		0.1	0.1	%
Silt *	43.8		0.1	0.1	%	9.6		0.1	0.1	%	8.2		0.1	0.1	%	34.5		0.1	0.1	%
M=CV EPA9060-PSEP96 (03-04-002-001)																				
Total Organic Carbon	15700		1200	2430	mg/Kg	5720		1300	2590	mg/Kg	6810		950	1890	mg/Kg	7800		930	1870	mg/Kg
M=CV SM2540-G (03-01-007-001)																				
Total Solids *	41.1		0.005	0.01	%	69.4		0.005	0.01	%	74		0.005	0.01	%	74.9		0.005	0.01	%
Total Volatile Solids	5.89		0.0122	0.0243	%	1.79		0.0072	0.0144	%	1.7		0.00676	0.0135	%	1.59		0.00668	0.0134	%
M=CV SM4500-NH3-G(03-03-014-000)KCL																				
Ammonia Nitrogen	15.7		0.24	0.487	mg/Kg	2.74		0.14	0.288	mg/Kg	2.89		0.14	0.27	mg/Kg	3.19		0.13	0.267	mg/Kg
M=CV SM4500S2-D, EPA376.2																				
Total Sulfide	153		15	14.6	mg/Kg		<MDL	4.3	4.32	mg/Kg		<MDL	2.7	2.7	mg/Kg		<MDL	2.7	2.67	mg/Kg
M=ES NONE																				
Easting 1 (NAD83) *	1252244				ft	1254257				ft	1254355				ft	1254151				ft
Easting 2 (NAD83) *	1252249				ft	1254250				ft	1254357				ft	1254153				ft
Easting 3 (NAD83) *						1254248				ft										
Northing 1 (NAD83) *	289557				ft	289587				ft	289451				ft	289248				ft
Northing 2 (NAD83) *	289559				ft	289541				ft	289446				ft	289253				ft
Northing 3 (NAD83) *						289545				ft										
Sample Depth *	181				m	86				m	85				m	89				m
Sample Start Time *	1355				hr	1036				hr	1150				hr	1250				hr
Sediment Sampling Depth *	17				cm	11				cm	9				cm	10				cm
Sediment Sampling Range *	0-10				cm	0-10				cm	0-10				cm	0-10cm				cm
Tidal Condition *	E				none	F				none	S				none	E				none
Tide Height *	8				ft	10				ft	10.5				ft	10				ft
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA	0.13	<RDL	0.049	0.479	mg/Kg	0.04	<RDL	0.027	0.28	mg/Kg	0.038	<RDL	0.027	0.264	mg/Kg	0.044	<RDL	0.027	0.266	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z7-SNB-3	Z7-SSA-1	Z7-SSA-2	Z7-SSA-3
Descrip:	Zone 7N - Site B - Station 3	Zone 7S - Site A - Station 1	Zone 7S - Site A - Station 2	Zone 7S - Site A - Station 3
Sampled:	Oct 08, 2001	Oct 09, 2001	Oct 09, 2001	Oct 09, 2001
Lab ID:	L22395-9	L22395-10	L22395-11	L22395-12
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	41.1	69.4	74	74.9

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																				
Aluminum, Total, ICP	15400	L	12	62	mg/Kg	8010	L	7.2	35.9	mg/Kg	7920	L	6.5	32.4	mg/Kg	8000	L	6.4	31.9	mg/Kg
Antimony, Total, ICP		<MDL,G	3.6	18.6	mg/Kg		<MDL,G	2.2	10.7	mg/Kg	2.3	<RDL,G	1.9	9.73	mg/Kg		<MDL,G	1.9	9.57	mg/Kg
Arsenic, Total, ICP		<MDL	6.1	30.9	mg/Kg		<MDL	3.6	17.9	mg/Kg	4.2	<RDL	3.2	16.2	mg/Kg		<MDL	3.2	16	mg/Kg
Beryllium, Total, ICP	0.39	<RDL	0.12	0.62	mg/Kg	0.22	<RDL	0.072	0.359	mg/Kg	0.19	<RDL	0.065	0.324	mg/Kg	0.2	<RDL	0.064	0.319	mg/Kg
Cadmium, Total, ICP		<MDL	0.36	1.86	mg/Kg	0.27	<RDL	0.22	1.07	mg/Kg		<MDL	0.19	0.973	mg/Kg	0.25	<RDL	0.19	0.957	mg/Kg
Chromium, Total, ICP	35.5		0.61	3.09	mg/Kg	25.9		0.36	1.79	mg/Kg	20.3		0.32	1.62	mg/Kg	20.4		0.32	1.6	mg/Kg
Copper, Total, ICP	27.5		0.49	2.48	mg/Kg	10		0.29	1.43	mg/Kg	12		0.26	1.3	mg/Kg	13.2		0.25	1.28	mg/Kg
Iron, Total, ICP	25100		6.1	30.9	mg/Kg	15400		3.6	17.9	mg/Kg	14300		3.2	16.2	mg/Kg	13600		3.2	16	mg/Kg
Lead, Total, ICP	14	<RDL	3.6	18.6	mg/Kg	7.5	<RDL	2.2	10.7	mg/Kg	8.2	<RDL	1.9	9.73	mg/Kg	18.7		1.9	9.57	mg/Kg
Manganese, Total, ICP	331		0.24	1.24	mg/Kg	308		0.14	0.718	mg/Kg	285		0.13	0.649	mg/Kg	291		0.13	0.638	mg/Kg
Nickel, Total, ICP	33.3		2.4	12.4	mg/Kg	25.4		1.4	7.18	mg/Kg	25.4		1.3	6.49	mg/Kg	22		1.3	6.38	mg/Kg
Selenium, Total, ICP		<MDL	6.1	30.9	mg/Kg		<MDL	3.6	17.9	mg/Kg		<MDL	3.2	16.2	mg/Kg		<MDL	3.2	16	mg/Kg
Silver, Total, ICP		<MDL	0.49	2.48	mg/Kg		<MDL	0.29	1.43	mg/Kg		<MDL	0.26	1.3	mg/Kg		<MDL	0.25	1.28	mg/Kg
Thallium, Total, ICP		<MDL	24	124	mg/Kg		<MDL	14	71.8	mg/Kg		<MDL	13	64.9	mg/Kg		<MDL	13	63.8	mg/Kg
Tin, Total, ICP		<MDL	8.8	43.3	mg/Kg		<MDL	5	25.1	mg/Kg		<MDL	4.6	22.7	mg/Kg		<MDL	4.4	22.3	mg/Kg
Zinc, Total, ICP	78.8		0.61	3.09	mg/Kg	38.6		0.36	1.79	mg/Kg	36.8		0.32	1.62	mg/Kg	39.5		0.32	1.6	mg/Kg
M=OR EPA 3540C/8141A (7-3-04-000)																				
Chlorpyrifos		<MDL	80	162	ug/Kg		<MDL	48	96.1	ug/Kg		<MDL	45	90.1	ug/Kg		<MDL	44	89.1	ug/Kg
Diazinon		<MDL	49	81	ug/Kg		<MDL	29	48	ug/Kg		<MDL	27	45	ug/Kg		<MDL	27	44.5	ug/Kg
Disulfoton		<MDL	49	81	ug/Kg		<MDL	29	48	ug/Kg		<MDL	27	45	ug/Kg		<MDL	27	44.5	ug/Kg
Malathion		<MDL	130	243	ug/Kg		<MDL	76	144	ug/Kg		<MDL	72	135	ug/Kg		<MDL	71	134	ug/Kg
Parathion-Ethyl		<MDL	130	243	ug/Kg		<MDL	76	144	ug/Kg		<MDL	72	135	ug/Kg		<MDL	71	134	ug/Kg
Parathion-Methyl		<MDL	130	243	ug/Kg		<MDL	76	144	ug/Kg		<MDL	72	135	ug/Kg		<MDL	71	134	ug/Kg
Phorate		<MDL	80	162	ug/Kg		<MDL	48	96.1	ug/Kg		<MDL	45	90.1	ug/Kg		<MDL	44	89.1	ug/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL,G	0.63	1.29	ug/Kg		<MDL,G	0.37	0.764	ug/Kg		<MDL,G	0.35	0.716	ug/Kg		<MDL,G	0.35	0.708	ug/Kg
1,2-Dichlorobenzene		<MDL,G	0.63	1.29	ug/Kg		<MDL,G	0.37	0.764	ug/Kg		<MDL,G	0.35	0.716	ug/Kg		<MDL,G	0.35	0.708	ug/Kg
1,2-Diphenylhydrazine		<MDL	24	48.7	ug/Kg		<MDL	14	28.8	ug/Kg		<MDL,G	14	27	ug/Kg		<MDL	13	26.7	ug/Kg
1,3-Dichlorobenzene		<MDL,G	0.63	1.29	ug/Kg		<MDL,G	0.37	0.764	ug/Kg		<MDL,G	0.35	0.716	ug/Kg		<MDL,G	0.35	0.708	ug/Kg
1,4-Dichlorobenzene		<MDL,G	0.32	0.642	ug/Kg		<MDL,G	0.19	0.38	ug/Kg		<MDL,G	0.18	0.357	ug/Kg		<MDL,G	0.17	0.352	ug/Kg
2,4,5-Trichlorophenol		<MDL	29	58.4	ug/Kg		<MDL,G	17	34.6	ug/Kg		<MDL,G	16	32.4	ug/Kg		<MDL,G	16	32	ug/Kg
2,4,6-Trichlorophenol		<MDL	32	63.3	ug/Kg		<MDL,G	19	37.5	ug/Kg		<MDL,G	18	35.1	ug/Kg		<MDL,G	17	34.7	ug/Kg
2,4-Dichlorophenol		<MDL	39	77.9	ug/Kg		<MDL,G	23	46.1	ug/Kg		<MDL,G	22	43.2	ug/Kg		<MDL,G	21	42.7	ug/Kg
2,4-Dimethylphenol		<MDL	17	34.1	ug/Kg		<MDL,G	10	20.2	ug/Kg		<MDL,G	9.5	18.9	ug/Kg		<MDL,G	9.3	18.7	ug/Kg
2,4-Dinitrotoluene		<MDL	7.3	14.6	ug/Kg		<MDL	4.3	8.65	ug/Kg		<MDL,G	4.1	8.11	ug/Kg		<MDL	4	8.01	ug/Kg
2,6-Dinitrotoluene		<MDL	24	48.7	ug/Kg		<MDL	14	28.8	ug/Kg		<MDL,G	14	27	ug/Kg		<MDL	13	26.7	ug/Kg
2-Chloronaphthalene		<MDL	39	77.9	ug/Kg		<MDL	23	46.1	ug/Kg		<MDL,G	22	43.2	ug/Kg		<MDL	21	42.7	ug/Kg
2-Chlorophenol		<MDL,G	19	38.9	ug/Kg		<MDL,G	12	23.1	ug/Kg		<MDL,G	11	21.6	ug/Kg		<MDL,G	11	21.4	ug/Kg
2-Methylnaphthalene		<MDL	34	68.1	ug/Kg		<MDL	20	40.3	ug/Kg		<MDL,G	19	37.8	ug/Kg		<MDL	19	37.4	ug/Kg
2-Methylphenol		<MDL	46	92.5	ug/Kg		<MDL,G	27	54.8	ug/Kg		<MDL,G	26	51.4	ug/Kg		<MDL,G	25	50.7	ug/Kg
2-Nitrophenol		<MDL	36	73	ug/Kg		<MDL,G	22	43.2	ug/Kg		<MDL,G	20	40.5	ug/Kg		<MDL,G	20	40.1	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	22	43.8	ug/Kg		<MDL	13	25.9	ug/Kg		<MDL,G	12	24.3	ug/Kg		<MDL	12	24	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	32	63.3	ug/Kg		<MDL	19	37.5	ug/Kg		<MDL,G	18	35.1	ug/Kg		<MDL	17	34.7	ug/Kg
4-Methylphenol		<MDL	39	77.9	ug/Kg		<MDL,G	23	46.1	ug/Kg		<MDL,G	22	43.2	ug/Kg		<MDL,G	21	42.7	ug/Kg
Acenaphthene		<MDL	17	34.1	ug/Kg		<MDL	10	20.2	ug/Kg		<MDL,G	9.5	18.9	ug/Kg		<MDL	9.3	18.7	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z7-SNB-3	Z7-SSA-1	Z7-SSA-2	Z7-SSA-3
Descrip:	Zone 7N - Site B - Station 3	Zone 7S - Site A - Station 1	Zone 7S - Site A - Station 2	Zone 7S - Site A - Station 3
Sampled:	Oct 08, 2001	Oct 09, 2001	Oct 09, 2001	Oct 09, 2001
Lab ID:	L22395-9	L22395-10	L22395-11	L22395-12
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	41.1	69.4	74	74.9

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																				
Acenaphthylene		<MDL	36	73	ug/Kg		<MDL	22	43.2	ug/Kg		<MDL,G	20	40.5	ug/Kg		<MDL	20	40.1	ug/Kg
Aniline		<MDL,X	46	92.5	ug/Kg		<MDL,X	27	54.8	ug/Kg		<MDL,G,X	26	51.4	ug/Kg		<MDL,X	25	50.7	ug/Kg
Anthracene		<MDL	9.7	19.5	ug/Kg	9.5	<RDL	5.8	11.5	ug/Kg	9.3	<RDL,G	5.4	10.8	ug/Kg	11.8		5.3	10.7	ug/Kg
Benzo(a)anthracene	14.9		4.9	9.73	ug/Kg	9.18		2.9	5.76	ug/Kg	8.61	G	2.7	5.41	ug/Kg	14.8		2.7	5.34	ug/Kg
Benzo(a)pyrene		<MDL,B	7.3	14.6	ug/Kg		<MDL,B	4.3	8.65	ug/Kg		<MDL,G,B	4.1	8.11	ug/Kg		<MDL,B	4	8.01	ug/Kg
Benzo(b)fluoranthene		<MDL	7.3	14.6	ug/Kg		<MDL	4.3	8.65	ug/Kg		<MDL,G	4.1	8.11	ug/Kg	6.3	<RDL	4	8.01	ug/Kg
Benzo(g,h,i)perylene		<MDL	19	38.9	ug/Kg		<MDL	12	23.1	ug/Kg		<MDL,G	11	21.6	ug/Kg		<MDL	11	21.4	ug/Kg
Benzo(k)fluoranthene		<MDL	7.3	14.6	ug/Kg		<MDL	4.3	8.65	ug/Kg		<MDL,G	4.1	8.11	ug/Kg	4	<RDL	4	8.01	ug/Kg
Benzoic Acid	253	X	15	29.2	ug/Kg	146	G,X	8.6	17.3	ug/Kg	142	G,X	8.1	16.2	ug/Kg	140	G,X	8	16	ug/Kg
Benzyl Alcohol		<MDL	15	29.2	ug/Kg		<MDL	8.6	17.3	ug/Kg		<MDL,G	8.1	16.2	ug/Kg		<MDL	8	16	ug/Kg
Benzyl Butyl Phthalate	21	<RDL	15	29.2	ug/Kg		<MDL	8.6	17.3	ug/Kg		<MDL,G	8.1	16.2	ug/Kg		<MDL	8	16	ug/Kg
Bis(2-Chloroethoxy)Methane		<MDL,G	41	82.7	ug/Kg		<MDL,G	24	49	ug/Kg		<MDL,G	23	45.9	ug/Kg		<MDL,G	23	45.4	ug/Kg
Bis(2-Chloroethyl)Ether		<MDL,G	36	73	ug/Kg		<MDL,G	22	43.2	ug/Kg		<MDL,G	20	40.5	ug/Kg		<MDL,G	20	40.1	ug/Kg
Bis(2-Chloroisopropyl)Ether		<MDL,G	36	73	ug/Kg		<MDL,G	22	43.2	ug/Kg		<MDL,G	20	40.5	ug/Kg		<MDL,G	20	40.1	ug/Kg
Bis(2-Ethylhexyl)Phthalate	100	B	16	34.1	ug/Kg	102	B	9.7	20.2	ug/Kg	129	G,B	9.1	18.9	ug/Kg	19	RDL,B	8.9	18.7	ug/Kg
Caffeine		<MDL	15	29.2	ug/Kg		<MDL	8.6	17.3	ug/Kg		<MDL,G	8.1	16.2	ug/Kg		<MDL	8	16	ug/Kg
Carbazole		<MDL	17	34.1	ug/Kg		<MDL	10	20.2	ug/Kg		<MDL,G	9.5	18.9	ug/Kg		<MDL	9.3	18.7	ug/Kg
Chrysene		<MDL	9.7	19.5	ug/Kg		<MDL	5.8	11.5	ug/Kg		<MDL,G	5.4	10.8	ug/Kg	10	<RDL	5.3	10.7	ug/Kg
Coprostanol		<MDL	34	68.1	ug/Kg		<MDL	20	40.3	ug/Kg		<MDL,G	19	37.8	ug/Kg		<MDL	19	37.4	ug/Kg
Dibenzo(a,h)anthracene		<MDL,B,L	17	34.1	ug/Kg		<MDL,B,L	10	20.2	ug/Kg		<MDL,G,B,L	9.5	18.9	ug/Kg		<MDL,B,L	9.3	18.7	ug/Kg
Dibenzofuran		<MDL	34	68.1	ug/Kg		<MDL	20	40.3	ug/Kg		<MDL,G	19	37.8	ug/Kg		<MDL	19	37.4	ug/Kg
Diethyl Phthalate		<MDL	15	29.2	ug/Kg		<MDL	8.6	17.3	ug/Kg		<MDL,G	8.1	16.2	ug/Kg		<MDL	8	16	ug/Kg
Dimethyl Phthalate		<MDL	27	53.5	ug/Kg		<MDL	16	31.7	ug/Kg		<MDL,G	15	29.7	ug/Kg		<MDL	15	29.4	ug/Kg
Di-N-Butyl Phthalate	31.4	B	12	24.3	ug/Kg	21.9	B	7.2	14.4	ug/Kg	21.5	G,B	6.8	13.5	ug/Kg	18.3	B	6.7	13.4	ug/Kg
Di-N-Octyl Phthalate		<MDL	19	38.9	ug/Kg		<MDL	12	23.1	ug/Kg		<MDL,G	11	21.6	ug/Kg		<MDL	11	21.4	ug/Kg
Fluoranthene	24	<RDL	19	38.9	ug/Kg	12	<RDL	12	23.1	ug/Kg		<MDL,G	11	21.6	ug/Kg	25.5		11	21.4	ug/Kg
Fluorene		<MDL	32	63.3	ug/Kg		<MDL	19	37.5	ug/Kg		<MDL,G	18	35.1	ug/Kg		<MDL	17	34.7	ug/Kg
Hexachlorobenzene		<MDL	1.6	3.24	ug/Kg		<MDL	0.95	1.92	ug/Kg		<MDL,G	0.89	1.8	ug/Kg		<MDL	0.88	1.78	ug/Kg
Hexachlorobutadiene		<MDL,G	1.8	3.65	ug/Kg		<MDL,G	1.1	2.16	ug/Kg		<MDL,G	1	2.03	ug/Kg		<MDL,G	1	2	ug/Kg
Hexachloroethane		<MDL,G	36	73	ug/Kg		<MDL,G	22	43.2	ug/Kg		<MDL,G	20	40.5	ug/Kg		<MDL,G	20	40.1	ug/Kg
Indeno(1,2,3-Cd)Pyrene		<MDL	22	43.8	ug/Kg		<MDL	13	25.9	ug/Kg		<MDL,G	12	24.3	ug/Kg		<MDL	12	24	ug/Kg
Isophorone		<MDL	46	92.5	ug/Kg		<MDL	27	54.8	ug/Kg		<MDL,G	26	51.4	ug/Kg		<MDL	25	50.7	ug/Kg
Naphthalene		<MDL,G	34	68.1	ug/Kg		<MDL,G	20	40.3	ug/Kg		<MDL,G	19	37.8	ug/Kg		<MDL,G	19	37.4	ug/Kg
Nitrobenzene		<MDL,X	39	77.9	ug/Kg		<MDL,X	23	46.1	ug/Kg		<MDL,G,X	22	43.2	ug/Kg		<MDL,X	21	42.7	ug/Kg
N-Nitrosodimethylamine		<MDL,G	49	97.3	ug/Kg		<MDL,G	29	57.6	ug/Kg		<MDL,G	27	54.1	ug/Kg		<MDL,G	27	53.4	ug/Kg
N-Nitrosodi-N-Propylamine		<MDL	22	43.8	ug/Kg		<MDL	13	25.9	ug/Kg		<MDL,G	12	24.3	ug/Kg		<MDL	12	24	ug/Kg
N-Nitrosodiphenylamine		<MDL	49	97.3	ug/Kg		<MDL	29	57.6	ug/Kg		<MDL,G	27	54.1	ug/Kg		<MDL	27	53.4	ug/Kg
Pentachlorophenol		<MDL	12	24.3	ug/Kg		<MDL,G	7.2	14.4	ug/Kg		<MDL,G	6.8	13.5	ug/Kg		<MDL,G	6.7	13.4	ug/Kg
Phenanthrene		<MDL	9.7	19.5	ug/Kg	6.9	<RDL	5.8	11.5	ug/Kg		<MDL,G	5.4	10.8	ug/Kg	8.8	<RDL	5.3	10.7	ug/Kg
Phenol		<MDL	22	43.8	ug/Kg		<MDL,G	13	25.9	ug/Kg		<MDL,G	12	24.3	ug/Kg		<MDL,G	12	24	ug/Kg
Pyrene	20		9.7	19.5	ug/Kg	11.7		5.8	11.5	ug/Kg	11	<RDL,G	5.4	10.8	ug/Kg	13		5.3	10.7	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg
4,4'-DDE		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg
4,4'-DDT		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg

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Descrip:	Zone 7N - Site B - Station 3	Zone 7S - Site A - Station 1	Zone 7S - Site A - Station 2	Zone 7S - Site A - Station 3
Sampled:	Oct 08, 2001	Oct 09, 2001	Oct 09, 2001	Oct 09, 2001
Lab ID:	L22395-9	L22395-10	L22395-11	L22395-12
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	41.1	69.4	74	74.9

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																				
Aldrin		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg
Alpha-BHC		<MDL	1.2	2.43	ug/Kg		<MDL	0.72	1.44	ug/Kg		<MDL	0.68	1.35	ug/Kg		<MDL	0.67	1.34	ug/Kg
Aroclor 1016		<MDL	3.2	6.08	ug/Kg		<MDL	1.9	3.6	ug/Kg		<MDL	1.8	3.38	ug/Kg		<MDL	1.7	3.34	ug/Kg
Aroclor 1221		<MDL	6.1	12.2	ug/Kg		<MDL	3.6	7.2	ug/Kg		<MDL	3.4	6.76	ug/Kg		<MDL	3.3	6.68	ug/Kg
Aroclor 1232		<MDL	6.1	12.2	ug/Kg		<MDL	3.6	7.2	ug/Kg		<MDL	3.4	6.76	ug/Kg		<MDL	3.3	6.68	ug/Kg
Aroclor 1242		<MDL	3.2	6.08	ug/Kg		<MDL	1.9	3.6	ug/Kg		<MDL	1.8	3.38	ug/Kg		<MDL	1.7	3.34	ug/Kg
Aroclor 1248		<MDL	3.2	6.08	ug/Kg		<MDL	1.9	3.6	ug/Kg		<MDL	1.8	3.38	ug/Kg		<MDL	1.7	3.34	ug/Kg
Aroclor 1254		<MDL	3.2	6.08	ug/Kg		<MDL	1.9	3.6	ug/Kg		<MDL	1.8	3.38	ug/Kg		<MDL	1.7	3.34	ug/Kg
Aroclor 1260		<MDL	3.2	6.08	ug/Kg		<MDL	1.9	3.6	ug/Kg		<MDL	1.8	3.38	ug/Kg		<MDL	1.7	3.34	ug/Kg
Beta-BHC		<MDL	1.2	2.43	ug/Kg		<MDL	0.72	1.44	ug/Kg		<MDL	0.68	1.35	ug/Kg		<MDL	0.67	1.34	ug/Kg
Chlordane		<MDL	1.2	2.43	ug/Kg		<MDL	0.72	1.44	ug/Kg		<MDL	0.68	1.35	ug/Kg		<MDL	0.67	1.34	ug/Kg
Delta-BHC		<MDL	1.2	2.43	ug/Kg		<MDL	0.72	1.44	ug/Kg		<MDL	0.68	1.35	ug/Kg		<MDL	0.67	1.34	ug/Kg
Dieldrin		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg
Endosulfan I		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg
Endosulfan II		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg
Endosulfan Sulfate		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg
Endrin		<MDL	2.4	4.87	ug/Kg		<MDL	1.4	2.88	ug/Kg		<MDL	1.4	2.7	ug/Kg		<MDL	1.3	2.67	ug/Kg
Endrin Aldehyde		<MDL,X	4.9	9.73	ug/Kg		<MDL,X	2.9	5.76	ug/Kg		<MDL,X	2.7	5.41	ug/Kg		<MDL,X	2.7	5.34	ug/Kg
Gamma-BHC (Lindane)		<MDL	1.2	2.43	ug/Kg		<MDL	0.72	1.44	ug/Kg		<MDL	0.68	1.35	ug/Kg		<MDL	0.67	1.34	ug/Kg
Heptachlor		<MDL	1.2	2.43	ug/Kg		<MDL	0.72	1.44	ug/Kg		<MDL	0.68	1.35	ug/Kg		<MDL	0.67	1.34	ug/Kg
Heptachlor Epoxide		<MDL	1.2	2.43	ug/Kg		<MDL	0.72	1.44	ug/Kg		<MDL	0.68	1.35	ug/Kg		<MDL	0.67	1.34	ug/Kg
Methoxychlor		<MDL	12	24.3	ug/Kg		<MDL	7.2	14.4	ug/Kg		<MDL	6.8	13.5	ug/Kg		<MDL	6.7	13.4	ug/Kg
Toxaphene		<MDL	24	48.7	ug/Kg		<MDL	14	28.8	ug/Kg		<MDL	14	27	ug/Kg		<MDL	13	26.7	ug/Kg
M=OR KRONE 1989 (07-03-012-000)																				
Di-n-Butyltin (as dibutyltin ion)	5.57	E	0.85	1.7	ug/Kg	0.81	<RDL,B	0.5	1.01	ug/Kg	0.86	<RDL,B	0.47	0.946	ug/Kg		<MDL,B	0.47	0.935	ug/Kg
Mono-n-Butyltin (as monobutyltin ion)	9.34		4.1	8.2	ug/Kg	3.9	<RDL,B	2.4	4.86	ug/Kg	3.9	<RDL,B	2.3	4.55	ug/Kg	3.7	<RDL,B	2.3	4.5	ug/Kg
Tetra-n-Butyltin (as tetrabutyltin)		<MDL	0.97	1.95	ug/Kg		<MDL	0.58	1.15	ug/Kg		<MDL	0.54	1.08	ug/Kg		<MDL	0.53	1.07	ug/Kg
Tri-n-Butyltin (as tributyltin ion)	0.8	<RDL,E	0.51	1.01	ug/Kg	0.37	<RDL,G	0.3	0.598	ug/Kg	0.576	G	0.28	0.561	ug/Kg		<MDL,G	0.28	0.554	ug/Kg
M=OR SM5520-B,D,F (07-03-014-000)																				
Oil And Grease, Total		<MDL	240	608	mg/Kg	320	<RDL	140	360	mg/Kg		<MDL	140	338	mg/Kg	200	<RDL	130	334	mg/Kg
M=OR SW-846 8151A GC/MS MODIFIED																				
2,4,5-T		<MDL	3.2	14.7	ug/Kg		<MDL	1.9	8.56	ug/Kg		<MDL	1.9	8.89	ug/Kg		<MDL	1.9	8.32	ug/Kg
2,4,5-TP (Silvex)		<MDL	4.6	14.7	ug/Kg		<MDL	2.7	8.56	ug/Kg		<MDL	2.8	8.89	ug/Kg		<MDL	2.7	8.32	ug/Kg
2,4-D		<MDL	1.2	14.7	ug/Kg		<MDL	0.71	8.56	ug/Kg		<MDL	0.73	8.89	ug/Kg		<MDL	0.68	8.32	ug/Kg
2,4-DB		<MDL	2.1	14.7	ug/Kg		<MDL	1.2	8.56	ug/Kg		<MDL	1.2	8.89	ug/Kg		<MDL	1.2	8.32	ug/Kg
Dalapon		<MDL,G	4.4	14.7	ug/Kg		<MDL,G	2.6	8.56	ug/Kg		<MDL,G	2.7	8.89	ug/Kg		<MDL,G	2.5	8.32	ug/Kg
Dicamba		<MDL	3.6	14.7	ug/Kg		<MDL	2	8.56	ug/Kg		<MDL	2.2	8.89	ug/Kg		<MDL	2	8.32	ug/Kg
Dichloroprop		<MDL	1.6	14.7	ug/Kg		<MDL	0.91	8.56	ug/Kg		<MDL	0.95	8.89	ug/Kg		<MDL	0.88	8.32	ug/Kg
Dinoseb		<MDL	1.2	14.7	ug/Kg		<MDL	0.71	8.56	ug/Kg		<MDL	0.73	8.89	ug/Kg		<MDL	0.68	8.32	ug/Kg
MCPA		<MDL	2.2	14.7	ug/Kg		<MDL	1.3	8.56	ug/Kg		<MDL	1.3	8.89	ug/Kg		<MDL	1.3	8.32	ug/Kg
MCPP		<MDL	4.1	14.7	ug/Kg		<MDL	2.3	8.56	ug/Kg		<MDL	2.4	8.89	ug/Kg		<MDL	2.3	8.32	ug/Kg
M=OR WDOE NWTPH-DX (7-3-06-001)																				
Diesel Range (>C12-C24)		<MDL	61	61	mg/Kg		<MDL	36	36	mg/Kg		<MDL	34	34	mg/Kg		<MDL	33	33	mg/Kg
Lube Oil Range (>C24)		<MDL	61	61	mg/Kg		<MDL	36	36	mg/Kg		<MDL	34	34	mg/Kg		<MDL	33	33	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z7-SNB-3					Locator:	Z7-SSA-1					Locator:	Z7-SSA-2					Locator:	Z7-SSA-3				
Descrip:	Zone 7N - Site B - Station 3					Descrip:	Zone 7S - Site A - Station 1					Descrip:	Zone 7S - Site A - Station 2					Descrip:	Zone 7S - Site A - Station 3				
Sampled:	Oct 08, 2001					Sampled:	Oct 09, 2001					Sampled:	Oct 09, 2001					Sampled:	Oct 09, 2001				
Lab ID:	L22395-9					Lab ID:	L22395-10					Lab ID:	L22395-11					Lab ID:	L22395-12				
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED				
% Solids:	41.1					% Solids:	69.4					% Solids:	74					% Solids:	74.9				
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																				

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z7-SSB-1	Z7-SSB-2	Z7-SSB-3	OSZ-1
Descrip:	Zone 7S - Site B - Station 1	Zone 7S - Site B - Station 2	Zone 7S - Site B - Station 3	Offshore Zone - Station 1
Sampled:	Oct 08, 2001	Oct 08, 2001	Oct 08, 2001	Oct 15, 2001
Lab ID:	L22395-13	L22395-14	L22395-15	L22395-16
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	39.8	40.8	40.4	56.1

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																				
Clay *	17.9		0.1	0.1	%	17		0.1	0.1	%	17.4		0.1	0.1	%	16.5		0.1	0.1	%
Gravel *	1.2	E	0.1	0.1	%	0.6	E	0.1	0.1	%	1.3	E	0.1	0.1	%	1.2	E	0.1	0.1	%
p+0.00 *	0.5		0.1	0.1	%	0.2		0.1	0.1	%	0.3		0.1	0.1	%	0.6		0.1	0.1	%
p+1.00 *	0.5		0.1	0.1	%	1.9		0.1	0.1	%	0.3		0.1	0.1	%	0.6		0.1	0.1	%
p+10.0 *	2.3		0.1	0.1	%	0.6		0.1	0.1	%	0.6		0.1	0.1	%	1.8		0.1	0.1	%
p+10.0(more than) *	10.9		0.1	0.1	%	14.3		0.1	0.1	%	14.9		0.1	0.1	%	12.1		0.1	0.1	%
p+2.00 *	6.4		0.1	0.1	%	4.4		0.1	0.1	%	3.8		0.1	0.1	%	1.1		0.1	0.1	%
p+3.00 *	19.3		0.1	0.1	%	8.5		0.1	0.1	%	26.8		0.1	0.1	%	53.3		0.1	0.1	%
p+4.00 *	16.4		0.1	0.1	%	22.8		0.1	0.1	%	11.9		0.1	0.1	%	15.3		0.1	0.1	%
p+5.00 *	7		0.1	0.1	%	15.3		0.1	0.1	%	6.6		0.1	0.1	%	4.9		0.1	0.1	%
p+6.00 *	13.3		0.1	0.1	%	10.7		0.1	0.1	%	14		0.1	0.1	%	2.6		0.1	0.1	%
p+7.00 *	8.3		0.1	0.1	%	9.3		0.1	0.1	%	9.4		0.1	0.1	%	3.4		0.1	0.1	%
p+8.00 *	9.1		0.1	0.1	%	9.2		0.1	0.1	%	8.5		0.1	0.1	%	0.7		0.1	0.1	%
p+9.00 *	4.7		0.1	0.1	%	2.1		0.1	0.1	%	1.9		0.1	0.1	%	2.6		0.1	0.1	%
p-1.00 *	0.5		0.1	0.1	%	0.2		0.1	0.1	%	0.5		0.1	0.1	%	0.4		0.1	0.1	%
p-2.00 *	0.7		0.1	0.1	%	0.2		0.1	0.1	%	0.5		0.1	0.1	%	0.2		0.1	0.1	%
p-2.00(less than) *		<MDL	0.1	0.1	%	0.2		0.1	0.1	%	0.3		0.1	0.1	%	0.6		0.1	0.1	%
Sand *	43.1		0.1	0.1	%	37.8		0.1	0.1	%	43.1		0.1	0.1	%	70.9		0.1	0.1	%
Silt *	37.7		0.1	0.1	%	44.5		0.1	0.1	%	38.5		0.1	0.1	%	11.6		0.1	0.1	%
M=CV EPA9060-PSEP96 (03-04-002-001)																				
Total Organic Carbon	16100		1300	2510	mg/Kg	15100		1200	2450	mg/Kg	16000		1200	2480	mg/Kg	10200		1200	2500	mg/Kg
M=CV SM2540-G (03-01-007-001)																				
Total Solids *	39.8		0.005	0.01	%	40.8		0.005	0.01	%	40.4		0.005	0.01	%	56.1		0.005	0.01	%
Total Volatile Solids	5.98		0.0126	0.0251	%	5.88		0.0123	0.0245	%	6.16		0.0124	0.0248	%	3.6		0.00891	0.0178	%
M=CV SM4500-NH3-G(03-03-014-000)KCL																				
Ammonia Nitrogen	15.2		0.25	0.503	mg/Kg	14.4		0.25	0.49	mg/Kg	15.5		0.25	0.495	mg/Kg	9.61		0.18	0.357	mg/Kg
M=CV SM4500S2-D, EPA376.2																				
Total Sulfide	128		7.5	7.54	mg/Kg	294		74	73.5	mg/Kg	228		25	24.8	mg/Kg	214		18	17.8	mg/Kg
M=ES NONE																				
Easting 1 (NAD83) *	1252644				ft	1252656				ft	1252835				ft	1246233				ft
Easting 2 (NAD83) *	1252651				ft	1252648				ft	1252852				ft	1246252				ft
Easting 3 (NAD83) *	1252647				ft	1252646				ft										
Northing 1 (NAD83) *	287665				ft	286871				ft	286552				ft	306055				ft
Northing 2 (NAD83) *	287650				ft	286863				ft	286569				ft	306034				ft
Northing 3 (NAD83) *	287653				ft	286853				ft										
Sample Depth *	200				m	206				m	213				m	175				m
Sample Start Time *	1235				hr	1106				hr	935				hr	1200				hr
Sediment Sampling Depth *	17				cm	15				cm	17				cm	14				cm
Sediment Sampling Range *	0-10cm				cm	0-10				cm	0-10				cm	0-10				cm
Tidal Condition *	E				none	S				none	F				none	F				none
Tide Height *	9.5				ft	10				ft	10				ft	4				ft
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA	0.11	<RDL	0.05	0.49	mg/Kg	0.091	<RDL	0.049	0.49	mg/Kg	0.089	<RDL	0.05	0.493	mg/Kg	0.057	<RDL	0.034	0.346	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

	Locator:	Z7-SSB-1				Locator:	Z7-SSB-2				Locator:	Z7-SSB-3				Locator:	OSZ-1			
	Descrip:	Zone 7S - Site B - Station 1				Descrip:	Zone 7S - Site B - Station 2				Descrip:	Zone 7S - Site B - Station 3				Descrip:	Offshore Zone - Station 1			
	Sampled:	Oct 08, 2001				Sampled:	Oct 08, 2001				Sampled:	Oct 08, 2001				Sampled:	Oct 15, 2001			
	Lab ID:	L22395-13				Lab ID:	L22395-14				Lab ID:	L22395-15				Lab ID:	L22395-16			
	Matrix:	SALTWTRSED				Matrix:	SALTWTRSED				Matrix:	SALTWTRSED				Matrix:	SALTWTRSED			
	% Solids:	39.8				% Solids:	40.8				% Solids:	40.4				% Solids:	56.1			
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																				
Aluminum, Total, ICP	15200	L	13	63.3	mg/Kg	15500	L	12	58.8	mg/Kg	16800	L	12	60.1	mg/Kg	12500	L	9.3	46	mg/Kg
Antimony, Total, ICP		<MDL,G	3.8	19	mg/Kg		<MDL,G	3.4	17.6	mg/Kg	3.7	<RDL,G	3.7	18.1	mg/Kg		<MDL,G	2.7	13.8	mg/Kg
Arsenic, Total, ICP	7.5	<RDL	6.3	31.7	mg/Kg	5.9	<RDL	5.9	29.4	mg/Kg		<MDL	5.9	30.2	mg/Kg	4.6	<RDL	4.6	23	mg/Kg
Beryllium, Total, ICP	0.4	<RDL	0.13	0.633	mg/Kg	0.39	<RDL	0.12	0.588	mg/Kg	0.42	<RDL	0.12	0.601	mg/Kg	0.3	<RDL	0.093	0.46	mg/Kg
Cadmium, Total, ICP		<MDL	0.38	1.9	mg/Kg		<MDL	0.34	1.76	mg/Kg		<MDL	0.37	1.81	mg/Kg	0.46	<RDL	0.27	1.38	mg/Kg
Chromium, Total, ICP	35.9		0.63	3.17	mg/Kg	36.3		0.59	2.94	mg/Kg	38.6		0.59	3.02	mg/Kg	32.3		0.46	2.3	mg/Kg
Copper, Total, ICP	26.6		0.5	2.54	mg/Kg	27.2		0.47	2.35	mg/Kg	29.2		0.47	2.41	mg/Kg	18.4		0.37	1.84	mg/Kg
Iron, Total, ICP	25000		6.3	31.7	mg/Kg	24800		5.9	29.4	mg/Kg	26500		5.9	30.2	mg/Kg	21900		4.6	23	mg/Kg
Lead, Total, ICP	13	<RDL	3.8	19	mg/Kg	14	<RDL	3.4	17.6	mg/Kg	16	<RDL	3.7	18.1	mg/Kg	9.4	<RDL	2.7	13.8	mg/Kg
Manganese, Total, ICP	324		0.25	1.26	mg/Kg	321		0.24	1.18	mg/Kg	347		0.24	1.21	mg/Kg	287		0.18	0.92	mg/Kg
Nickel, Total, ICP	33.4		2.5	12.6	mg/Kg	32.8		2.4	11.8	mg/Kg	35.6		2.4	12.1	mg/Kg	35.8		1.8	9.2	mg/Kg
Selenium, Total, ICP		<MDL	6.3	31.7	mg/Kg		<MDL	5.9	29.4	mg/Kg		<MDL	5.9	30.2	mg/Kg		<MDL	4.6	23	mg/Kg
Silver, Total, ICP		<MDL	0.5	2.54	mg/Kg		<MDL	0.47	2.35	mg/Kg		<MDL	0.47	2.41	mg/Kg		<MDL	0.37	1.84	mg/Kg
Thallium, Total, ICP		<MDL	25	126	mg/Kg		<MDL	24	118	mg/Kg		<MDL	24	121	mg/Kg		<MDL	18	92	mg/Kg
Tin, Total, ICP		<MDL	8.8	44.2	mg/Kg		<MDL	8.3	41.2	mg/Kg		<MDL	8.4	42.1	mg/Kg		<MDL	6.4	32.3	mg/Kg
Zinc, Total, ICP	78.6		0.63	3.17	mg/Kg	78.7		0.59	2.94	mg/Kg	83.9		0.59	3.02	mg/Kg	68.3		0.46	2.3	mg/Kg
M=OR EPA 3540C/8141A (7-3-04-000)																				
Chlorpyrifos		<MDL	83	168	ug/Kg		<MDL	81	163	ug/Kg		<MDL	82	165	ug/Kg		<MDL	59	119	ug/Kg
Diazinon		<MDL	50	83.7	ug/Kg		<MDL	49	81.6	ug/Kg		<MDL	50	82.4	ug/Kg		<MDL	36	59.4	ug/Kg
Disulfoton		<MDL	50	83.7	ug/Kg		<MDL	49	81.6	ug/Kg		<MDL	50	82.4	ug/Kg		<MDL	36	59.4	ug/Kg
Malathion		<MDL	130	251	ug/Kg		<MDL	130	245	ug/Kg		<MDL	130	248	ug/Kg		<MDL	94	178	ug/Kg
Parathion-Ethyl		<MDL	130	251	ug/Kg		<MDL	130	245	ug/Kg		<MDL	130	248	ug/Kg		<MDL	94	178	ug/Kg
Parathion-Methyl		<MDL	130	251	ug/Kg		<MDL	130	245	ug/Kg		<MDL	130	248	ug/Kg		<MDL	94	178	ug/Kg
Phorate		<MDL	83	168	ug/Kg		<MDL	81	163	ug/Kg		<MDL	82	165	ug/Kg		<MDL	59	119	ug/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL,G	0.65	1.33	ug/Kg		<MDL,G	0.64	1.3	ug/Kg		<MDL,G	0.64	1.31	ug/Kg		<MDL,G	0.46	0.945	ug/Kg
1,2-Dichlorobenzene		<MDL,G	0.65	1.33	ug/Kg		<MDL,G	0.64	1.3	ug/Kg		<MDL,G	0.64	1.31	ug/Kg		<MDL,G	0.46	0.945	ug/Kg
1,2-Diphenylhydrazine		<MDL,G	25	50.3	ug/Kg		<MDL	25	49	ug/Kg		<MDL	25	49.5	ug/Kg		<MDL	18	35.7	ug/Kg
1,3-Dichlorobenzene		<MDL,G	0.65	1.33	ug/Kg		<MDL,G	0.64	1.3	ug/Kg		<MDL,G	0.64	1.31	ug/Kg		<MDL,G	0.46	0.945	ug/Kg
1,4-Dichlorobenzene		<MDL,G	0.33	0.663	ug/Kg		<MDL,G	0.32	0.647	ug/Kg		<MDL,G	0.32	0.653	ug/Kg		<MDL,G	0.23	0.471	ug/Kg
2,4,5-Trichlorophenol		<MDL,G	30	60.3	ug/Kg		<MDL	29	58.8	ug/Kg		<MDL	30	59.4	ug/Kg		<MDL	21	42.8	ug/Kg
2,4,6-Trichlorophenol		<MDL,G	33	65.3	ug/Kg		<MDL	32	63.7	ug/Kg		<MDL	32	64.4	ug/Kg		<MDL	23	46.3	ug/Kg
2,4-Dichlorophenol		<MDL,G	40	80.4	ug/Kg		<MDL	39	78.4	ug/Kg		<MDL	40	79.2	ug/Kg		<MDL	29	57	ug/Kg
2,4-Dimethylphenol		<MDL,G	18	35.2	ug/Kg		<MDL	17	34.3	ug/Kg		<MDL	17	34.7	ug/Kg		<MDL	12	25	ug/Kg
2,4-Dinitrotoluene		<MDL,G	7.5	15.1	ug/Kg		<MDL	7.4	14.7	ug/Kg		<MDL	7.4	14.9	ug/Kg		<MDL	5.3	10.7	ug/Kg
2,6-Dinitrotoluene		<MDL,G	25	50.3	ug/Kg		<MDL	25	49	ug/Kg		<MDL	25	49.5	ug/Kg		<MDL	18	35.7	ug/Kg
2-Chloronaphthalene		<MDL,G	40	80.4	ug/Kg		<MDL	39	78.4	ug/Kg		<MDL	40	79.2	ug/Kg		<MDL	29	57	ug/Kg
2-Chlorophenol		<MDL,G	20	40.2	ug/Kg		<MDL,G	20	39.2	ug/Kg		<MDL,G	20	39.6	ug/Kg		<MDL,G	14	28.5	ug/Kg
2-Methylnaphthalene		<MDL,G	35	70.4	ug/Kg		<MDL	34	68.6	ug/Kg		<MDL	35	69.3	ug/Kg		<MDL	25	49.9	ug/Kg
2-Methylphenol		<MDL,G	48	95.5	ug/Kg		<MDL	47	93.1	ug/Kg		<MDL	47	94.1	ug/Kg		<MDL	34	67.7	ug/Kg
2-Nitrophenol		<MDL,G	38	75.4	ug/Kg		<MDL	37	73.5	ug/Kg		<MDL	37	74.3	ug/Kg		<MDL	27	53.5	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL,G	23	45.2	ug/Kg		<MDL	22	44.1	ug/Kg		<MDL	22	44.6	ug/Kg		<MDL	16	32.1	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL,G	33	65.3	ug/Kg		<MDL	32	63.7	ug/Kg		<MDL	32	64.4	ug/Kg		<MDL	23	46.3	ug/Kg
4-Methylphenol		<MDL,G	40	80.4	ug/Kg		<MDL	39	78.4	ug/Kg		<MDL	40	79.2	ug/Kg		<MDL	29	57	ug/Kg
Acenaphthene		<MDL,G	18	35.2	ug/Kg		<MDL	17	34.3	ug/Kg		<MDL	17	34.7	ug/Kg		<MDL	12	25	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z7-SSB-1	Z7-SSB-2	Z7-SSB-3	OSZ-1
Descrip:	Zone 7S - Site B - Station 1	Zone 7S - Site B - Station 2	Zone 7S - Site B - Station 3	Offshore Zone - Station 1
Sampled:	Oct 08, 2001	Oct 08, 2001	Oct 08, 2001	Oct 15, 2001
Lab ID:	L22395-13	L22395-14	L22395-15	L22395-16
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	39.8	40.8	40.4	56.1

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																				
Acenaphthylene		<MDL,G	38	75.4	ug/Kg		<MDL	37	73.5	ug/Kg		<MDL	37	74.3	ug/Kg		<MDL	27	53.5	ug/Kg
Aniline		<MDL,G,X	48	95.5	ug/Kg		<MDL,X	47	93.1	ug/Kg		<MDL,X	47	94.1	ug/Kg		<MDL,X	34	67.7	ug/Kg
Anthracene		<MDL,G	10	20.1	ug/Kg		<MDL	9.8	19.6	ug/Kg		<MDL	9.9	19.8	ug/Kg	21.4		7.1	14.3	ug/Kg
Benzo(a)anthracene	18.9	G	5	10.1	ug/Kg	20.9		4.9	9.8	ug/Kg	19		5	9.9	ug/Kg	19.4		3.6	7.13	ug/Kg
Benzo(a)pyrene	28.9	G,B	7.5	15.1	ug/Kg	42.2	B	7.4	14.7	ug/Kg	32.2	B	7.4	14.9	ug/Kg	26.4	B	5.3	10.7	ug/Kg
Benzo(b)fluoranthene	15	<RDL,G	7.5	15.1	ug/Kg	24.2		7.4	14.7	ug/Kg	15	<RDL	7.4	14.9	ug/Kg	9.8	<RDL	5.3	10.7	ug/Kg
Benzo(g,h,i)perylene		<MDL,G	20	40.2	ug/Kg		<MDL	20	39.2	ug/Kg		<MDL	20	39.6	ug/Kg		<MDL	14	28.5	ug/Kg
Benzo(k)fluoranthene	23.1	G	7.5	15.1	ug/Kg	25		7.4	14.7	ug/Kg	18.1		7.4	14.9	ug/Kg	14		5.3	10.7	ug/Kg
Benzoic Acid	247	G,X	15	30.2	ug/Kg	237	X	15	29.4	ug/Kg	243	X	15	29.7	ug/Kg	193	X	11	21.4	ug/Kg
Benzyl Alcohol		<MDL,G	15	30.2	ug/Kg		<MDL	15	29.4	ug/Kg		<MDL	15	29.7	ug/Kg		<MDL	11	21.4	ug/Kg
Benzyl Butyl Phthalate	24	<RDL,G	15	30.2	ug/Kg	20	<RDL	15	29.4	ug/Kg	21	<RDL	15	29.7	ug/Kg		<MDL	11	21.4	ug/Kg
Bis(2-Chloroethoxy)Methane		<MDL,G	43	85.4	ug/Kg		<MDL,G	42	83.3	ug/Kg		<MDL,G	42	84.2	ug/Kg		<MDL,G	30	60.6	ug/Kg
Bis(2-Chloroethyl)Ether		<MDL,G	38	75.4	ug/Kg		<MDL,G	37	73.5	ug/Kg		<MDL,G	37	74.3	ug/Kg		<MDL,G	27	53.5	ug/Kg
Bis(2-Chloroisopropyl)Ether		<MDL,G	38	75.4	ug/Kg		<MDL,G	37	73.5	ug/Kg		<MDL,G	37	74.3	ug/Kg		<MDL,G	27	53.5	ug/Kg
Bis(2-Ethylhexyl)Phthalate	513	G,B	17	35.2	ug/Kg	417	B	16	34.3	ug/Kg	35	RDL,B	17	34.7	ug/Kg	105	B	12	25	ug/Kg
Caffeine		<MDL,G	15	30.2	ug/Kg		<MDL	15	29.4	ug/Kg		<MDL	15	29.7	ug/Kg		<MDL	11	21.4	ug/Kg
Carbazole		<MDL,G	18	35.2	ug/Kg		<MDL	17	34.3	ug/Kg		<MDL	17	34.7	ug/Kg		<MDL	12	25	ug/Kg
Chrysene	14	<RDL,G	10	20.1	ug/Kg	23.6		9.8	19.6	ug/Kg	18	<RDL	9.9	19.8	ug/Kg	15.6		7.1	14.3	ug/Kg
Coprostanol		<MDL,G	35	70.4	ug/Kg		<MDL	34	68.6	ug/Kg		<MDL	35	69.3	ug/Kg		<MDL	25	49.9	ug/Kg
Dibenzo(a,h)anthracene	30	<RDL,G,B,L	18	35.2	ug/Kg	35.5	B,L	17	34.3	ug/Kg		<MDL,B,L	17	34.7	ug/Kg		<MDL,B,L	12	25	ug/Kg
Dibenzofuran		<MDL,G	35	70.4	ug/Kg		<MDL	34	68.6	ug/Kg		<MDL	35	69.3	ug/Kg		<MDL	25	49.9	ug/Kg
Diethyl Phthalate		<MDL,G	15	30.2	ug/Kg		<MDL	15	29.4	ug/Kg		<MDL	15	29.7	ug/Kg		<MDL	11	21.4	ug/Kg
Dimethyl Phthalate		<MDL,G	28	55.3	ug/Kg		<MDL	27	53.9	ug/Kg		<MDL	27	54.5	ug/Kg		<MDL	20	39.2	ug/Kg
Di-N-Butyl Phthalate	42.5	G,B	13	25.1	ug/Kg	37.3	B	12	24.5	ug/Kg	35.4	B	12	24.8	ug/Kg	28.2	B	8.9	17.8	ug/Kg
Di-N-Octyl Phthalate		<MDL,G	20	40.2	ug/Kg		<MDL	20	39.2	ug/Kg		<MDL	20	39.6	ug/Kg		<MDL	14	28.5	ug/Kg
Fluoranthene	28	<RDL,G	20	40.2	ug/Kg	41.9		20	39.2	ug/Kg	30	<RDL	20	39.6	ug/Kg	41.4		14	28.5	ug/Kg
Fluorene		<MDL,G	33	65.3	ug/Kg		<MDL	32	63.7	ug/Kg		<MDL	32	64.4	ug/Kg		<MDL	23	46.3	ug/Kg
Hexachlorobenzene		<MDL,G	1.7	3.34	ug/Kg		<MDL	1.6	3.26	ug/Kg		<MDL	1.6	3.29	ug/Kg		<MDL	1.2	2.37	ug/Kg
Hexachlorobutadiene		<MDL,G	1.9	3.77	ug/Kg		<MDL,G	1.8	3.68	ug/Kg		<MDL,G	1.9	3.71	ug/Kg		<MDL,G	1.3	2.67	ug/Kg
Hexachloroethane		<MDL,G	38	75.4	ug/Kg		<MDL,G	37	73.5	ug/Kg		<MDL,G	37	74.3	ug/Kg		<MDL,G	27	53.5	ug/Kg
Indeno(1,2,3-Cd)Pyrene		<MDL,G	23	45.2	ug/Kg	32	<RDL	22	44.1	ug/Kg		<MDL	22	44.6	ug/Kg	17	<RDL	16	32.1	ug/Kg
Isophorone		<MDL,G	48	95.5	ug/Kg		<MDL	47	93.1	ug/Kg		<MDL	47	94.1	ug/Kg		<MDL	34	67.7	ug/Kg
Naphthalene		<MDL,G	35	70.4	ug/Kg		<MDL,G	34	68.6	ug/Kg		<MDL,G	35	69.3	ug/Kg		<MDL,G	25	49.9	ug/Kg
Nitrobenzene		<MDL,G,X	40	80.4	ug/Kg		<MDL,X	39	78.4	ug/Kg		<MDL,X	40	79.2	ug/Kg		<MDL,X	29	57	ug/Kg
N-Nitrosodimethylamine		<MDL,G	50	101	ug/Kg		<MDL,G	49	98	ug/Kg		<MDL,G	50	99	ug/Kg		<MDL,G	36	71.3	ug/Kg
N-Nitrosodi-N-Propylamine		<MDL,G	23	45.2	ug/Kg		<MDL	22	44.1	ug/Kg		<MDL	22	44.6	ug/Kg		<MDL	16	32.1	ug/Kg
N-Nitrosodiphenylamine		<MDL,G	50	101	ug/Kg		<MDL	49	98	ug/Kg		<MDL	50	99	ug/Kg		<MDL	36	71.3	ug/Kg
Pentachlorophenol		<MDL,G	13	25.1	ug/Kg		<MDL	12	24.5	ug/Kg		<MDL	12	24.8	ug/Kg		<MDL	8.9	17.8	ug/Kg
Phenanthrene	18	<RDL,G	10	20.1	ug/Kg	22.8		9.8	19.6	ug/Kg	15	<RDL	9.9	19.8	ug/Kg	32.1		7.1	14.3	ug/Kg
Phenol		<MDL,G	23	45.2	ug/Kg		<MDL	22	44.1	ug/Kg		<MDL	22	44.6	ug/Kg		<MDL	16	32.1	ug/Kg
Pyrene	22.5	G	10	20.1	ug/Kg	49.3		9.8	19.6	ug/Kg	47.5		9.9	19.8	ug/Kg	43.3		7.1	14.3	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg		<MDL	2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg
4,4'-DDE		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg		<MDL	2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg
4,4'-DDT		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg	6.19		2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z7-SSB-1	Z7-SSB-2	Z7-SSB-3	OSZ-1
Descrip:	Zone 7S - Site B - Station 1	Zone 7S - Site B - Station 2	Zone 7S - Site B - Station 3	Offshore Zone - Station 1
Sampled:	Oct 08, 2001	Oct 08, 2001	Oct 08, 2001	Oct 15, 2001
Lab ID:	L22395-13	L22395-14	L22395-15	L22395-16
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	39.8	40.8	40.4	56.1

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																				
Aldrin		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg		<MDL	2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg
Alpha-BHC		<MDL	1.3	2.51	ug/Kg		<MDL	1.2	2.45	ug/Kg		<MDL	1.2	2.48	ug/Kg		<MDL	0.89	1.78	ug/Kg
Aroclor 1016		<MDL	3.3	6.28	ug/Kg		<MDL	3.2	6.13	ug/Kg		<MDL	3.2	6.19	ug/Kg		<MDL	2.3	4.46	ug/Kg
Aroclor 1221		<MDL	6.3	12.6	ug/Kg		<MDL	6.1	12.3	ug/Kg		<MDL	6.2	12.4	ug/Kg		<MDL	4.5	8.91	ug/Kg
Aroclor 1232		<MDL	6.3	12.6	ug/Kg		<MDL	6.1	12.3	ug/Kg		<MDL	6.2	12.4	ug/Kg		<MDL	4.5	8.91	ug/Kg
Aroclor 1242		<MDL	3.3	6.28	ug/Kg		<MDL	3.2	6.13	ug/Kg		<MDL	3.2	6.19	ug/Kg		<MDL	2.3	4.46	ug/Kg
Aroclor 1248		<MDL	3.3	6.28	ug/Kg		<MDL	3.2	6.13	ug/Kg		<MDL	3.2	6.19	ug/Kg		<MDL	2.3	4.46	ug/Kg
Aroclor 1254		<MDL	3.3	6.28	ug/Kg		<MDL	3.2	6.13	ug/Kg		<MDL	3.2	6.19	ug/Kg		<MDL	2.3	4.46	ug/Kg
Aroclor 1260		<MDL	3.3	6.28	ug/Kg		<MDL	3.2	6.13	ug/Kg		<MDL	3.2	6.19	ug/Kg		<MDL	2.3	4.46	ug/Kg
Beta-BHC		<MDL	1.3	2.51	ug/Kg		<MDL	1.2	2.45	ug/Kg		<MDL	1.2	2.48	ug/Kg		<MDL	0.89	1.78	ug/Kg
Chlordane		<MDL	1.3	2.51	ug/Kg		<MDL	1.2	2.45	ug/Kg		<MDL	1.2	2.48	ug/Kg		<MDL	0.89	1.78	ug/Kg
Delta-BHC		<MDL	1.3	2.51	ug/Kg		<MDL	1.2	2.45	ug/Kg		<MDL	1.2	2.48	ug/Kg		<MDL	0.89	1.78	ug/Kg
Dieldrin		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg		<MDL	2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg
Endosulfan I		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg		<MDL	2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg
Endosulfan II		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg		<MDL	2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg
Endosulfan Sulfate		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg		<MDL	2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg
Endrin		<MDL	2.5	5.03	ug/Kg		<MDL	2.5	4.9	ug/Kg		<MDL	2.5	4.95	ug/Kg		<MDL	1.8	3.57	ug/Kg
Endrin Aldehyde		<MDL,X	5	10.1	ug/Kg		<MDL,X	4.9	9.8	ug/Kg		<MDL,X	5	9.9	ug/Kg		<MDL,X	3.6	7.13	ug/Kg
Gamma-BHC (Lindane)		<MDL	1.3	2.51	ug/Kg		<MDL	1.2	2.45	ug/Kg		<MDL	1.2	2.48	ug/Kg		<MDL	0.89	1.78	ug/Kg
Heptachlor		<MDL	1.3	2.51	ug/Kg		<MDL	1.2	2.45	ug/Kg		<MDL	1.2	2.48	ug/Kg		<MDL	0.89	1.78	ug/Kg
Heptachlor Epoxide		<MDL	1.3	2.51	ug/Kg		<MDL	1.2	2.45	ug/Kg		<MDL	1.2	2.48	ug/Kg		<MDL	0.89	1.78	ug/Kg
Methoxychlor		<MDL	13	25.1	ug/Kg		<MDL	12	24.5	ug/Kg		<MDL	12	24.8	ug/Kg		<MDL	8.9	17.8	ug/Kg
Toxaphene		<MDL	25	50.3	ug/Kg		<MDL	25	49	ug/Kg		<MDL	25	49.5	ug/Kg		<MDL	18	35.7	ug/Kg
M=OR KRONE 1989 (07-03-012-000)																				
Di-n-Butyltin (as dibutyltin ion)	1.84	B	0.88	1.76	ug/Kg	1.1	<RDL,B	0.86	1.72	ug/Kg	1.1	<RDL,B	0.87	1.73	ug/Kg	2.35	B	0.62	1.25	ug/Kg
Mono-n-Butyltin (as monobutyltin ion)	9.97	B	4.3	8.47	ug/Kg	9.51	B	4.2	8.26	ug/Kg	8.69	B	4.2	8.34	ug/Kg	6.99	B	3	6.01	ug/Kg
Tetra-n-Butyltin (as tetrabutyltin)		<MDL	1	2.01	ug/Kg		<MDL	0.98	1.96	ug/Kg		<MDL	0.99	1.98	ug/Kg		<MDL	0.71	1.43	ug/Kg
Tri-n-Butyltin (as tributyltin ion)	0.9	<RDL,G	0.53	1.04	ug/Kg	0.71	<RDL,G	0.51	1.02	ug/Kg	0.84	<RDL,G	0.52	1.03	ug/Kg	0.45	<RDL,G	0.37	0.74	ug/Kg
M=OR SM5520-B,D,F (07-03-014-000)																				
Oil And Grease, Total	666		250	628	mg/Kg	420	<RDL	250	613	mg/Kg	757		250	619	mg/Kg	200	<RDL	180	446	mg/Kg
M=OR SW-846 8151A GC/MS MODIFIED																				
2,4,5-T		<MDL	3.5	16.6	ug/Kg		<MDL	3.4	15.2	ug/Kg		<MDL	3.5	16.3	ug/Kg		<MDL	2.3	10.9	ug/Kg
2,4,5-TP (Silvex)		<MDL	5.3	16.6	ug/Kg		<MDL	4.9	15.2	ug/Kg		<MDL	5.2	16.3	ug/Kg		<MDL	3.6	10.9	ug/Kg
2,4-D		<MDL	1.4	16.6	ug/Kg		<MDL	1.3	15.2	ug/Kg		<MDL	1.3	16.3	ug/Kg		<MDL	0.89	10.9	ug/Kg
2,4-DB		<MDL	2.3	16.6	ug/Kg		<MDL	2.1	15.2	ug/Kg		<MDL	2.3	16.3	ug/Kg		<MDL	1.5	10.9	ug/Kg
Dalapon		<MDL,G	5	16.6	ug/Kg		<MDL,G	4.7	15.2	ug/Kg		<MDL,G	5	16.3	ug/Kg		<MDL,G	3.4	10.9	ug/Kg
Dicamba		<MDL	4	16.6	ug/Kg		<MDL	3.7	15.2	ug/Kg		<MDL	4	16.3	ug/Kg		<MDL	2.7	10.9	ug/Kg
Dichloroprop		<MDL	1.8	16.6	ug/Kg		<MDL	1.6	15.2	ug/Kg		<MDL	1.7	16.3	ug/Kg		<MDL	1.2	10.9	ug/Kg
Dinoseb		<MDL	1.4	16.6	ug/Kg		<MDL	1.3	15.2	ug/Kg		<MDL	1.3	16.3	ug/Kg		<MDL	0.89	10.9	ug/Kg
MCPA		<MDL	2.5	16.6	ug/Kg		<MDL	2.3	15.2	ug/Kg		<MDL	2.5	16.3	ug/Kg		<MDL	1.6	10.9	ug/Kg
MCPP		<MDL	4.5	16.6	ug/Kg		<MDL	4.2	15.2	ug/Kg		<MDL	4.5	16.3	ug/Kg		<MDL	3	10.9	ug/Kg
M=OR WDOE NWTPH-DX (7-3-06-001)																				
Diesel Range (>C12-C24)		<MDL	63	63	mg/Kg		<MDL	61	61	mg/Kg		<MDL	62	62	mg/Kg		<MDL	45	45	mg/Kg
Lube Oil Range (>C24)		<MDL	63	63	mg/Kg		<MDL	61	61	mg/Kg		<MDL	62	62	mg/Kg		<MDL	45	45	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Locator:	Z7-SSB-1					Locator:	Z7-SSB-2					Locator:	Z7-SSB-3					Locator:	OSZ-1				
Descrip:	Zone 7S - Site B - Station 1					Descrip:	Zone 7S - Site B - Station 2					Descrip:	Zone 7S - Site B - Station 3					Descrip:	Offshore Zone - Station 1				
Sampled:	Oct 08, 2001					Sampled:	Oct 08, 2001					Sampled:	Oct 08, 2001					Sampled:	Oct 15, 2001				
Lab ID:	L22395-13					Lab ID:	L22395-14					Lab ID:	L22395-15					Lab ID:	L22395-16				
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED				
% Solids:	39.8					% Solids:	40.8					% Solids:	40.4					% Solids:	56.1				
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																				

* Not converted to dry weight basis for this parameter

Appendix B
Complete Chemistry Analytical Results Nearshore Sediments

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

Locator:	Z5-TRSED-1	Z5-TRSED-2	Z5-TRSED-3	Z6-TRSED-1
Descrip:	Zone 5 - Station 1	Zone 5 - Station 2	Zone 5 - Station 3	Zone 6 - Station 1
Sampled:	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001
Lab ID:	L22953-1	L22953-2	L22953-3	L22953-4
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	75.7	72.4	71.4	73.8

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																				
Clay *		<MDL	0.1	0.1	%	0.1	RDL	0.1	0.1	%	0.1	RDL	0.1	0.1	%		<MDL	0.1	0.1	%
Gravel *	0.8		0.1	0.1	%	1.6		0.1	0.1	%	3.9		0.1	0.1	%	1.8		0.1	0.1	%
p+0.00 *	4		0.1	0.1	%	2.7		0.1	0.1	%	1.1		0.1	0.1	%	2		0.1	0.1	%
p+1.00 *	27.9		0.1	0.1	%	28		0.1	0.1	%	2.9		0.1	0.1	%	10.1		0.1	0.1	%
p+10.0 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
p+10.0(more than) *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
p+2.00 *	56.5		0.1	0.1	%	50.4		0.1	0.1	%	51.2		0.1	0.1	%	44.2		0.1	0.1	%
p+3.00 *	7.6		0.1	0.1	%	14.5		0.1	0.1	%	32.4		0.1	0.1	%	32.5		0.1	0.1	%
p+4.00 *	0.5		0.1	0.1	%	0.7		0.1	0.1	%	4.7		0.1	0.1	%	2.7		0.1	0.1	%
p+5.00 *	1.4		0.1	0.1	%		<MDL	0.1	0.1	%	1.4		0.1	0.1	%	5.1		0.1	0.1	%
p+6.00 *		<MDL	0.1	0.1	%	0.6		0.1	0.1	%	0.3		0.1	0.1	%	0.3		0.1	0.1	%
p+7.00 *	1.2		0.1	0.1	%	0.6		0.1	0.1	%	1		0.1	0.1	%	0.9		0.1	0.1	%
p+8.00 *	0.2		0.1	0.1	%	0.8		0.1	0.1	%	1		0.1	0.1	%	0.3		0.1	0.1	%
p+9.00 *		<MDL	0.1	0.1	%	0.1	RDL	0.1	0.1	%	0.1	RDL	0.1	0.1	%		<MDL	0.1	0.1	%
p-1.00 *	0.4		0.1	0.1	%	0.7		0.1	0.1	%	1.6		0.1	0.1	%	1.2		0.1	0.1	%
p-2.00 *		<MDL	0.1	0.1	%	0.5		0.1	0.1	%	0.5		0.1	0.1	%	0.5		0.1	0.1	%
p-2.00(less than) *	0.4		0.1	0.1	%	0.4		0.1	0.1	%	1.8		0.1	0.1	%	0.1	RDL	0.1	0.1	%
Sand *	96.5		0.1	0.1	%	96.3		0.1	0.1	%	92.3		0.1	0.1	%	91.5		0.1	0.1	%
Silt *	2.8	E	0.1	0.1	%	2	E	0.1	0.1	%	3.7	E	0.1	0.1	%	6.6	E	0.1	0.1	%
M=CV EPA9060-PSEP96 (03-04-002-001)																				
Total Organic Carbon	2020		530	1060	mg/Kg	2320		550	1100	mg/Kg	3730		490	980	mg/Kg	3620		540	1080	mg/Kg
M=CV SM2540-G (03-01-007-001)																				
Total Solids *	75.7		0.005	0.01	%	72.4		0.005	0.01	%	71.4		0.005	0.01	%	73.8		0.005	0.01	%
Total Volatile Solids	0.844		0.00661	0.0132	%	0.92		0.00691	0.0138	%	1.29		0.007	0.014	%	1.33		0.00678	0.0136	%
M=CV SM4500-NH3-G(03-03-014-000)KCL																				
Ammonia Nitrogen	2.42		0.13	0.264	mg/Kg	2.39		0.14	0.276	mg/Kg	2.49		0.14	0.28	mg/Kg	0.977		0.14	0.271	mg/Kg
M=CV SM4500S2-D, EPA376.2																				
Total Sulfide	3.3		1.3	1.32	mg/Kg		<MDL	1.4	1.38	mg/Kg		<MDL	1.4	1.4	mg/Kg		<MDL	1.4	1.36	mg/Kg
M=ES NONE																				
Easting (NAD83) *	1260653				ft	1260087				ft	1259205				ft	1256090				ft
Northing (NAD83) *	303612				ft	302768				ft	301926				ft	297921				ft
Sample Depth *	9				m	9				m	13				m	26				m
Sample Start Time *	922				hr	939				hr	954				hr	1018				hr
Sediment Sampling Depth *	13				cm	14				cm	11				cm	10				cm
Sediment Sampling Range *	0-10				cm	0-10				cm	0-10				cm	0-10				cm
Tidal Condition *	E				none	E				none	E				none	E				none
Tide Height *	12				ft	12				ft	11.5				ft	11				ft
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA		<MDL	0.026	0.259	mg/Kg		<MDL	0.028	0.278	mg/Kg		<MDL	0.028	0.28	mg/Kg		<MDL	0.027	0.271	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				
Aluminum, Total, ICP	6570	L	6.5	32.5	mg/Kg	5660	L	7	35.4	mg/Kg	5340	L	7	35.3	mg/Kg	6750	L	6.9	34.6	mg/Kg
Antimony, Total, ICP		<MDL,G	2	9.76	mg/Kg		<MDL,G	2.1	10.6	mg/Kg		<MDL,G	2.1	10.6	mg/Kg		<MDL,G	2	10.4	mg/Kg
Arsenic, Total, ICP		<MDL	3.3	16.2	mg/Kg		<MDL	3.6	17.7	mg/Kg		<MDL	3.5	17.6	mg/Kg		<MDL	3.5	17.3	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

Locator:	Z5-TRSED-1	Z5-TRSED-2	Z5-TRSED-3	Z6-TRSED-1
Descrip:	Zone 5 - Station 1	Zone 5 - Station 2	Zone 5 - Station 3	Zone 6 - Station 1
Sampled:	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001
Lab ID:	L22953-1	L22953-2	L22953-3	L22953-4
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	75.7	72.4	71.4	73.8

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																				
Beryllium, Total, ICP	0.096	<RDL	0.065	0.325	mg/Kg	0.094	<RDL	0.07	0.354	mg/Kg	0.11	<RDL	0.07	0.353	mg/Kg	0.13	<RDL	0.069	0.346	mg/Kg
Cadmium, Total, ICP		<MDL	0.2	0.976	mg/Kg		<MDL	0.21	1.06	mg/Kg		<MDL	0.21	1.06	mg/Kg		<MDL	0.2	1.04	mg/Kg
Chromium, Total, ICP	12.4		0.33	1.62	mg/Kg	13		0.36	1.77	mg/Kg	16.8		0.35	1.76	mg/Kg	16.9		0.35	1.73	mg/Kg
Copper, Total, ICP	6.57		0.26	1.3	mg/Kg	5.66		0.29	1.42	mg/Kg	4.24		0.28	1.41	mg/Kg	7.09		0.27	1.38	mg/Kg
Iron, Total, ICP	8280		3.3	16.2	mg/Kg	7460		3.6	17.7	mg/Kg	7620		3.5	17.6	mg/Kg	10400		3.5	17.3	mg/Kg
Lead, Total, ICP	3.2	<RDL	2	9.76	mg/Kg	3.2	<RDL	2.1	10.6	mg/Kg	4.9	<RDL	2.1	10.6	mg/Kg	4.5	<RDL	2	10.4	mg/Kg
Manganese, Total, ICP	135		0.13	0.651	mg/Kg	121		0.14	0.709	mg/Kg	134		0.14	0.706	mg/Kg	152		0.14	0.692	mg/Kg
Nickel, Total, ICP	9.35		1.3	6.51	mg/Kg	8.66		1.4	7.09	mg/Kg	12.1		1.4	7.06	mg/Kg	20.9		1.4	6.92	mg/Kg
Selenium, Total, ICP		<MDL	3.3	16.2	mg/Kg		<MDL	3.6	17.7	mg/Kg		<MDL	3.5	17.6	mg/Kg		<MDL	3.5	17.3	mg/Kg
Silver, Total, ICP		<MDL	0.26	1.3	mg/Kg		<MDL	0.29	1.42	mg/Kg		<MDL	0.28	1.41	mg/Kg		<MDL	0.27	1.38	mg/Kg
Thallium, Total, ICP		<MDL	13	65.1	mg/Kg		<MDL	14	70.9	mg/Kg		<MDL	14	70.6	mg/Kg		<MDL	14	69.2	mg/Kg
Tin, Total, ICP		<MDL	4.5	22.7	mg/Kg		<MDL	5	24.7	mg/Kg		<MDL	4.9	24.6	mg/Kg		<MDL	4.9	24.3	mg/Kg
Zinc, Total, ICP	21		0.33	1.62	mg/Kg	19.2		0.36	1.77	mg/Kg	18.5		0.35	1.76	mg/Kg	26.3		0.35	1.73	mg/Kg
M=OR EPA 3540C/8141A (7-3-04-000)																				
Chlorpyrifos		<MDL	44	88.1	ug/Kg		<MDL	46	92.1	ug/Kg		<MDL	46	93.4	ug/Kg		<MDL	45	90.4	ug/Kg
Diazinon		<MDL	26	44	ug/Kg		<MDL	28	46	ug/Kg		<MDL	28	46.6	ug/Kg		<MDL	27	45.1	ug/Kg
Disulfoton		<MDL	26	44	ug/Kg		<MDL	28	46	ug/Kg		<MDL	28	46.6	ug/Kg		<MDL	27	45.1	ug/Kg
Malathion		<MDL	70	132	ug/Kg		<MDL	73	138	ug/Kg		<MDL	74	140	ug/Kg		<MDL	72	136	ug/Kg
Parathion-Ethyl		<MDL,L	70	132	ug/Kg		<MDL,L	73	138	ug/Kg		<MDL,L	74	140	ug/Kg		<MDL,L	72	136	ug/Kg
Parathion-Methyl		<MDL,L	70	132	ug/Kg		<MDL,L	73	138	ug/Kg		<MDL,L	74	140	ug/Kg		<MDL,L	72	136	ug/Kg
Phorate		<MDL	44	88.1	ug/Kg		<MDL	46	92.1	ug/Kg		<MDL	46	93.4	ug/Kg		<MDL	45	90.4	ug/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL	0.34	0.7	ug/Kg		<MDL	0.36	0.732	ug/Kg		<MDL	0.36	0.742	ug/Kg		<MDL,G	0.35	0.718	ug/Kg
1,2-Dichlorobenzene		<MDL	0.34	0.7	ug/Kg		<MDL	0.36	0.732	ug/Kg		<MDL	0.36	0.742	ug/Kg		<MDL,G	0.35	0.718	ug/Kg
1,2-Diphenylhydrazine		<MDL	13	26.4	ug/Kg		<MDL	14	27.6	ug/Kg		<MDL	14	28	ug/Kg		<MDL,G	14	27.1	ug/Kg
1,3-Dichlorobenzene		<MDL	0.34	0.7	ug/Kg		<MDL	0.36	0.732	ug/Kg		<MDL	0.36	0.742	ug/Kg		<MDL,G	0.35	0.718	ug/Kg
1,4-Dichlorobenzene		<MDL	0.17	0.349	ug/Kg		<MDL	0.18	0.365	ug/Kg		<MDL	0.18	0.37	ug/Kg		<MDL,G	0.18	0.358	ug/Kg
2,4,5-Trichlorophenol		<MDL	16	31.7	ug/Kg		<MDL	17	33.1	ug/Kg		<MDL	17	33.6	ug/Kg		<MDL,G	16	32.5	ug/Kg
2,4,6-Trichlorophenol		<MDL	17	34.3	ug/Kg		<MDL	18	35.9	ug/Kg		<MDL	18	36.4	ug/Kg		<MDL,G	18	35.2	ug/Kg
2,4-Dichlorophenol		<MDL	21	42.3	ug/Kg		<MDL	22	44.2	ug/Kg		<MDL	22	44.8	ug/Kg		<MDL,G	22	43.4	ug/Kg
2,4-Dimethylphenol		<MDL	9.2	18.5	ug/Kg		<MDL	9.7	19.3	ug/Kg		<MDL	9.8	19.6	ug/Kg		<MDL,G	9.5	19	ug/Kg
2,4-Dinitrotoluene		<MDL	4	7.93	ug/Kg		<MDL	4.1	8.29	ug/Kg		<MDL	4.2	8.4	ug/Kg		<MDL,G	4.1	8.13	ug/Kg
2,6-Dinitrotoluene		<MDL	13	26.4	ug/Kg		<MDL	14	27.6	ug/Kg		<MDL	14	28	ug/Kg		<MDL,G	14	27.1	ug/Kg
2-Chloronaphthalene		<MDL	21	42.3	ug/Kg		<MDL	22	44.2	ug/Kg		<MDL	22	44.8	ug/Kg		<MDL,G	22	43.4	ug/Kg
2-Chlorophenol		<MDL	11	21.1	ug/Kg		<MDL	11	22.1	ug/Kg		<MDL	11	22.4	ug/Kg		<MDL,G	11	21.7	ug/Kg
2-Methylnaphthalene		<MDL	18	37	ug/Kg		<MDL	19	38.7	ug/Kg		<MDL	20	39.2	ug/Kg		<MDL,G	19	37.9	ug/Kg
2-Methylphenol		<MDL	25	50.2	ug/Kg		<MDL	26	52.5	ug/Kg		<MDL	27	53.2	ug/Kg		<MDL,G	26	51.5	ug/Kg
2-Nitrophenol		<MDL	20	39.6	ug/Kg		<MDL	21	41.4	ug/Kg		<MDL	21	42	ug/Kg		<MDL,G	20	40.7	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	12	23.8	ug/Kg		<MDL	12	24.9	ug/Kg		<MDL	13	25.2	ug/Kg		<MDL,G	12	24.4	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	17	34.3	ug/Kg		<MDL	18	35.9	ug/Kg		<MDL	18	36.4	ug/Kg		<MDL,G	18	35.2	ug/Kg
4-Methylphenol		<MDL	21	42.3	ug/Kg		<MDL	22	44.2	ug/Kg		<MDL	22	44.8	ug/Kg		<MDL,G	22	43.4	ug/Kg
Acenaphthene		<MDL	9.2	18.5	ug/Kg		<MDL	9.7	19.3	ug/Kg		<MDL	9.8	19.6	ug/Kg		<MDL,G	9.5	19	ug/Kg
Acenaphthylene		<MDL	20	39.6	ug/Kg		<MDL	21	41.4	ug/Kg		<MDL	21	42	ug/Kg		<MDL,G	20	40.7	ug/Kg
Aniline		<MDL,X	25	50.2	ug/Kg		<MDL,X	26	52.5	ug/Kg		<MDL,X	27	53.2	ug/Kg		<MDL,G,X	26	51.5	ug/Kg

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Marine Sediment Chemistry Results
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Candidate Marine Outfall Zones
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Locator:	Z5-TRSED-1	Z5-TRSED-2	Z5-TRSED-3	Z6-TRSED-1
Descrip:	Zone 5 - Station 1	Zone 5 - Station 2	Zone 5 - Station 3	Zone 6 - Station 1
Sampled:	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001
Lab ID:	L22953-1	L22953-2	L22953-3	L22953-4
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	75.7	72.4	71.4	73.8

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																				
Anthracene		<MDL,G	5.3	10.6	ug/Kg		<MDL,G	5.5	11	ug/Kg		<MDL,G	5.6	11.2	ug/Kg	15.9	G	5.4	10.8	ug/Kg
Benzo(a)anthracene		<MDL	2.6	5.28	ug/Kg	8.4		2.8	5.52	ug/Kg	9.12		2.8	5.6	ug/Kg	47.8	G	2.7	5.42	ug/Kg
Benzo(a)pyrene		<MDL,B	4	7.93	ug/Kg	10.4	B	4.1	8.29	ug/Kg	12.5	B	4.2	8.4	ug/Kg	46.7	G,B	4.1	8.13	ug/Kg
Benzo(b)fluoranthene		<MDL,B	4	7.93	ug/Kg	9.79	B	4.1	8.29	ug/Kg	12.4	B	4.2	8.4	ug/Kg	48.2	G,B	4.1	8.13	ug/Kg
Benzo(g,h,i)perylene		<MDL	11	21.1	ug/Kg		<MDL	11	22.1	ug/Kg		<MDL	11	22.4	ug/Kg	25.1	G	11	21.7	ug/Kg
Benzo(k)fluoranthene		<MDL	4	7.93	ug/Kg	5.8	<RDL	4.1	8.29	ug/Kg	5.9	<RDL	4.2	8.4	ug/Kg	32.7	G	4.1	8.13	ug/Kg
Benzoic Acid	147	G	7.9	15.9	ug/Kg	146	G	8.3	16.6	ug/Kg	106	G	8.4	16.8	ug/Kg	49.2	G	8.1	16.3	ug/Kg
Benzyl Alcohol		<MDL,G	7.9	15.9	ug/Kg		<MDL,G	8.3	16.6	ug/Kg		<MDL,G	8.4	16.8	ug/Kg		<MDL,G	8.1	16.3	ug/Kg
Benzyl Butyl Phthalate		<MDL	7.9	15.9	ug/Kg		<MDL	8.3	16.6	ug/Kg		<MDL	8.4	16.8	ug/Kg		<MDL,G	8.1	16.3	ug/Kg
Bis(2-Chloroethoxy)Methane		<MDL	22	44.9	ug/Kg		<MDL	23	47	ug/Kg		<MDL	24	47.6	ug/Kg		<MDL,G	23	46.1	ug/Kg
Bis(2-Chloroethyl)Ether		<MDL	20	39.6	ug/Kg		<MDL	21	41.4	ug/Kg		<MDL	21	42	ug/Kg		<MDL,G	20	40.7	ug/Kg
Bis(2-Chloroisopropyl)Ether		<MDL	20	39.6	ug/Kg		<MDL	21	41.4	ug/Kg		<MDL	21	42	ug/Kg		<MDL,G	20	40.7	ug/Kg
Bis(2-Ethylhexyl)Phthalate		<MDL	8.9	18.5	ug/Kg	10	<RDL	9.3	19.3	ug/Kg	9.5	<RDL	9.4	19.6	ug/Kg	28.3	G	9.1	19	ug/Kg
Caffeine		<MDL	7.9	15.9	ug/Kg		<MDL	8.3	16.6	ug/Kg		<MDL	8.4	16.8	ug/Kg		<MDL,G	8.1	16.3	ug/Kg
Carbazole		<MDL	9.2	18.5	ug/Kg		<MDL	9.7	19.3	ug/Kg		<MDL	9.8	19.6	ug/Kg		<MDL,G	9.5	19	ug/Kg
Chrysene		<MDL	5.3	10.6	ug/Kg	7.3	<RDL	5.5	11	ug/Kg	10	<RDL	5.6	11.2	ug/Kg	91.3	G	5.4	10.8	ug/Kg
Coprostanol		<MDL	18	37	ug/Kg		<MDL	19	38.7	ug/Kg		<MDL	20	39.2	ug/Kg		<MDL,G	19	37.9	ug/Kg
Dibenzo(a,h)anthracene		<MDL	9.2	18.5	ug/Kg		<MDL	9.7	19.3	ug/Kg		<MDL	9.8	19.6	ug/Kg		<MDL,G	9.5	19	ug/Kg
Dibenzofuran		<MDL	18	37	ug/Kg		<MDL	19	38.7	ug/Kg		<MDL	20	39.2	ug/Kg		<MDL,G	19	37.9	ug/Kg
Diethyl Phthalate		<MDL	7.9	15.9	ug/Kg		<MDL	8.3	16.6	ug/Kg		<MDL	8.4	16.8	ug/Kg		<MDL,G	8.1	16.3	ug/Kg
Dimethyl Phthalate		<MDL	15	29.1	ug/Kg		<MDL	15	30.4	ug/Kg		<MDL	15	30.8	ug/Kg		<MDL,G	15	29.8	ug/Kg
Di-N-Butyl Phthalate		<MDL,B	6.6	13.2	ug/Kg	14.9	B	6.9	13.8	ug/Kg	17.9	B	7	14	ug/Kg	10	<RDL,G,B	6.8	13.6	ug/Kg
Di-N-Octyl Phthalate		<MDL	11	21.1	ug/Kg		<MDL	11	22.1	ug/Kg		<MDL	11	22.4	ug/Kg		<MDL,G	11	21.7	ug/Kg
Fluoranthene		<MDL,L	11	21.1	ug/Kg	22	RDL,L	11	22.1	ug/Kg	22.4	RDL,L	11	22.4	ug/Kg	157	G,L	11	21.7	ug/Kg
Fluorene		<MDL	17	34.3	ug/Kg		<MDL	18	35.9	ug/Kg		<MDL	18	36.4	ug/Kg		<MDL,G	18	35.2	ug/Kg
Hexachlorobenzene		<MDL	0.87	1.76	ug/Kg		<MDL	0.91	1.84	ug/Kg		<MDL	0.92	1.86	ug/Kg		<MDL,G	0.89	1.8	ug/Kg
Hexachlorobutadiene		<MDL	0.99	1.98	ug/Kg		<MDL	1	2.07	ug/Kg		<MDL	1.1	2.1	ug/Kg		<MDL,G	1	2.03	ug/Kg
Hexachloroethane		<MDL	20	39.6	ug/Kg		<MDL	21	41.4	ug/Kg		<MDL	21	42	ug/Kg		<MDL,G	20	40.7	ug/Kg
Indeno(1,2,3-Cd)Pyrene		<MDL	12	23.8	ug/Kg		<MDL	12	24.9	ug/Kg		<MDL	13	25.2	ug/Kg	23	<RDL,G	12	24.4	ug/Kg
Isophorone		<MDL	25	50.2	ug/Kg		<MDL	26	52.5	ug/Kg		<MDL	27	53.2	ug/Kg		<MDL,G	26	51.5	ug/Kg
Naphthalene		<MDL,G	18	37	ug/Kg		<MDL,G	19	38.7	ug/Kg		<MDL,G	20	39.2	ug/Kg		<MDL,G	19	37.9	ug/Kg
Nitrobenzene		<MDL	21	42.3	ug/Kg		<MDL	22	44.2	ug/Kg		<MDL	22	44.8	ug/Kg		<MDL,G	22	43.4	ug/Kg
N-Nitrosodimethylamine		<MDL	26	52.8	ug/Kg		<MDL	28	55.2	ug/Kg		<MDL	28	56	ug/Kg		<MDL,G	27	54.2	ug/Kg
N-Nitrosodi-N-Propylamine		<MDL	12	23.8	ug/Kg		<MDL	12	24.9	ug/Kg		<MDL	13	25.2	ug/Kg		<MDL,G	12	24.4	ug/Kg
N-Nitrosodiphenylamine		<MDL	26	52.8	ug/Kg		<MDL	28	55.2	ug/Kg		<MDL	28	56	ug/Kg		<MDL,G	27	54.2	ug/Kg
Pentachlorophenol		<MDL	6.6	13.2	ug/Kg		<MDL	6.9	13.8	ug/Kg		<MDL	7	14	ug/Kg		<MDL,G	6.8	13.6	ug/Kg
Phenanthrene		<MDL	5.3	10.6	ug/Kg	8	<RDL	5.5	11	ug/Kg	9.4	<RDL	5.6	11.2	ug/Kg	51.6	G	5.4	10.8	ug/Kg
Phenol	31.4	E	12	23.8	ug/Kg	26.5	E	12	24.9	ug/Kg	15	<RDL,E	13	25.2	ug/Kg		<MDL,G,E	12	24.4	ug/Kg
Pyrene		<MDL	5.3	10.6	ug/Kg	12.7		5.5	11	ug/Kg	15.4		5.6	11.2	ug/Kg	92	G	5.4	10.8	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD		<MDL	1.3	2.64	ug/Kg		<MDL	1.4	2.76	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	1.4	2.71	ug/Kg
4,4'-DDE		<MDL	1.3	2.64	ug/Kg		<MDL	1.4	2.76	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	1.4	2.71	ug/Kg
4,4'-DDT		<MDL,G	1.3	2.64	ug/Kg		<MDL,G	1.4	2.76	ug/Kg		<MDL,G	1.4	2.8	ug/Kg		<MDL,G	1.4	2.71	ug/Kg
Aldrin		<MDL	1.3	2.64	ug/Kg		<MDL	1.4	2.76	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	1.4	2.71	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

Locator:	Z5-TRSED-1					Locator:	Z5-TRSED-2					Locator:	Z5-TRSED-3					Locator:	Z6-TRSED-1			
Descrip:	Zone 5 - Station 1					Descrip:	Zone 5 - Station 2					Descrip:	Zone 5 - Station 3					Descrip:	Zone 6 - Station 1			
Sampled:	Dec 04, 2001					Sampled:	Dec 04, 2001					Sampled:	Dec 04, 2001					Sampled:	Dec 04, 2001			
Lab ID:	L22953-1					Lab ID:	L22953-2					Lab ID:	L22953-3					Lab ID:	L22953-4			
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED			
% Solids:	75.7					% Solids:	72.4					% Solids:	71.4					% Solids:	73.8			
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-BHC		<MDL	0.66	1.32	ug/Kg		<MDL	0.69	1.38	ug/Kg		<MDL	0.7	1.4	ug/Kg		<MDL	0.68	1.36	ug/Kg
Aroclor 1016		<MDL	1.7	3.3	ug/Kg		<MDL	1.8	3.45	ug/Kg		<MDL	1.8	3.5	ug/Kg		<MDL	1.8	3.39	ug/Kg
Aroclor 1221		<MDL	3.3	6.61	ug/Kg		<MDL	3.5	6.91	ug/Kg		<MDL	3.5	7	ug/Kg		<MDL	3.4	6.78	ug/Kg
Aroclor 1232		<MDL	3.3	6.61	ug/Kg		<MDL	3.5	6.91	ug/Kg		<MDL	3.5	7	ug/Kg		<MDL	3.4	6.78	ug/Kg
Aroclor 1242		<MDL	1.7	3.3	ug/Kg		<MDL	1.8	3.45	ug/Kg		<MDL	1.8	3.5	ug/Kg		<MDL	1.8	3.39	ug/Kg
Aroclor 1248		<MDL	1.7	3.3	ug/Kg		<MDL	1.8	3.45	ug/Kg		<MDL	1.8	3.5	ug/Kg		<MDL	1.8	3.39	ug/Kg
Aroclor 1254		<MDL	1.7	3.3	ug/Kg		<MDL	1.8	3.45	ug/Kg		<MDL	1.8	3.5	ug/Kg		<MDL	1.8	3.39	ug/Kg
Aroclor 1260		<MDL	1.7	3.3	ug/Kg		<MDL	1.8	3.45	ug/Kg		<MDL	1.8	3.5	ug/Kg		<MDL	1.8	3.39	ug/Kg
Beta-BHC		<MDL	0.66	1.32	ug/Kg		<MDL	0.69	1.38	ug/Kg		<MDL	0.7	1.4	ug/Kg		<MDL	0.68	1.36	ug/Kg
Chlordane		<MDL	0.66	1.32	ug/Kg		<MDL	0.69	1.38	ug/Kg		<MDL	0.7	1.4	ug/Kg		<MDL	0.68	1.36	ug/Kg
Delta-BHC		<MDL	0.66	1.32	ug/Kg		<MDL	0.69	1.38	ug/Kg		<MDL	0.7	1.4	ug/Kg		<MDL	0.68	1.36	ug/Kg
Dieldrin		<MDL	1.3	2.64	ug/Kg		<MDL	1.4	2.76	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	1.4	2.71	ug/Kg
Endosulfan I		<MDL	1.3	2.64	ug/Kg		<MDL	1.4	2.76	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	1.4	2.71	ug/Kg
Endosulfan II		<MDL	1.3	2.64	ug/Kg		<MDL	1.4	2.76	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	1.4	2.71	ug/Kg
Endosulfan Sulfate		<MDL	1.3	2.64	ug/Kg		<MDL	1.4	2.76	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	1.4	2.71	ug/Kg
Endrin		<MDL	1.3	2.64	ug/Kg		<MDL	1.4	2.76	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	1.4	2.71	ug/Kg
Endrin Aldehyde		<MDL,G	2.6	5.28	ug/Kg		<MDL,G	2.8	5.52	ug/Kg		<MDL,G	2.8	5.6	ug/Kg		<MDL,G	2.7	5.42	ug/Kg
Gamma-BHC (Lindane)		<MDL	0.66	1.32	ug/Kg		<MDL	0.69	1.38	ug/Kg		<MDL	0.7	1.4	ug/Kg		<MDL	0.68	1.36	ug/Kg
Heptachlor		<MDL	0.66	1.32	ug/Kg		<MDL	0.69	1.38	ug/Kg		<MDL	0.7	1.4	ug/Kg		<MDL	0.68	1.36	ug/Kg
Heptachlor Epoxide		<MDL	0.66	1.32	ug/Kg		<MDL	0.69	1.38	ug/Kg		<MDL	0.7	1.4	ug/Kg		<MDL	0.68	1.36	ug/Kg
Methoxychlor		<MDL	6.6	13.2	ug/Kg		<MDL	6.9	13.8	ug/Kg		<MDL	7	14	ug/Kg		<MDL	6.8	13.6	ug/Kg
Toxaphene		<MDL	13	26.4	ug/Kg		<MDL	14	27.6	ug/Kg		<MDL	14	28	ug/Kg		<MDL	14	27.1	ug/Kg
M=OR KRONE 1989 (07-03-012-000)																				
Di-n-Butyltin (as dibutyltin ion)		<MDL,B,G	0.46	0.925	ug/Kg		<MDL,B,G	0.48	0.967	ug/Kg		<MDL,B,G	0.49	0.98	ug/Kg		<MDL,B,G	0.47	0.949	ug/Kg
Mono-n-Butyltin (as monobutyltin ion)	2.5	<RDL,B	2.2	4.45	ug/Kg	3	<RDL,B	2.3	4.65	ug/Kg	3.2	<RDL,B	2.4	4.72	ug/Kg	2.4	<RDL,B	2.3	4.57	ug/Kg
Tetra-n-Butyltin (as tetrabutyltin)		<MDL	0.53	1.06	ug/Kg		<MDL	0.55	1.11	ug/Kg		<MDL	0.56	1.12	ug/Kg		<MDL	0.54	1.09	ug/Kg
Tri-n-Butyltin (as tributyltin ion)	2.71	B,G	0.28	0.548	ug/Kg	2.51	B,G	0.29	0.573	ug/Kg	2.34	B,G	0.29	0.581	ug/Kg	2.52	B,G	0.28	0.562	ug/Kg
M=OR SM5520-B,D,F (07-03-014-000)																				
Oil And Grease, Total	354		130	330	mg/Kg	633		140	345	mg/Kg	585		140	350	mg/Kg	1370		140	339	mg/Kg
M=OR SW-846 8151A GC/MS MODIFIED																				
2,4,5-T		<MDL	1.8	8.34	ug/Kg		<MDL	1.9	9.06	ug/Kg		<MDL	2	8.89	ug/Kg		<MDL	1.9	8.6	ug/Kg
2,4,5-TP (Silvex)		<MDL	2.6	8.34	ug/Kg		<MDL	2.9	9.06	ug/Kg		<MDL	2.8	8.89	ug/Kg		<MDL	2.7	8.6	ug/Kg
2,4-D		<MDL	0.69	8.34	ug/Kg		<MDL	0.75	9.06	ug/Kg		<MDL	0.73	8.89	ug/Kg		<MDL	0.7	8.6	ug/Kg
2,4-DB		<MDL	1.2	8.34	ug/Kg		<MDL	1.3	9.06	ug/Kg		<MDL	1.2	8.89	ug/Kg		<MDL	1.2	8.6	ug/Kg
Dalapon		<MDL,G	2.5	8.34	ug/Kg		<MDL,G	2.8	9.06	ug/Kg		<MDL,G	2.7	8.89	ug/Kg		<MDL,G	2.6	8.6	ug/Kg
Dicamba		<MDL	2	8.34	ug/Kg		<MDL	2.2	9.06	ug/Kg		<MDL	2.1	8.89	ug/Kg		<MDL	2	8.6	ug/Kg
Dichloroprop		<MDL	0.89	8.34	ug/Kg		<MDL	0.97	9.06	ug/Kg		<MDL	0.95	8.89	ug/Kg		<MDL	0.92	8.6	ug/Kg
Dinoseb		<MDL	0.69	8.34	ug/Kg		<MDL	0.75	9.06	ug/Kg		<MDL	0.73	8.89	ug/Kg		<MDL	0.7	8.6	ug/Kg
MCPA		<MDL	1.3	8.34	ug/Kg		<MDL	1.4	9.06	ug/Kg		<MDL	1.3	8.89	ug/Kg		<MDL	1.3	8.6	ug/Kg
MCPP		<MDL	2.2	8.34	ug/Kg		<MDL	2.5	9.06	ug/Kg		<MDL	2.4	8.89	ug/Kg		<MDL	2.3	8.6	ug/Kg
M=OR WDOE NWTPH-DX (7-3-06-001)																				
Diesel Range (>C12-C24)		<MDL	33	33	mg/Kg		<MDL	35	35	mg/Kg		<MDL	35	35	mg/Kg		<MDL	34	34	mg/Kg
Lube Oil Range (>C24)		<MDL	33	33	mg/Kg		<MDL	35	35	mg/Kg		<MDL	35	35	mg/Kg		<MDL	34	34	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results Baseline Characterization Study Candidate Marine Outfall Zones ***Nearshore Sediments***	Locator: Z5-TRSED-1 Descrip: Zone 5 - Station 1 Sampled: Dec 04, 2001 Lab ID: L22953-1 Matrix: SALTWTRSED % Solids: 75.7					Locator: Z5-TRSED-2 Descrip: Zone 5 - Station 2 Sampled: Dec 04, 2001 Lab ID: L22953-2 Matrix: SALTWTRSED % Solids: 72.4					Locator: Z5-TRSED-3 Descrip: Zone 5 - Station 3 Sampled: Dec 04, 2001 Lab ID: L22953-3 Matrix: SALTWTRSED % Solids: 71.4					Locator: Z6-TRSED-1 Descrip: Zone 6 - Station 1 Sampled: Dec 04, 2001 Lab ID: L22953-4 Matrix: SALTWTRSED % Solids: 73.8				
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																				

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

Locator:	Z6-TRSED-2	Z6-TRSED-3	Z7-TRSED-1	Z7-TRSED-2
Descrip:	Zone 6 - Station 2	Zone 6 - Station 3	Zone 7 - Station 1	Zone 7 - Station 2
Sampled:	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001
Lab ID:	L22953-5	L22953-6	L22953-7	L22953-8
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	72.6	70.8	60	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																				
Clay *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%	3.6		0.1	0.1	%	3.2		0.1	0.1	%
Gravel *	2.9		0.1	0.1	%	0.1	RDL	0.1	0.1	%	1.7		0.1	0.1	%	1.9		0.1	0.1	%
p+0.00 *	2.4		0.1	0.1	%	0.3		0.1	0.1	%	0.5		0.1	0.1	%	0.6		0.1	0.1	%
p+1.00 *	5.9		0.1	0.1	%	8.6		0.1	0.1	%	1.2		0.1	0.1	%	1.3		0.1	0.1	%
p+10.0 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%	0.8		0.1	0.1	%	1.1		0.1	0.1	%
p+10.0(more than) *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%	1.3		0.1	0.1	%	0.2		0.1	0.1	%
p+2.00 *	48.9		0.1	0.1	%	77.8		0.1	0.1	%	7.2		0.1	0.1	%	17.8		0.1	0.1	%
p+3.00 *	36.6		0.1	0.1	%	6		0.1	0.1	%	55.8		0.1	0.1	%	57.3		0.1	0.1	%
p+4.00 *	0.8		0.1	0.1	%	4.7		0.1	0.1	%	18.3		0.1	0.1	%	6.4		0.1	0.1	%
p+5.00 *	1.1		0.1	0.1	%	0.3		0.1	0.1	%	5.6		0.1	0.1	%	7.5		0.1	0.1	%
p+6.00 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%	1.1		0.1	0.1	%	1		0.1	0.1	%
p+7.00 *	1		0.1	0.1	%	1.7		0.1	0.1	%	3.3		0.1	0.1	%	1.2		0.1	0.1	%
p+8.00 *	0.4		0.1	0.1	%	0.4		0.1	0.1	%	1.7		0.1	0.1	%	1.8		0.1	0.1	%
p+9.00 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%	1.5		0.1	0.1	%	1.9		0.1	0.1	%
p-1.00 *	0.4		0.1	0.1	%	0.1	RDL	0.1	0.1	%	0.5		0.1	0.1	%	0.6		0.1	0.1	%
p-2.00 *	0.1	RDL	0.1	0.1	%		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%	0.1	RDL	0.1	0.1	%
p-2.00(less than) *	2.4		0.1	0.1	%		<MDL	0.1	0.1	%	1.2		0.1	0.1	%	1.2		0.1	0.1	%
Sand *	94.6		0.1	0.1	%	97.4		0.1	0.1	%	83		0.1	0.1	%	83.4		0.1	0.1	%
Silt *	2.5	E	0.1	0.1	%	2.4	E	0.1	0.1	%	11.7	E	0.1	0.1	%	11.5	E	0.1	0.1	%
M=CV EPA9060-PSEP96 (03-04-002-001)																				
Total Organic Carbon	2130		550	1100	mg/Kg	2260		560	1130	mg/Kg	16800		1000	2000	mg/Kg	8990		460	922	mg/Kg
M=CV SM2540-G (03-01-007-001)																				
Total Solids *	72.6		0.005	0.01	%	70.8		0.005	0.01	%	60		0.005	0.01	%	65.1		0.005	0.01	%
Total Volatile Solids	1.19		0.00689	0.0138	%	0.89		0.00706	0.0141	%	4		0.00833	0.0167	%	2.44		0.00768	0.0154	%
M=CV SM4500-NH3-G(03-03-014-000)KCL																				
Ammonia Nitrogen	0.992		0.14	0.275	mg/Kg	2.95		0.14	0.282	mg/Kg	3.35		0.17	0.333	mg/Kg	2.89		0.15	0.307	mg/Kg
M=CV SM4500S2-D, EPA376.2																				
Total Sulfide		<MDL	1.4	1.38	mg/Kg	2.54		1.4	1.41	mg/Kg	15.2		1.7	1.67	mg/Kg		<MDL	1.5	1.54	mg/Kg
M=ES NONE																				
Easting (NAD83) *	1255557				ft	1255383				ft	1256135				ft	1255484				ft
Northing (NAD83) *	296171				ft	294583				ft	289812				ft	288791				ft
Sample Depth *	23				m	11				m	18				m	31				m
Sample Start Time *	1035				hr	1053				hr	1159				hr	1138				hr
Sediment Sampling Depth *	10				cm	12				cm	11				cm	10				cm
Sediment Sampling Range *	0-10				cm	0-10				cm	0-10				cm	0-10				cm
Tidal Condition *	E				none	E				none	E				none	E				none
Tide Height *	10.5				ft	10				ft	8.5				ft	9				ft
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA		<MDL	0.028	0.271	mg/Kg		<MDL	0.027	0.274	mg/Kg	0.11	<RDL	0.033	0.333	mg/Kg	0.12	<RDL	0.031	0.3	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				
Aluminum, Total, ICP	6090	L	7	35.1	mg/Kg	5000	L	6.8	33.9	mg/Kg	9250	L	8.5	42.3	mg/Kg	7670	L	7.7	38.4	mg/Kg
Antimony, Total, ICP		<MDL,G	2.1	10.5	mg/Kg		<MDL,G	2	10.2	mg/Kg		<MDL,G	2.5	12.7	mg/Kg		<MDL,G	2.3	11.5	mg/Kg
Arsenic, Total, ICP		<MDL	3.4	17.5	mg/Kg		<MDL	3.4	16.9	mg/Kg		<MDL	4.2	21.2	mg/Kg		<MDL	3.8	19.2	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
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Nearshore Sediments

Locator:	Z6-TRSED-2	Z6-TRSED-3	Z7-TRSED-1	Z7-TRSED-2
Descrip:	Zone 6 - Station 2	Zone 6 - Station 3	Zone 7 - Station 1	Zone 7 - Station 2
Sampled:	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001
Lab ID:	L22953-5	L22953-6	L22953-7	L22953-8
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	72.6	70.8	60	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																				
Beryllium, Total, ICP	0.12	<RDL	0.07	0.351	mg/Kg	0.073	<RDL	0.068	0.339	mg/Kg	0.2	<RDL	0.085	0.423	mg/Kg	0.15	<RDL	0.077	0.384	mg/Kg
Cadmium, Total, ICP		<MDL	0.21	1.05	mg/Kg		<MDL	0.2	1.02	mg/Kg		<MDL	0.25	1.27	mg/Kg		<MDL	0.23	1.15	mg/Kg
Chromium, Total, ICP	15.4		0.34	1.75	mg/Kg	9.56		0.34	1.69	mg/Kg	28.2		0.42	2.12	mg/Kg	22		0.38	1.92	mg/Kg
Copper, Total, ICP	5.7		0.28	1.4	mg/Kg	3.47		0.27	1.35	mg/Kg	33.3		0.33	1.7	mg/Kg	16.7		0.31	1.54	mg/Kg
Iron, Total, ICP	8880		3.4	17.5	mg/Kg	6370		3.4	16.9	mg/Kg	12900		4.2	21.2	mg/Kg	10800		3.8	19.2	mg/Kg
Lead, Total, ICP	3.6	<RDL	2.1	10.5	mg/Kg	2.8	<RDL	2	10.2	mg/Kg	29.2		2.5	12.7	mg/Kg	15.7		2.3	11.5	mg/Kg
Manganese, Total, ICP	138		0.14	0.701	mg/Kg	111		0.14	0.677	mg/Kg	170		0.17	0.847	mg/Kg	152		0.15	0.768	mg/Kg
Nickel, Total, ICP	17.5		1.4	7.01	mg/Kg	9.24		1.4	6.77	mg/Kg	33.3		1.7	8.47	mg/Kg	25.5		1.5	7.68	mg/Kg
Selenium, Total, ICP		<MDL	3.4	17.5	mg/Kg		<MDL	3.4	16.9	mg/Kg		<MDL	4.2	21.2	mg/Kg		<MDL	3.8	19.2	mg/Kg
Silver, Total, ICP		<MDL	0.28	1.4	mg/Kg		<MDL	0.27	1.35	mg/Kg		<MDL	0.33	1.7	mg/Kg		<MDL	0.31	1.54	mg/Kg
Thallium, Total, ICP		<MDL	14	70.1	mg/Kg		<MDL	14	67.7	mg/Kg		<MDL	17	84.7	mg/Kg		<MDL	15	76.8	mg/Kg
Tin, Total, ICP		<MDL	5	24.5	mg/Kg		<MDL	4.8	23.7	mg/Kg		<MDL	6	29.7	mg/Kg		<MDL	5.4	26.9	mg/Kg
Zinc, Total, ICP	21.3		0.34	1.75	mg/Kg	15.7		0.34	1.69	mg/Kg	63.2		0.42	2.12	mg/Kg	38.1		0.38	1.92	mg/Kg
M=OR EPA 3540C/8141A (7-3-04-000)																				
Chlorpyrifos		<MDL	45	91.9	ug/Kg		<MDL	47	94.2	ug/Kg		<MDL	55	111	ug/Kg		<MDL	51	102	ug/Kg
Diazinon		<MDL	28	45.9	ug/Kg		<MDL	28	47	ug/Kg		<MDL	33	55.5	ug/Kg		<MDL	31	51.2	ug/Kg
Disulfoton		<MDL	28	45.9	ug/Kg		<MDL	28	47	ug/Kg		<MDL	33	55.5	ug/Kg		<MDL	31	51.2	ug/Kg
Malathion		<MDL	73	138	ug/Kg		<MDL	75	141	ug/Kg		<MDL	88	167	ug/Kg		<MDL	81	154	ug/Kg
Parathion-Ethyl		<MDL,L	73	138	ug/Kg		<MDL,L	75	141	ug/Kg		<MDL,L	88	167	ug/Kg		<MDL,L	81	154	ug/Kg
Parathion-Methyl		<MDL,L	73	138	ug/Kg		<MDL,L	75	141	ug/Kg		<MDL,L	88	167	ug/Kg		<MDL,L	81	154	ug/Kg
Phorate		<MDL	45	91.9	ug/Kg		<MDL	47	94.2	ug/Kg		<MDL	55	111	ug/Kg		<MDL	51	102	ug/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL	0.36	0.73	ug/Kg		<MDL	0.37	0.749	ug/Kg		<MDL	0.43	0.883	ug/Kg		<MDL	0.4	0.814	ug/Kg
1,2-Dichlorobenzene		<MDL	0.36	0.73	ug/Kg		<MDL	0.37	0.749	ug/Kg		<MDL	0.43	0.883	ug/Kg		<MDL	0.4	0.814	ug/Kg
1,2-Diphenylhydrazine		<MDL	14	27.5	ug/Kg		<MDL	14	28.2	ug/Kg		<MDL	17	33.3	ug/Kg		<MDL	15	30.7	ug/Kg
1,3-Dichlorobenzene		<MDL	0.36	0.73	ug/Kg		<MDL	0.37	0.749	ug/Kg		<MDL	0.43	0.883	ug/Kg		<MDL	0.4	0.814	ug/Kg
1,4-Dichlorobenzene		<MDL	0.18	0.364	ug/Kg		<MDL	0.18	0.373	ug/Kg		<MDL	0.22	0.44	ug/Kg		<MDL	0.2	0.406	ug/Kg
2,4,5-Trichlorophenol		<MDL	17	33.1	ug/Kg		<MDL	17	33.9	ug/Kg		<MDL	20	40	ug/Kg		<MDL	18	36.9	ug/Kg
2,4,6-Trichlorophenol		<MDL	18	35.8	ug/Kg		<MDL	18	36.7	ug/Kg		<MDL	22	43.3	ug/Kg		<MDL	20	39.9	ug/Kg
2,4-Dichlorophenol		<MDL	22	44.1	ug/Kg		<MDL	23	45.2	ug/Kg		<MDL	27	53.3	ug/Kg		<MDL	25	49.2	ug/Kg
2,4-Dimethylphenol		<MDL	9.6	19.3	ug/Kg		<MDL	9.9	19.8	ug/Kg		<MDL	12	23.3	ug/Kg		<MDL	11	21.5	ug/Kg
2,4-Dinitrotoluene		<MDL	4.1	8.26	ug/Kg		<MDL	4.2	8.47	ug/Kg		<MDL	5	10	ug/Kg		<MDL	4.6	9.22	ug/Kg
2,6-Dinitrotoluene		<MDL	14	27.5	ug/Kg		<MDL	14	28.2	ug/Kg		<MDL	17	33.3	ug/Kg		<MDL	15	30.7	ug/Kg
2-Chloronaphthalene		<MDL	22	44.1	ug/Kg		<MDL	23	45.2	ug/Kg		<MDL	27	53.3	ug/Kg		<MDL	25	49.2	ug/Kg
2-Chlorophenol		<MDL	11	22	ug/Kg		<MDL	11	22.6	ug/Kg		<MDL	13	26.7	ug/Kg		<MDL	12	24.6	ug/Kg
2-Methylnaphthalene		<MDL	19	38.6	ug/Kg		<MDL	20	39.5	ug/Kg		<MDL	23	46.7	ug/Kg		<MDL	22	43	ug/Kg
2-Methylphenol		<MDL	26	52.3	ug/Kg		<MDL	27	53.7	ug/Kg		<MDL	32	63.3	ug/Kg		<MDL	29	58.4	ug/Kg
2-Nitrophenol		<MDL	21	41.3	ug/Kg		<MDL	21	42.4	ug/Kg		<MDL	25	50	ug/Kg		<MDL	23	46.1	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	12	24.8	ug/Kg		<MDL	13	25.4	ug/Kg		<MDL	15	30	ug/Kg		<MDL	14	27.6	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	18	35.8	ug/Kg		<MDL	18	36.7	ug/Kg		<MDL	22	43.3	ug/Kg		<MDL	20	39.9	ug/Kg
4-Methylphenol		<MDL	22	44.1	ug/Kg		<MDL	23	45.2	ug/Kg		<MDL	27	53.3	ug/Kg		<MDL	25	49.2	ug/Kg
Acenaphthene		<MDL	9.6	19.3	ug/Kg		<MDL	9.9	19.8	ug/Kg		<MDL	12	23.3	ug/Kg		<MDL	11	21.5	ug/Kg
Acenaphthylene		<MDL	21	41.3	ug/Kg		<MDL	21	42.4	ug/Kg	47	<RDL	25	50	ug/Kg		<MDL	23	46.1	ug/Kg
Aniline		<MDL,X	26	52.3	ug/Kg		<MDL,X	27	53.7	ug/Kg		<MDL,X	32	63.3	ug/Kg		<MDL,X	29	58.4	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

Locator:	Z6-TRSED-2	Z6-TRSED-3	Z7-TRSED-1	Z7-TRSED-2
Descrip:	Zone 6 - Station 2	Zone 6 - Station 3	Zone 7 - Station 1	Zone 7 - Station 2
Sampled:	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001	Dec 04, 2001
Lab ID:	L22953-5	L22953-6	L22953-7	L22953-8
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	72.6	70.8	60	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																				
Anthracene		<MDL,G	5.5	11	ug/Kg		<MDL,G	5.6	11.3	ug/Kg	190	G	6.7	13.3	ug/Kg	46.2	G	6.1	12.3	ug/Kg
Benzo(a)anthracene	11.5		2.8	5.51	ug/Kg		<MDL	2.8	5.65	ug/Kg	477		3.3	6.67	ug/Kg	127		3.1	6.14	ug/Kg
Benzo(a)pyrene	12.3	B	4.1	8.26	ug/Kg		<MDL,B	4.2	8.47	ug/Kg	442	B	5	10	ug/Kg	139	B	4.6	9.22	ug/Kg
Benzo(b)fluoranthene	13.3	B	4.1	8.26	ug/Kg		<MDL,B	4.2	8.47	ug/Kg	595	B	5	10	ug/Kg	133	B	4.6	9.22	ug/Kg
Benzo(g,h,i)perylene		<MDL	11	22	ug/Kg		<MDL	11	22.6	ug/Kg	188		13	26.7	ug/Kg	58.7		12	24.6	ug/Kg
Benzo(k)fluoranthene	7.9	<RDL	4.1	8.26	ug/Kg		<MDL	4.2	8.47	ug/Kg	385		5	10	ug/Kg	82.5		4.6	9.22	ug/Kg
Benzoic Acid	60.7	G	8.3	16.5	ug/Kg	103	G	8.5	16.9	ug/Kg	105	G	10	20	ug/Kg	102	G	9.2	18.4	ug/Kg
Benzyl Alcohol		<MDL,G	8.3	16.5	ug/Kg		<MDL,G	8.5	16.9	ug/Kg		<MDL,G	10	20	ug/Kg		<MDL,G	9.2	18.4	ug/Kg
Benzyl Butyl Phthalate		<MDL	8.3	16.5	ug/Kg		<MDL	8.5	16.9	ug/Kg		<MDL	10	20	ug/Kg		<MDL	9.2	18.4	ug/Kg
Bis(2-Chloroethoxy)Methane		<MDL	23	46.8	ug/Kg		<MDL	24	48	ug/Kg		<MDL	28	56.7	ug/Kg		<MDL	26	52.2	ug/Kg
Bis(2-Chloroethyl)Ether		<MDL	21	41.3	ug/Kg		<MDL	21	42.4	ug/Kg		<MDL	25	50	ug/Kg		<MDL	23	46.1	ug/Kg
Bis(2-Chloroisopropyl)Ether		<MDL	21	41.3	ug/Kg		<MDL	21	42.4	ug/Kg		<MDL	25	50	ug/Kg		<MDL	23	46.1	ug/Kg
Bis(2-Ethylhexyl)Phthalate	18	<RDL	9.2	19.3	ug/Kg	9.6	<RDL	9.5	19.8	ug/Kg	93		11	23.3	ug/Kg	28.7		10	21.5	ug/Kg
Caffeine		<MDL	8.3	16.5	ug/Kg		<MDL	8.5	16.9	ug/Kg		<MDL	10	20	ug/Kg		<MDL	9.2	18.4	ug/Kg
Carbazole		<MDL	9.6	19.3	ug/Kg		<MDL	9.9	19.8	ug/Kg	122		12	23.3	ug/Kg	15	<RDL	11	21.5	ug/Kg
Chrysene	7.9	<RDL	5.5	11	ug/Kg		<MDL	5.6	11.3	ug/Kg	777		6.7	13.3	ug/Kg	161		6.1	12.3	ug/Kg
Coprostanol		<MDL	19	38.6	ug/Kg		<MDL	20	39.5	ug/Kg		<MDL	23	46.7	ug/Kg		<MDL	22	43	ug/Kg
Dibenzo(a,h)anthracene		<MDL	9.6	19.3	ug/Kg		<MDL	9.9	19.8	ug/Kg	67.8		12	23.3	ug/Kg	15	<RDL	11	21.5	ug/Kg
Dibenzofuran		<MDL	19	38.6	ug/Kg		<MDL	20	39.5	ug/Kg	25	<RDL	23	46.7	ug/Kg		<MDL	22	43	ug/Kg
Diethyl Phthalate		<MDL	8.3	16.5	ug/Kg		<MDL	8.5	16.9	ug/Kg		<MDL	10	20	ug/Kg		<MDL	9.2	18.4	ug/Kg
Dimethyl Phthalate		<MDL	15	30.3	ug/Kg		<MDL	16	31.1	ug/Kg		<MDL	18	36.7	ug/Kg		<MDL	17	33.8	ug/Kg
Di-N-Butyl Phthalate	9.2	<RDL,B	6.9	13.8	ug/Kg		<MDL,B	7.1	14.1	ug/Kg	14	<RDL,B	8.3	16.7	ug/Kg	15	<RDL,B	7.7	15.4	ug/Kg
Di-N-Octyl Phthalate		<MDL	11	22	ug/Kg		<MDL	11	22.6	ug/Kg		<MDL	13	26.7	ug/Kg		<MDL	12	24.6	ug/Kg
Fluoranthene	14	<RDL,L	11	22	ug/Kg		<MDL,L	11	22.6	ug/Kg	2670	L,>MR,E	13	26.7	ug/Kg	404	L	12	24.6	ug/Kg
Fluorene		<MDL	18	35.8	ug/Kg		<MDL	18	36.7	ug/Kg	51		22	43.3	ug/Kg		<MDL	20	39.9	ug/Kg
Hexachlorobenzene		<MDL	0.91	1.83	ug/Kg		<MDL	0.93	1.88	ug/Kg		<MDL	1.1	2.22	ug/Kg		<MDL	1	2.04	ug/Kg
Hexachlorobutadiene		<MDL	1	2.07	ug/Kg		<MDL	1.1	2.12	ug/Kg		<MDL	1.3	2.5	ug/Kg		<MDL	1.2	2.3	ug/Kg
Hexachloroethane		<MDL	21	41.3	ug/Kg		<MDL	21	42.4	ug/Kg		<MDL	25	50	ug/Kg		<MDL	23	46.1	ug/Kg
Indeno(1,2,3-Cd)Pyrene		<MDL	12	24.8	ug/Kg		<MDL	13	25.4	ug/Kg	192		15	30	ug/Kg	52.8		14	27.6	ug/Kg
Isophorone		<MDL	26	52.3	ug/Kg		<MDL	27	53.7	ug/Kg		<MDL	32	63.3	ug/Kg		<MDL	29	58.4	ug/Kg
Naphthalene		<MDL,G	19	38.6	ug/Kg		<MDL,G	20	39.5	ug/Kg		<MDL,G	23	46.7	ug/Kg		<MDL,G	22	43	ug/Kg
Nitrobenzene		<MDL	22	44.1	ug/Kg		<MDL	23	45.2	ug/Kg		<MDL	27	53.3	ug/Kg		<MDL	25	49.2	ug/Kg
N-Nitrosodimethylamine		<MDL	28	55.1	ug/Kg		<MDL	28	56.5	ug/Kg		<MDL	33	66.7	ug/Kg		<MDL	31	61.4	ug/Kg
N-Nitrosodi-N-Propylamine		<MDL	12	24.8	ug/Kg		<MDL	13	25.4	ug/Kg		<MDL	15	30	ug/Kg		<MDL	14	27.6	ug/Kg
N-Nitrosodiphenylamine		<MDL	28	55.1	ug/Kg		<MDL	28	56.5	ug/Kg		<MDL	33	66.7	ug/Kg		<MDL	31	61.4	ug/Kg
Pentachlorophenol		<MDL	6.9	13.8	ug/Kg		<MDL	7.1	14.1	ug/Kg		<MDL	8.3	16.7	ug/Kg		<MDL	7.7	15.4	ug/Kg
Phenanthrene		<MDL	5.5	11	ug/Kg		<MDL	5.6	11.3	ug/Kg	453		6.7	13.3	ug/Kg	101		6.1	12.3	ug/Kg
Phenol		<MDL,E	12	24.8	ug/Kg		<MDL,E	13	25.4	ug/Kg		<MDL,E	15	30	ug/Kg		<MDL,E	14	27.6	ug/Kg
Pyrene	6.9	<RDL	5.5	11	ug/Kg		<MDL	5.6	11.3	ug/Kg	1470		6.7	13.3	ug/Kg	247		6.1	12.3	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD		<MDL	1.4	2.75	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL	1.7	3.33	ug/Kg		<MDL	1.5	3.07	ug/Kg
4,4'-DDE		<MDL	1.4	2.75	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL	1.7	3.33	ug/Kg		<MDL	1.5	3.07	ug/Kg
4,4'-DDT		<MDL,G	1.4	2.75	ug/Kg		<MDL,G	1.4	2.82	ug/Kg		<MDL,G	1.7	3.33	ug/Kg		<MDL,G	1.5	3.07	ug/Kg
Aldrin		<MDL	1.4	2.75	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL	1.7	3.33	ug/Kg		<MDL	1.5	3.07	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

Locator:	Z6-TRSED-2					Locator:	Z6-TRSED-3					Locator:	Z7-TRSED-1					Locator:	Z7-TRSED-2			
Descrip:	Zone 6 - Station 2					Descrip:	Zone 6 - Station 3					Descrip:	Zone 7 - Station 1					Descrip:	Zone 7 - Station 2			
Sampled:	Dec 04, 2001					Sampled:	Dec 04, 2001					Sampled:	Dec 04, 2001					Sampled:	Dec 04, 2001			
Lab ID:	L22953-5					Lab ID:	L22953-6					Lab ID:	L22953-7					Lab ID:	L22953-8			
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED			
% Solids:	72.6					% Solids:	70.8					% Solids:	60					% 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-BHC		<MDL	0.69	1.38	ug/Kg		<MDL	0.71	1.41	ug/Kg		<MDL	0.83	1.67	ug/Kg		<MDL	0.77	1.54	ug/Kg
Aroclor 1016		<MDL	1.8	3.44	ug/Kg		<MDL	1.8	3.53	ug/Kg		<MDL	2.2	4.17	ug/Kg		<MDL	2	3.84	ug/Kg
Aroclor 1221		<MDL	3.4	6.89	ug/Kg		<MDL	3.5	7.06	ug/Kg		<MDL	4.2	8.33	ug/Kg		<MDL	3.8	7.68	ug/Kg
Aroclor 1232		<MDL	3.4	6.89	ug/Kg		<MDL	3.5	7.06	ug/Kg		<MDL	4.2	8.33	ug/Kg		<MDL	3.8	7.68	ug/Kg
Aroclor 1242		<MDL	1.8	3.44	ug/Kg		<MDL	1.8	3.53	ug/Kg		<MDL	2.2	4.17	ug/Kg		<MDL	2	3.84	ug/Kg
Aroclor 1248		<MDL	1.8	3.44	ug/Kg		<MDL	1.8	3.53	ug/Kg		<MDL	2.2	4.17	ug/Kg		<MDL	2	3.84	ug/Kg
Aroclor 1254		<MDL	1.8	3.44	ug/Kg		<MDL	1.8	3.53	ug/Kg	22.3		2.2	4.17	ug/Kg	6.9		2	3.84	ug/Kg
Aroclor 1260		<MDL	1.8	3.44	ug/Kg		<MDL	1.8	3.53	ug/Kg	13.9		2.2	4.17	ug/Kg	5.87		2	3.84	ug/Kg
Beta-BHC		<MDL	0.69	1.38	ug/Kg		<MDL	0.71	1.41	ug/Kg		<MDL	0.83	1.67	ug/Kg		<MDL	0.77	1.54	ug/Kg
Chlordane		<MDL	0.69	1.38	ug/Kg		<MDL	0.71	1.41	ug/Kg		<MDL	0.83	1.67	ug/Kg		<MDL	0.77	1.54	ug/Kg
Delta-BHC		<MDL	0.69	1.38	ug/Kg		<MDL	0.71	1.41	ug/Kg		<MDL	0.83	1.67	ug/Kg		<MDL	0.77	1.54	ug/Kg
Dieldrin		<MDL	1.4	2.75	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL	1.7	3.33	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endosulfan I		<MDL	1.4	2.75	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL	1.7	3.33	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endosulfan II		<MDL	1.4	2.75	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL	1.7	3.33	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endosulfan Sulfate		<MDL	1.4	2.75	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL	1.7	3.33	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endrin		<MDL	1.4	2.75	ug/Kg		<MDL	1.4	2.82	ug/Kg		<MDL	1.7	3.33	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endrin Aldehyde		<MDL,G	2.8	5.51	ug/Kg		<MDL,G	2.8	5.65	ug/Kg		<MDL,G	3.3	6.67	ug/Kg		<MDL,G	3.1	6.14	ug/Kg
Gamma-BHC (Lindane)		<MDL	0.69	1.38	ug/Kg		<MDL	0.71	1.41	ug/Kg		<MDL	0.83	1.67	ug/Kg		<MDL	0.77	1.54	ug/Kg
Heptachlor		<MDL	0.69	1.38	ug/Kg		<MDL	0.71	1.41	ug/Kg		<MDL	0.83	1.67	ug/Kg		<MDL	0.77	1.54	ug/Kg
Heptachlor Epoxide		<MDL	0.69	1.38	ug/Kg		<MDL	0.71	1.41	ug/Kg		<MDL	0.83	1.67	ug/Kg		<MDL	0.77	1.54	ug/Kg
Methoxychlor		<MDL	6.9	13.8	ug/Kg		<MDL	7.1	14.1	ug/Kg		<MDL	8.3	16.7	ug/Kg		<MDL	7.7	15.4	ug/Kg
Toxaphene		<MDL	14	27.5	ug/Kg		<MDL	14	28.2	ug/Kg		<MDL	17	33.3	ug/Kg		<MDL	15	30.7	ug/Kg
M=OR KRONE 1989 (07-03-012-000)																				
Di-n-Butyltin (as dibutyltin ion)		<MDL,B,G	0.48	0.964	ug/Kg		<MDL,B,G	0.49	0.989	ug/Kg	5.18	B,G	0.58	1.17	ug/Kg	2.5	B,G	0.54	1.08	ug/Kg
Mono-n-Butyltin (as monobutyltin ion)	3.6	<RDL,B	2.3	4.64	ug/Kg	3.8	<RDL,B	2.4	4.76	ug/Kg	11	B	2.8	5.62	ug/Kg	10.9	B	2.6	5.18	ug/Kg
Tetra-n-Butyltin (as tetrabutyltin)		<MDL	0.55	1.1	ug/Kg		<MDL	0.56	1.13	ug/Kg		<MDL	0.67	1.34	ug/Kg		<MDL	0.61	1.23	ug/Kg
Tri-n-Butyltin (as tributyltin ion)	2.51	B,G	0.29	0.572	ug/Kg	2.29	B,G	0.3	0.586	ug/Kg	12.3	B,G	0.35	0.692	ug/Kg	8.4	B,G	0.32	0.637	ug/Kg
M=OR SM5520-B,D,F (07-03-014-000)																				
Oil And Grease, Total	375		140	344	mg/Kg	607		140	353	mg/Kg	1640		170	417	mg/Kg	1280		150	384	mg/Kg
M=OR SW-846 8151A GC/MS MODIFIED																				
2,4,5-T		<MDL	1.9	9.1	ug/Kg		<MDL	2	9.01	ug/Kg		<MDL	2.5	11.1	ug/Kg		<MDL	2.2	9.74	ug/Kg
2,4,5-TP (Silvex)		<MDL	2.9	9.1	ug/Kg		<MDL	2.8	9.01	ug/Kg		<MDL	3.5	11.1	ug/Kg		<MDL	3.1	9.74	ug/Kg
2,4-D		<MDL	0.76	9.1	ug/Kg		<MDL	0.75	9.01	ug/Kg		<MDL	0.92	11.1	ug/Kg		<MDL	0.8	9.74	ug/Kg
2,4-DB		<MDL	1.3	9.1	ug/Kg		<MDL	1.3	9.01	ug/Kg		<MDL	1.6	11.1	ug/Kg		<MDL	1.4	9.74	ug/Kg
Dalapon		<MDL,G	2.8	9.1	ug/Kg		<MDL,G	2.7	9.01	ug/Kg		<MDL,G	3.3	11.1	ug/Kg		<MDL,G	2.9	9.74	ug/Kg
Dicamba		<MDL	2.2	9.1	ug/Kg		<MDL	2.3	9.01	ug/Kg		<MDL	2.7	11.1	ug/Kg		<MDL	2.3	9.74	ug/Kg
Dichloroprop		<MDL	0.96	9.1	ug/Kg		<MDL	0.96	9.01	ug/Kg		<MDL	1.2	11.1	ug/Kg		<MDL	1	9.74	ug/Kg
Dinoseb		<MDL	0.76	9.1	ug/Kg		<MDL	0.75	9.01	ug/Kg		<MDL	0.92	11.1	ug/Kg		<MDL	0.8	9.74	ug/Kg
MCPA		<MDL	1.4	9.1	ug/Kg		<MDL	1.4	9.01	ug/Kg		<MDL	1.7	11.1	ug/Kg		<MDL	1.5	9.74	ug/Kg
MCPP		<MDL	2.5	9.1	ug/Kg		<MDL	2.4	9.01	ug/Kg		<MDL	3	11.1	ug/Kg		<MDL	2.6	9.74	ug/Kg
M=OR WDOE NWTPH-DX (7-3-06-001)																				
Diesel Range (>C12-C24)		<MDL	34	34	mg/Kg		<MDL	35	35	mg/Kg										
Lube Oil Range (>C24)		<MDL	34	34	mg/Kg		<MDL	35	35	mg/Kg	140		42	42	mg/Kg	66		38	38	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results Baseline Characterization Study Candidate Marine Outfall Zones ***Nearshore Sediments***	Locator: Z6-TRSED-2 Descrip: Zone 6 - Station 2 Sampled: Dec 04, 2001 Lab ID: L22953-5 Matrix: SALTWTRSED % Solids: 72.6					Locator: Z6-TRSED-3 Descrip: Zone 6 - Station 3 Sampled: Dec 04, 2001 Lab ID: L22953-6 Matrix: SALTWTRSED % Solids: 70.8					Locator: Z7-TRSED-1 Descrip: Zone 7 - Station 1 Sampled: Dec 04, 2001 Lab ID: L22953-7 Matrix: SALTWTRSED % Solids: 60					Locator: Z7-TRSED-2 Descrip: Zone 7 - Station 2 Sampled: Dec 04, 2001 Lab ID: L22953-8 Matrix: SALTWTRSED % Solids: 65.1				
Parameters	Value	Qual	MDL - Dry Weight Basis	RDL	Units	Value	Qual	MDL - Dry Weight Basis	RDL	Units	Value	Qual	MDL - Dry Weight Basis	RDL	Units	Value	Qual	MDL - Dry Weight Basis	RDL	Units
COMBINED LABS																				

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results Baseline Characterization Study Candidate Marine Outfall Zones ***Nearshore Sediments***	Locator: Descrip: Sampled: Lab ID: Matrix: % Solids:	Z7-TRSED-3 Zone 7 - Station 3 Dec 04, 2001 L22953-9 SALTWTRSED 71.7				Locator: Descrip: Sampled: Lab ID: Matrix: % Solids:	Z6-TRSED-3 Zone 6 - Station 3 (Replicate) Dec 04, 2001 L22953-10 SALTWTRSED 72.2			
Parameters	Value	Qual	MDL - Dry Weight Basis	RDL	Units	Value	Qual	MDL - Dry Weight Basis	RDL	Units
COMBINED LABS										
M=CV ASTM D422										
Clay *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
Gravel *	0.8		0.1	0.1	%		<MDL	0.1	0.1	%
p+0.00 *	0.1	RDL	0.1	0.1	%	0.3		0.1	0.1	%
p+1.00 *	6.5		0.1	0.1	%	8.4		0.1	0.1	%
p+10.0 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
p+10.0(more than) *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
p+2.00 *	73.5		0.1	0.1	%	81.1		0.1	0.1	%
p+3.00 *	15.1		0.1	0.1	%	5.1		0.1	0.1	%
p+4.00 *	0.5		0.1	0.1	%	0.3		0.1	0.1	%
p+5.00 *	2		0.1	0.1	%	3.5		0.1	0.1	%
p+6.00 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
p+7.00 *	1		0.1	0.1	%	1		0.1	0.1	%
p+8.00 *	0.4		0.1	0.1	%	0.4		0.1	0.1	%
p+9.00 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
p-1.00 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
p-2.00 *		<MDL	0.1	0.1	%		<MDL	0.1	0.1	%
p-2.00(less than) *	0.8		0.1	0.1	%		<MDL	0.1	0.1	%
Sand *	95.7		0.1	0.1	%	95.2		0.1	0.1	%
Silt *	3.4	E	0.1	0.1	%	4.9	E	0.1	0.1	%
M=CV EPA9060-PSEP96 (03-04-002-001)										
Total Organic Carbon	1490		560	1120	mg/Kg	1750		480	970	mg/Kg
M=CV SM2540-G (03-01-007-001)										
Total Solids *	71.7		0.005	0.01	%	72.2		0.005	0.01	%
Total Volatile Solids	0.856		0.00697	0.0139	%	0.848		0.00693	0.0139	%
M=CV SM4500-NH3-G(03-03-014-000)KCL										
Ammonia Nitrogen	1.94		0.14	0.279	mg/Kg	2.83		0.14	0.277	mg/Kg
M=CV SM4500S2-D, EPA376.2										
Total Sulfide		<MDL	1.4	1.39	mg/Kg		<MDL	1.4	1.39	mg/Kg
M=ES NONE										
Easting (NAD83) *	1255512				ft	1255383				ft
Northing (NAD83) *	287580				ft	294583				ft
Sample Depth *	9				m	11				m
Sample Start Time *	1120				hr	1053				hr
Sediment Sampling Depth *	11				cm	12				cm
Sediment Sampling Range *	0-10				cm	0-10				cm
Tidal Condition *	E				none	E				none
Tide Height *	9				ft	10				ft
M=MT EPA 245.5 (06-01-004-003)										
Mercury, Total, CVAA		<MDL	0.028	0.275	mg/Kg		<MDL	0.028	0.271	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)										
Aluminum, Total, ICP	5830	L	7.1	35.6	mg/Kg	5240	L	6.9	34.5	mg/Kg
Antimony, Total, ICP		<MDL,G	2.1	10.7	mg/Kg		<MDL,G	2.1	10.3	mg/Kg
Arsenic, Total, ICP		<MDL	3.6	17.9	mg/Kg		<MDL	3.5	17.2	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

	Locator:	Z7-TRSED-3				Locator:	Z6-TRSED-3			
	Descrip:	Zone 7 - Station 3				Descrip:	Zone 6 - Station 3 (Replicate)			
	Sampled:	Dec 04, 2001				Sampled:	Dec 04, 2001			
	Lab ID:	L22953-9				Lab ID:	L22953-10			
	Matrix:	SALTWTRSED				Matrix:	SALTWTRSED			
	% Solids:	71.7				% Solids:	72.2			
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS										
Beryllium, Total, ICP	0.1	<RDL	0.071	0.356	mg/Kg	0.079	<RDL	0.069	0.345	mg/Kg
Cadmium, Total, ICP		<MDL	0.21	1.07	mg/Kg		<MDL	0.21	1.03	mg/Kg
Chromium, Total, ICP	15.1		0.36	1.79	mg/Kg	10.6		0.35	1.72	mg/Kg
Copper, Total, ICP	5.09		0.28	1.42	mg/Kg	3.57		0.28	1.38	mg/Kg
Iron, Total, ICP	8010		3.6	17.9	mg/Kg	6650		3.5	17.2	mg/Kg
Lead, Total, ICP	4.2	<RDL	2.1	10.7	mg/Kg	2.8	<RDL	2.1	10.3	mg/Kg
Manganese, Total, ICP	127		0.14	0.713	mg/Kg	120		0.14	0.69	mg/Kg
Nickel, Total, ICP	16.5		1.4	7.13	mg/Kg	10.8		1.4	6.9	mg/Kg
Selenium, Total, ICP		<MDL	3.6	17.9	mg/Kg		<MDL	3.5	17.2	mg/Kg
Silver, Total, ICP		<MDL	0.28	1.42	mg/Kg		<MDL	0.28	1.38	mg/Kg
Thallium, Total, ICP		<MDL	14	71.3	mg/Kg		<MDL	14	69	mg/Kg
Tin, Total, ICP		<MDL	5	25	mg/Kg		<MDL	4.8	24.1	mg/Kg
Zinc, Total, ICP	19.2		0.36	1.79	mg/Kg	15.9		0.35	1.72	mg/Kg
M=OR EPA 3540C/8141A (7-3-04-000)										
Chlorpyrifos		<MDL	46	93	ug/Kg		<MDL	46	92.4	ug/Kg
Diazinon		<MDL	28	46.4	ug/Kg		<MDL	28	46.1	ug/Kg
Disulfoton		<MDL	28	46.4	ug/Kg		<MDL	28	46.1	ug/Kg
Malathion		<MDL	74	139	ug/Kg		<MDL	73	139	ug/Kg
Parathion-Ethyl		<MDL,L	74	139	ug/Kg		<MDL,L	73	139	ug/Kg
Parathion-Methyl		<MDL,L	74	139	ug/Kg		<MDL,L	73	139	ug/Kg
Phorate		<MDL	46	93	ug/Kg		<MDL	46	92.4	ug/Kg
M=OR EPA 3550B/8270C (7-3-01-004)										
1,2,4-Trichlorobenzene		<MDL	0.36	0.739	ug/Kg		<MDL	0.36	0.734	ug/Kg
1,2-Dichlorobenzene		<MDL	0.36	0.739	ug/Kg		<MDL	0.36	0.734	ug/Kg
1,2-Diphenylhydrazine		<MDL	14	27.9	ug/Kg		<MDL	14	27.7	ug/Kg
1,3-Dichlorobenzene		<MDL	0.36	0.739	ug/Kg		<MDL	0.36	0.734	ug/Kg
1,4-Dichlorobenzene		<MDL	0.18	0.368	ug/Kg		<MDL	0.18	0.366	ug/Kg
2,4,5-Trichlorophenol		<MDL,G	17	33.5	ug/Kg		<MDL	17	33.2	ug/Kg
2,4,6-Trichlorophenol		<MDL,G	18	36.3	ug/Kg		<MDL	18	36	ug/Kg
2,4-Dichlorophenol		<MDL,G	22	44.6	ug/Kg		<MDL	22	44.3	ug/Kg
2,4-Dimethylphenol		<MDL,G	9.8	19.5	ug/Kg		<MDL	9.7	19.4	ug/Kg
2,4-Dinitrotoluene		<MDL	4.2	8.37	ug/Kg		<MDL	4.2	8.31	ug/Kg
2,6-Dinitrotoluene		<MDL	14	27.9	ug/Kg		<MDL	14	27.7	ug/Kg
2-Chloronaphthalene		<MDL	22	44.6	ug/Kg		<MDL	22	44.3	ug/Kg
2-Chlorophenol		<MDL,G	11	22.3	ug/Kg		<MDL	11	22.2	ug/Kg
2-Methylnaphthalene		<MDL	20	39.1	ug/Kg		<MDL	19	38.8	ug/Kg
2-Methylphenol		<MDL,G	26	53	ug/Kg		<MDL	26	52.6	ug/Kg
2-Nitrophenol		<MDL,G	21	41.8	ug/Kg		<MDL	21	41.6	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	13	25.1	ug/Kg		<MDL	12	24.9	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	18	36.3	ug/Kg		<MDL	18	36	ug/Kg
4-Methylphenol		<MDL,G	22	44.6	ug/Kg		<MDL	22	44.3	ug/Kg
Acenaphthene		<MDL	9.8	19.5	ug/Kg		<MDL	9.7	19.4	ug/Kg
Acenaphthylene		<MDL	21	41.8	ug/Kg		<MDL	21	41.6	ug/Kg
Aniline		<MDL,X	26	53	ug/Kg		<MDL,X	26	52.6	ug/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

	Locator:	Z7-TRSED-3				Locator:	Z6-TRSED-3				
	Descrip:	Zone 7 - Station 3				Descrip:	Zone 6 - Station 3 (Replicate)				
	Sampled:	Dec 04, 2001				Sampled:	Dec 04, 2001				
	Lab ID:	L22953-9				Lab ID:	L22953-10				
	Matrix:	SALTWTRSED				Matrix:	SALTWTRSED				
	% Solids:	71.7				% Solids:	72.2				
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	
			- Dry Weight Basis					- Dry Weight Basis			
COMBINED LABS											
Anthracene		<MDL,G	5.6	11.2	ug/Kg		<MDL,G	5.5	11.1	ug/Kg	
Benzo(a)anthracene		<MDL	2.8	5.58	ug/Kg		<MDL	2.8	5.54	ug/Kg	
Benzo(a)pyrene		<MDL,B	4.2	8.37	ug/Kg		<MDL,B	4.2	8.31	ug/Kg	
Benzo(b)fluoranthene		<MDL,B	4.2	8.37	ug/Kg		<MDL,B	4.2	8.31	ug/Kg	
Benzo(g,h,i)perylene		<MDL	11	22.3	ug/Kg		<MDL	11	22.2	ug/Kg	
Benzo(k)fluoranthene		<MDL	4.2	8.37	ug/Kg		<MDL	4.2	8.31	ug/Kg	
Benzoic Acid	60.1	G	8.4	16.7	ug/Kg	83.9	G	8.3	16.6	ug/Kg	
Benzyl Alcohol		<MDL,G	8.4	16.7	ug/Kg		<MDL,G	8.3	16.6	ug/Kg	
Benzyl Butyl Phthalate		<MDL	8.4	16.7	ug/Kg		<MDL	8.3	16.6	ug/Kg	
Bis(2-Chloroethoxy)Methane		<MDL	24	47.4	ug/Kg		<MDL	24	47.1	ug/Kg	
Bis(2-Chloroethyl)Ether		<MDL	21	41.8	ug/Kg		<MDL	21	41.6	ug/Kg	
Bis(2-Chloroisopropyl)Ether		<MDL	21	41.8	ug/Kg		<MDL	21	41.6	ug/Kg	
Bis(2-Ethylhexyl)Phthalate		<MDL	9.3	19.5	ug/Kg		<MDL	9.3	19.4	ug/Kg	
Caffeine		<MDL	8.4	16.7	ug/Kg		<MDL	8.3	16.6	ug/Kg	
Carbazole		<MDL	9.8	19.5	ug/Kg		<MDL	9.7	19.4	ug/Kg	
Chrysene		<MDL	5.6	11.2	ug/Kg		<MDL	5.5	11.1	ug/Kg	
Coprostanol		<MDL	20	39.1	ug/Kg		<MDL	19	38.8	ug/Kg	
Dibenzo(a,h)anthracene		<MDL	9.8	19.5	ug/Kg		<MDL	9.7	19.4	ug/Kg	
Dibenzofuran		<MDL	20	39.1	ug/Kg		<MDL	19	38.8	ug/Kg	
Diethyl Phthalate		<MDL	8.4	16.7	ug/Kg		<MDL	8.3	16.6	ug/Kg	
Dimethyl Phthalate		<MDL	15	30.7	ug/Kg		<MDL	15	30.5	ug/Kg	
Di-N-Butyl Phthalate		<MDL,B	7	13.9	ug/Kg	14.5	B	6.9	13.9	ug/Kg	
Di-N-Octyl Phthalate		<MDL	11	22.3	ug/Kg		<MDL	11	22.2	ug/Kg	
Fluoranthene		<MDL,L	11	22.3	ug/Kg		<MDL,L	11	22.2	ug/Kg	
Fluorene		<MDL	18	36.3	ug/Kg		<MDL	18	36	ug/Kg	
Hexachlorobenzene		<MDL	0.92	1.85	ug/Kg		<MDL	0.91	1.84	ug/Kg	
Hexachlorobutadiene		<MDL	1	2.09	ug/Kg		<MDL	1	2.08	ug/Kg	
Hexachloroethane		<MDL	21	41.8	ug/Kg		<MDL	21	41.6	ug/Kg	
Indeno(1,2,3-Cd)Pyrene		<MDL	13	25.1	ug/Kg		<MDL	12	24.9	ug/Kg	
Isophorone		<MDL	26	53	ug/Kg		<MDL	26	52.6	ug/Kg	
Naphthalene		<MDL,G	20	39.1	ug/Kg		<MDL,G	19	38.8	ug/Kg	
Nitrobenzene		<MDL	22	44.6	ug/Kg		<MDL	22	44.3	ug/Kg	
N-Nitrosodimethylamine		<MDL	28	55.8	ug/Kg		<MDL	28	55.4	ug/Kg	
N-Nitrosodi-N-Propylamine		<MDL	13	25.1	ug/Kg		<MDL	12	24.9	ug/Kg	
N-Nitrosodiphenylamine		<MDL	28	55.8	ug/Kg		<MDL	28	55.4	ug/Kg	
Pentachlorophenol		<MDL,G	7	13.9	ug/Kg		<MDL	6.9	13.9	ug/Kg	
Phenanthrene		<MDL	5.6	11.2	ug/Kg		<MDL	5.5	11.1	ug/Kg	
Phenol		<MDL,G,E	13	25.1	ug/Kg		<MDL,E	12	24.9	ug/Kg	
Pyrene		<MDL	5.6	11.2	ug/Kg		<MDL	5.5	11.1	ug/Kg	
M=OR EPA 8081A/8082 (7-3-03-002)											
4,4'-DDD		<MDL	1.4	2.79	ug/Kg		<MDL	1.4	2.77	ug/Kg	
4,4'-DDE		<MDL	1.4	2.79	ug/Kg		<MDL	1.4	2.77	ug/Kg	
4,4'-DDT		<MDL,G	1.4	2.79	ug/Kg		<MDL,G	1.4	2.77	ug/Kg	
Aldrin		<MDL	1.4	2.79	ug/Kg		<MDL	1.4	2.77	ug/Kg	

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Marine Sediment Chemistry Results Baseline Characterization Study Candidate Marine Outfall Zones ***Nearshore Sediments***	Locator: Descrip: Sampled: Lab ID: Matrix: % Solids:	Z7-TRSED-3 Zone 7 - Station 3 Dec 04, 2001 L22953-9 SALTWTRSED 71.7				Locator: Descrip: Sampled: Lab ID: Matrix: % Solids:	Z6-TRSED-3 Zone 6 - Station 3 (Replicate) Dec 04, 2001 L22953-10 SALTWTRSED 72.2			
Parameters	Value	Qual	MDL - Dry Weight Basis	RDL	Units	Value	Qual	MDL - Dry Weight Basis	RDL	Units
COMBINED LABS										
Alpha-BHC		<MDL	0.7	1.39	ug/Kg		<MDL	0.69	1.39	ug/Kg
Aroclor 1016		<MDL	1.8	3.49	ug/Kg		<MDL	1.8	3.46	ug/Kg
Aroclor 1221		<MDL	3.5	6.97	ug/Kg		<MDL	3.5	6.93	ug/Kg
Aroclor 1232		<MDL	3.5	6.97	ug/Kg		<MDL	3.5	6.93	ug/Kg
Aroclor 1242		<MDL	1.8	3.49	ug/Kg		<MDL	1.8	3.46	ug/Kg
Aroclor 1248		<MDL	1.8	3.49	ug/Kg		<MDL	1.8	3.46	ug/Kg
Aroclor 1254		<MDL	1.8	3.49	ug/Kg		<MDL	1.8	3.46	ug/Kg
Aroclor 1260		<MDL	1.8	3.49	ug/Kg		<MDL	1.8	3.46	ug/Kg
Beta-BHC		<MDL	0.7	1.39	ug/Kg		<MDL	0.69	1.39	ug/Kg
Chlordane		<MDL	0.7	1.39	ug/Kg		<MDL	0.69	1.39	ug/Kg
Delta-BHC		<MDL	0.7	1.39	ug/Kg		<MDL	0.69	1.39	ug/Kg
Dieldrin		<MDL	1.4	2.79	ug/Kg		<MDL	1.4	2.77	ug/Kg
Endosulfan I		<MDL	1.4	2.79	ug/Kg		<MDL	1.4	2.77	ug/Kg
Endosulfan II		<MDL	1.4	2.79	ug/Kg		<MDL	1.4	2.77	ug/Kg
Endosulfan Sulfate		<MDL	1.4	2.79	ug/Kg		<MDL	1.4	2.77	ug/Kg
Endrin		<MDL	1.4	2.79	ug/Kg		<MDL	1.4	2.77	ug/Kg
Endrin Aldehyde		<MDL,G	2.8	5.58	ug/Kg		<MDL,G	2.8	5.54	ug/Kg
Gamma-BHC (Lindane)		<MDL	0.7	1.39	ug/Kg		<MDL	0.69	1.39	ug/Kg
Heptachlor		<MDL	0.7	1.39	ug/Kg		<MDL	0.69	1.39	ug/Kg
Heptachlor Epoxide		<MDL	0.7	1.39	ug/Kg		<MDL	0.69	1.39	ug/Kg
Methoxychlor		<MDL	7	13.9	ug/Kg		<MDL	6.9	13.9	ug/Kg
Toxaphene		<MDL	14	27.9	ug/Kg		<MDL	14	27.7	ug/Kg
M=OR KRONE 1989 (07-03-012-000)										
Di-n-Butyltin (as dibutyltin ion)		<MDL,B,G	0.49	0.976	ug/Kg	1.4	B,G	0.48	0.97	ug/Kg
Mono-n-Butyltin (as monobutyltin ion)	3.1	<RDL,B	2.4	4.7	ug/Kg	3.9	<RDL,B	2.4	4.67	ug/Kg
Tetra-n-Butyltin (as tetrabutyltin)		<MDL	0.56	1.12	ug/Kg		<MDL	0.55	1.11	ug/Kg
Tri-n-Butyltin (as tributyltin ion)	2.5	B,G	0.29	0.579	ug/Kg	2.49	B,G	0.29	0.575	ug/Kg
M=OR SM5520-B,D,F (07-03-014-000)										
Oil And Grease, Total	3950		140	349	mg/Kg	625		140	346	mg/Kg
M=OR SW-846 8151A GC/MS MODIFIED										
2,4,5-T		<MDL	2	8.74	ug/Kg		<MDL	1.9	9.11	ug/Kg
2,4,5-TP (Silvex)		<MDL	2.8	8.74	ug/Kg		<MDL	2.9	9.11	ug/Kg
2,4-D		<MDL	0.73	8.74	ug/Kg		<MDL	0.75	9.11	ug/Kg
2,4-DB		<MDL	1.2	8.74	ug/Kg		<MDL	1.3	9.11	ug/Kg
Dalapon		<MDL,G	2.6	8.74	ug/Kg		<MDL,G	2.8	9.11	ug/Kg
Dicamba		<MDL	2.1	8.74	ug/Kg		<MDL	2.2	9.11	ug/Kg
Dichloroprop		<MDL	0.93	8.74	ug/Kg		<MDL	0.97	9.11	ug/Kg
Dinoseb		<MDL	0.73	8.74	ug/Kg		<MDL	0.75	9.11	ug/Kg
MCPA		<MDL	1.3	8.74	ug/Kg		<MDL	1.4	9.11	ug/Kg
MCPP		<MDL	2.4	8.74	ug/Kg		<MDL	2.5	9.11	ug/Kg
M=OR WDOE NWTPH-DX (7-3-06-001)										
Diesel Range (>C12-C24)		<MDL	35	35	mg/Kg		<MDL	35	35	mg/Kg
Lube Oil Range (>C24)		<MDL	35	35	mg/Kg		<MDL	35	35	mg/Kg

King County Environmental Lab Analytical Report

Marine Sediment Chemistry Results
Baseline Characterization Study
Candidate Marine Outfall Zones
Nearshore Sediments

	Locator:	Z7-TRSED-3				Locator:	Z6-TRSED-3				
	Descrip:	Zone 7 - Station 3				Descrip:	Zone 6 - Station 3 (Replicate)				
	Sampled:	Dec 04, 2001				Sampled:	Dec 04, 2001				
	Lab ID:	L22953-9				Lab ID:	L22953-10				
	Matrix:	SALTWTRSED				Matrix:	SALTWTRSED				
	% Solids:	71.7				% Solids:	72.2				
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	
			- Dry Weight Basis					- Dry Weight Basis			
COMBINED LABS											

* Not converted to dry weight basis for this parameter

Appendix C

Chemistry Quality Assurance Review

Diffuser Zone Sediments

KING COUNTY ENVIRONMENTAL LABORATORY
QUALITY ASSURANCE REVIEW

for

Marine Outfall Siting Study
Baseline Sediment Characterization Study
Candidate Outfall Diffuser Sites

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INTRODUCTION

This quality assurance (QA) narrative is intended to document the QA review conducted on the chemistry analyses performed for the Marine Outfall Siting Study, Baseline Sediment Characterization Study, Candidate Outfall Diffuser Sites. 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 and the Sediment Management Standards (WAC 173-204-610). 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 in October, 8-15, 2001 as part of the Marine Outfall Siting Study, Baseline Sediment Characterization Study, Candidate Outfall Diffuser Sites.

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
The KC Laboratory distinguishes between the reporting detection limit (RDL) and the method detection limit (MDL).

- The RDL is defined as *the minimum concentration of a chemical constituent that can be reliably quantified*.
- 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. All analytical parameters are reported with detection limit(s). 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.

Storage Conditions and Holding Times
Storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. The approach used to evaluate Total Organic Carbon for holding time has been established between the KC Laboratory and Ecology during previous QA1 review efforts. Extraction 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.

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.

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).

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.

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.

Data Qualifiers
The data qualification system used for this data submission is presented in Table 3. These data qualifiers address situations that require qualification and generally conform to QA1 guidance. Changes made to SRM data qualification have been discussed with and approved by the Sediment Management Unit of Ecology. Table 3 also shows the qualifiers used for the Sedqual electronic data format.

Units and Significant Figures
Data have been reported in accordance with laboratory policy at the time of data generation. 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 16 subtidal sediment samples on October 8 through 15, 2001. 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 characterize the sediment quality at 5 candidate marine outfall diffuser sites for King County's planned new wastewater treatment plant. The prescribed station coordinates are presented in the following table along with the actual coordinates recorded for the grab sample used for chemistry testing. Actual coordinates for the benthic sample grabs are not included in this table. All coordinates are listed below in state plane coordinate system North American Datum 1983 (NAD83).

Lab ID #	Station ID	Northing Coordinates		Easting Coordinates	
		Prescribed Station	Grab Sample	Prescribed Station	Grab Sample
L22395-1	Z5-1	305650	305649	1254750	1254761
L22395-2	Z5-2	304750	304740	1255750	1255746
L22395-3	Z5-3	304850	304852	1256850	1256846
L22395-4	Z6-SB-1	298950	298967	1251850	1251851
L22395-5	Z6-SB-2	299050	299042	1252650	1252662
L22395-6	Z6-SB-3	298450	298453	1252650	1252644
L22395-7	Z7-SNB-1	290550	290553	1252150	1252160
L22395-8	Z7-SNB-2	289850	289848	1252250	1252237
L22395-9	Z7-SNB-3	289550	289559	1252250	1252249
L22395-10	Z7-SSA-1	289550	289587	1254250	1254257
L22395-11	Z7-SSA-2	289450	289446	1254350	1254357
L22395-12	Z7-SSA-3	289250	289253	1254150	1254153
L22395-13	Z7-SSB-1	287650	287650	1252650	1252651
L22395-14	Z7-SSB-2	286850	286863	1252650	1252648
L22395-15	Z7-SSB-3	286550	286569	1252850	1252852
L22395-16	OSZ-1	306050	306034	1246250	1246252

Sediment grab samples were collected from the King County research vessel *Liberty*, which is equipped with a differential global positioning system (DGPS). Field coordinates were recorded using DGPS for each deployment of the grab as it contacted the sediment. The grab sample coordinates are expected to be within a 6-meter radius of the prescribed station coordinates. Only one sample, for Station Z7-SSA-1, showed coordinates outside the 6-meter radius, but do not overlap the region of any other station.

Sample Collection and Handling

Samples were collected from the top 10 cm for chemistry testing using a stainless steel, modified, 0.1 m^2 Van Veen grab sampler deployed from the *Liberty* via hydrowire. Water depth at the 16 stations ranged between 85-213 meters (not corrected for tide). Except for Station Z7-SSA-2, between 10-17 cm of sediment was recovered in each grab, allowing collection of a sample aliquot from the top 10 cm as necessary. For Station Z7-SSA-2 the grab recovered only 9 cm of depth therefore slightly less than 9 cm of depth was collected for analysis. When necessary, less than the top 10 cm of sediment from other stations was taken in an attempt to exclude the sediment that had touched the sides or bottom of the grab sampler. For benthic taxonomy samples, the entire contents of one grab sample deployment were processed, including the sediment in touch with the sides of the sampler.

Chemistry samples were comprised of sediment collected from an individual grab at each station. The 10 cm portion of each grab was collected using a stainless steel spoon and was thoroughly homogenized and sample aliquots split out into pre-labeled containers. Sample containers were supplied by the King County Environmental Laboratory and were pre-cleaned according to analytical specifications.

Individual sets of sample homogenizing equipment were dedicated to each station, precluding the need for decontamination of the field gear. The Van Veen grab sampler was decontaminated between stations by scrubbing with a brush and ambient seawater followed by a thorough *in situ* rinsing.

Samples were stored in ice-filled coolers from the time of collection until delivery to the King County Environmental Laboratory. Samples were delivered under chain-of-custody and were maintained in secure areas of each lab throughout the analytical process. Samples were stored frozen (-18°C) by the laboratory until analysis with the exception of samples for particle size distribution (PSD), NWTPH-Dx and Total Sulfides analysis. Sample containers for PSD, NWTPH-Dx and Total Sulfides were stored refrigerated at approximately 4°C. A more complete description of sample handling and storage can be found in each analytical chemistry section of this narrative.

Copies of chain-of-custody forms are included as an appendix to this QA review narrative.

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

Analysis for Particle Size Distribution (PSD) was subcontracted to Am Test Inc. of Redmond, WA and Total Sulfide was subcontracted to ARI Inc. of Seattle, WA. All other testing was performed at the King County Environmental Laboratory.

Methods

Ammonia analysis was performed in accordance with Standard Method (SM)4500-NH3-G following a KCl extraction (Plumb, 1981). 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 and total volatile solids analyses were performed in accordance with SM2540-G. Total sulfide analysis was performed in accordance with EPA 376.2 and SM4500-S2-D.

Storage Conditions and Holding Times

Sample storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. 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	Date Extracted*	Date Analyzed	Sample Holding Time	Extract Holding Time
Ammonia	L22395-8,9,13,14,15	08-Oct-2001	05-Dec-2001	06-Dec-2001	6 Months at -20°C	14 days at -20°C
	L22395-4,7,10,11,12	09-Oct-2001	05-Dec-2001	06-Dec-2001		
	L22395-1,2,5,6	11-Oct-2001	05-Dec-2001	06-Dec-2001		
	L22395-3,16	15-Oct-2001	05-Dec-2001	06-Dec-2001		
Particle Size Distribution	L22395-8,9,13,14,15	08-Oct-2001	NA	15-Nov-2001	6 Months at 4°C	NA
	L22395-4,7,10,11,12	09-Oct-2001	NA	14,15-Nov-2001		
	L22395-1,2,5,6	11-Oct-2001	NA	14,15-Nov-2001		
	L22395-3,16	15-Oct-2001	NA	14,15-Nov-2001		
Total Organic Carbon	L22395-8,9,13,14,15	08-Oct-2001	28-Nov-2001	19-Dec-2001	6 Months at -20°C	6 Months at -20°C
	L22395-4,7	09-Oct-2001	28-Nov-2001	18-Dec-2001		
	L22395-10,11,12	09-Oct-2001	28-Nov-2001	19-Dec-2001		
	L22395-1,2,5,6	11-Oct-2001	28-Nov-2001	18-Dec-2001		
	L22395-3	15-Oct-2001	28-Nov-2001	18-Dec-2001		
	L22395-16	15-Oct-2001	28-Nov-2001	19-Dec-2001		
Total Solids and Total Volatile Solids	L22395-8,9,13,14,15	08-Oct-2001	NA	12-Dec-2001	6 months at -20°C	NA
	L22395-4,7,10,11,12	09-Oct-2001	NA	12-Dec-2001		
	L22395-1,2,5,6	11-Oct-2001	NA	12-Dec-2001		
	L22395-3,16	15-Oct-2001	NA	12-Dec-2001		
Total Sulfide	L22395-8,9,13,14,15	08-Oct-2001	11-Oct-2001	11-Oct-2001	7 days at 4°C	7 days at 4°C
	L22395-4,7,10,11,12	09-Oct-2001	11-Oct-2001	11-Oct-2001		
	L22395-1,2,5,6	11-Oct-2001	17-Oct-2001	17-Oct-2001		
	L22395-3,16	15-Oct-2001	19-Oct-2001	19-Oct-2001		

* Sample preparation start date for TOC.

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

Detection Limits, Units and Significant Figures

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.

Method Blanks

Method blanks were analyzed in connection with ammonia nitrogen/solids/total sulfides/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 TOC analysis was within the 80 to 120% QC limits. No other SRMs are available for the other parameters.

Matrix Spikes

The matrix spike recovery for ammonia nitrogen was within the 75 to 125% QC limits. The matrix spike recovery for total sulfide was within the 65 to 135% QC limits.

Laboratory Replicate Samples

Laboratory triplicate samples were analyzed for all conventional parameters. The percent relative standard deviations (%RSD) for all triplicate analyses were less than or equal to the 20% QC limit, except for the PSD category of gravel. For this batch of samples, two samples were analyzed in triplicate by the subcontract lab Amtest. The %RSD of the gravel category for one of the QC samples was greater than the 20% control limit for PSD. This category represents 10% or less of the total particle distribution of the QC sample. Higher variability is expected for the gravel category whenever it represents 10% or less of the total, therefore no corrective actions were taken except that gravel results for all samples are qualified with an "E" flag.

METALS CHEMISTRY

Completeness
Metal chemistry data are reported for samples L22395–1-16. These samples were analyzed for Mercury and other elements in association with the complete set of QC samples outlined in Table 2.

Methods
Mercury analysis was performed in accordance with EPA Method 7471. Analysis for other elements was performed in accordance with EPA method 3050/6010.

Target List
The reported target list includes all priority pollutant metals (antimony, arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, lead, selenium, silver, thallium and zinc) and other elements including aluminum, iron, manganese, and tin.

Detection Limits, Units and Significant Figures
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.

Storage Conditions and Holding Times
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	L22395–1-16	10/08-10/15/01	11/28/01	12/03/01	2 Years at -18°C	6 months
Total Mercury	L22395–1-16	10/08-10/15/01	11/2/01	12/05/02	28 days at -18°C	NA

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

Method Blanks
All metals method blanks results were less than the MDL.

Standard Reference Materials
The SRM analyzed in association with samples included in this data submission is NRCC PACS-1. This SRM is not certified for Silver, Aluminum, Beryllium, Iron or Thallium. An SRM recovery less than the QC limit of 80% has not been used to qualify data for metals other than Mercury because the digestion technique used for sample analysis is different from the technique used during analysis to determine the SRM values. Only SRM recoveries greater than 120% for metals other than Mercury will be used to qualify data. For Mercury, the digestion technique used for samples matched the certification technique therefore the acceptance limits for Mercury in the SRM are 80% to 120%.

All metals SRM recoveries were less than the QC upper limit of 120%. Mercury recovery was also within the 80% to 120% acceptance limits.

Matrix Spikes

All matrix spike recoveries were within the 75 to 125% QC limits except Antimony and Aluminum. The reported matrix spike recovery of 31% 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. The reported matrix spike recovery of 412% for aluminum is greater than the 125% QC limit. Matrix effects on aluminum results cannot be evaluated due to a background aluminum concentration in the sample greater than four times the spike concentration. Aluminum results for all samples in this data submission have been qualified with an *L* 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%.

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.

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Subcontracted Analyses

Analysis for Chlorophenoxy Herbicides was subcontracted to Severn-Trent. of Tacoma, WA.

Methods

BNA analysis was performed in accordance with EPA method 8270C. PCB and chlorinated pesticides analysis was performed in accordance with EPA methods 8082 and 8081A. NWTPH-Dx analyses were conducted using Washington Ecology "Analytical Methods for Petroleum Hydrocarbons"(1997). Herbicides (chlorinated) analysis was performed in accordance with EPA method 8151 modified with GC/MS detection. OP Pesticides were analyzed in accordance with EPA method 8270C modified for GC/MS SIM detection. Oil and grease was analyzed in accordance with SM5520-B.

Tributyltin analysis was performed in accordance with KC Laboratory methodology which follows guidance specified in several papers (Unger, et.al., 1986; Krone, et. al., NOAA, 1989; and the Washington State Department of Ecology Manchester Laboratory Standard Operating Procedure). Tributyltin analytical results were quantified using GC/MS in the SIM mode.

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.

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

Detection Limits, Units and Significant Figures

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.

Storage Conditions and Holding Times

Sample storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. The dates and holding time criteria for the actual storage conditions used for conventional analyses are listed in the following table.

Parameter	Lab ID#	Date	Date	Date	Sample Holding	Extract Holding

		Collected	Extracted	Analyzed	Time	Time
BNAs	L22395-1-16	10/08-10/15/01	10/23/01	10/26, 30/01	1 year at -18°C	40 days at 4°C
ChloroPest/PCBs	L22395-1-16	10/08-10/15/01	10/24/01	11/14-15/01	1 year at -18°C	40 days at 4°C
Total Oil and Grease	L22395-1-16	10/08-10/15/01	10/29/01	10/30/01	6 months at -18°C	Same as sample
NWTPH-Dx	L22395-1-16	10/08-10/15/01	10/17/01	11/15-16/01	14 Days at 4°C	40 days at 4°C
Herbicides	L22395- 1-16	10/08-10/15/01	1/28/01	1/31/02, 2/2/02	1 year at -18°C	40 days at 4°C
Organo-Phos. Pesticides	L22395- 1-16	10/08-10/15/01	1/23/02	1/28/02	1 year at -18°C	40 days at 4°C
TBT	L22395- 1-9	10/08-10/15/01	12/3/01	12/14/01	1 year at -18°C	40 days at 4°C
	L22395-10-16	10/08-10/15/01	12/11/01	12/18/01		

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

Method Blanks

1. BNAs

The method blank analyzed with BNAs for all samples had a result above the MDL for Bis(2-Ethylhexyl)Phthalate, Di-n-Butyl Phthalate, Benzo(a)pyrene and Dibenzo(a,h)anthracene. Sample results for these parameters for all samples have been qualified with the B flag. All Bis(2-Ethylhexyl)Phthalate, Di-n-Butyl Phthalate, Benzo(a)pyrene and Dibenzo(a,h)anthracene results for these samples may be biased by the background contamination and should be treated as estimated values.

2. Tributyltin

For Tributyltin analysis, the samples were split into two separate batches. The method blank analyzed for L22395-1 through -9 showed responses less than the MDL for all parameters. The method blank analyzed for L22395-10 through -16 however, showed responses for Di-n-butyltin and Mono-n-butyltin above the MDL. All sample results for Di-n-butyltin and Mono-n-butyltin for L22395-10 through 16 have been qualified with the B flag. Results for L22395-10 through -16 are expected to be highly biased for Di-n-butyltin and Mono-n-butyltin by this blank contamination and must be treated as estimated values.

All other method blank results (PCB/Chlorinated Pesticides, OP Pesticides, NWTPH-Dx, Total Oil and Grease and Herbicides) were less than the MDL.

Surrogate Recoveries

1. BNAs
Individual sample data associated with either the acid or base/neutral parameters are qualified when the average surrogate recovery for either or both the acid and base/neutral fractions are outside the 50 to 150% QC limits. The following table summarizes the average surrogate recoveries that are **outside** the QC limits and the appropriate flag.

Lab ID#	Average Acid Surrogate Recovery	Flag Applied to Acid Compounds	Average B/N Surrogate Recovery	Flag Applied to B/N Compounds
L22395-4	53		49	G
L22395-5	47	G	49	G
L22395-6	43	G	51	
L22395-7	41	G	48	G
L22395-8	48	G	52	
L22395-10	44	G	52	
L22395-11	36	G	47	G
L22395-12	41	G	52	
L22395-13	39	G	49	G

2. PCBs and Chlorinated Pesticides
Chlorinated Pesticides and PCBs are analyzed using separate GC methods. For both methods, sample data are qualified when both surrogate recoveries are outside QC limits. For each set of analyses, at least one surrogate recovery was within the 50 to 150% QC limits for all samples in this data submission.

4. NWTPH-Dx
NWTPH-Dx sample data are qualified when both surrogate recoveries are outside QC acceptance limits. For the NWTPH-Dx at least one surrogate was within the 50 to 150% QC limits.

5. OP Pesticides
OP Pesticide sample data are qualified when the individual surrogate recovery is outside the QC limits. Surrogate recoveries were within the 50 to 150% QC limits for all samples in this data submission.

6. Tributyltin sample data are qualified when both surrogate recoveries are outside QC limits. At least one surrogate recovery was within the 50 to 150% QC limits for all samples in this data submission.

7. Total Oil and Grease
No surrogates are used with this method.

Standard Reference Materials

1. BNAs
The sediment SRM analyzed in association with the reported BNA results is 1944, certified by the National Institute of Standards and Technology (NIST). SRM 1944 contains a partial list of compounds for BNA analysis. Results for this partial list of compounds for all samples have been qualified based on the SRM recoveries outside the 80 to 120% QC limits. All recoveries and flags are summarized in the following table.

Compound	% Recovery	Flag
Naphthalene	17	G
Phenanthrene	85	
Anthracene	80	
Fluoranthene	94	
Pyrene	84	
Benzo(a)anthracene	92	
Chrysene	105	
Benzo(b)fluoranthene	102	
Benzo(k)fluoranthene	106	
Benzo(a)pyrene	88	
Indeno(1,2,3-c,d)pyrene	90	
Dibenzo(a,h)anthracene	178	L
Benzo(g,h,i)perylene	88	

2. PCBs 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. The recovery of the certified parameters must be within 80 to 120% or the appropriate data are flagged. The SRM results for both SRMs are summarized below:

Compound	% Recovery	Flag
DDT	83	
Chlordane	118	
Aroclor 1254	86	

3. Tributyltin

The sediment SRM analyzed in association with the reported Tributyltin results is PACS2, certified by the National Research Council of Canada. PACS2 contains certified levels of 2 parameters (Di-n-butyltin and Tri-n-butyltin). The recovery of the certified parameters must be within 80 to 120% or the appropriate data are flagged. The SRM results for both batches of analyses are summarized below:

	L22395- 1-9		L22395- 10-16	
Compound	% Recovery	Flag	% Recovery	Flag
Di-n-butyltin	85		109	
Tri-n-butyltin	95		73	G

A sediment SRM is not available for OP Pesticides, NWTPH-Dx, Total Oil and Grease or Herbicides.

Matrix Spikes

1. BNAs

By QA1 guidelines, the matrix spike recoveries for each BNA compound must be within the 50 to 150% QC limits. If not, all results for those particular compounds within the batch of samples must be flagged as follows. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. The following table summarizes the matrix spike recoveries for specific compounds that are **outside** the QC limits and the appropriate flag.

Compound	**% Recovery**	**Flag**
Nitrosodimethylamine	34	G
Bis(2-Chloroethyl)Ether	29	G
2-Chlorophenol	44	G
Bis(2-Chloroisopropyl)Ether	34	G
1,3-Dichlorobenzene	38	G
1,4-Dichlorobenzene	39	G
1,2-Dichlorobenzene	38	G
Hexachloroethane	32	G
Nitrobenzene	0	X
Bis(2-Chloroethoxy)Methane	43	G
1,2,4-Trichlorobenzene	34	G
Naphthalene	37	G
Hexachlorobutadiene	31	G
Aniline	0	X
Benzoic Acid	0	X

2. PCBs and Chlorinated Pesticides

By QA1 guidelines, the matrix spike recoveries for Pesticide and PCB compounds must be within the 50 to 150% QC limits. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. Aroclor 1260 and 1016 only are used as the spiking compounds for PCB analysis. The following table summarizes the matrix spike recoveries for specific compounds that are **outside** the QC limits and the appropriate flag.

Compound	**% Recovery**	**Flag**
Endrin Aldehyde	0	X

4. NWTPH-Dx

Matrix spikes are not performed for the NWTPH methods.

5. OP Pesticides

The matrix spike recoveries for all OP Pesticide target compounds are within the 50 to 150% QC limits and therefore no flags have been.

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6. TBT

The tributyltin matrix spike recoveries for both batches were within the 50 to 150% QC limits, therefore no flags have been added relative to matrix spike failures.

7. Total Oil and Grease

Matrix spikes are not done for this method.

8. Herbicides

By QA1 guidelines, the matrix spike recoveries for Herbicide compounds must be within the 50 to 150% QC limits. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. The following

table summarizes the matrix spike recoveries for specific compounds that are **outside** the QC limits and the appropriate flag.

Compound	**% Recovery**	**Flag**
Dalapon	39	G

Internal Standard Recoveries

Internal Standard recoveries for each sample must not change by more than a factor of 2 from the initial calibration check. For Sample L22395-5 the response for Internal Standard D12-Perylene increased by 114%, thus more than doubled. No corrective action other than diluting the sample extract could resolve this problem. It was determined to qualify those parameters affected by this rather than diluting and re-analyzing the samples. For Sample L22395-5, the results for Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Di-N-Octyl Phthalate, Indeno(1,2,3-Cd)Pyrene and Benzo(a)pyrene have therefore been qualified with an E flag.

Laboratory Replicate Samples

Lab Replicate (duplicate) samples for Organics have a target acceptance limit 100% for the Relative Percent Difference (RPD). All duplicate analyses showed acceptable RPD values except for the following:

1. Tributyltin

The RPD for Di-n-butyltin and Tri-n-butyltin for the duplicate analysis of Sample L22024-4 was 145 and 200%, respectively. Results for these two parameters for only those samples associated with this lab duplicate (L22395-1 through –9) have been flagged with an “E”. The duplicate analysis for the second set of samples showed acceptable RPD values for all target parameters.

TABLE 1
SEDIMENT SAMPLE INVENTORY

Sample	Locator / Description	Sulfides	PSD	Nutrients[1]	TPH[2]	Solids	TOC	Metals[3]	BNAs	Pest/ PCBs	TBT	Herb	OP Pest	Comments
L22395-1	Z5-1 / Zone 5 - Station 1	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-2	Z5-2 / Zone 5 - Station 2	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-3	Z5-3 / Zone 5 - Station 3	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-4	Z6-SB-1 / Zone 6 - Site B (Deep) - Station 1	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-5	Z6-SB-2 / Zone 6 - Site B (Deep) - Station 2	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-6	Z6-SB-3 / Zone 6 - Site B (Deep) - Station 3	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-7	Z7-SNB-1 / Zone 7 - Site North B (Deep) - Station 1	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-8	Z7-SNB-2 / Zone 7 - Site North B (Deep) - Station 2	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-9	Z7-SNB-3 / Zone 7 - Site North B (Deep) - Station 3	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-10	Z7-SSA-1 / Zone 7 - Site South A (Shallow) - Station 1	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-11	Z7-SSA-2 / Zone 7 - Site South A (Shallow) - Station 2	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-12	Z7-SSA-3 / Zone 7 - Site South A (Shallow) - Station 3	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-13	Z7-SSB-1 / Zone 7 - Site South B (Deep) - Station 1	x	x	x	x	x	x	x	x	x	x	x	x	

L22395-14	Z7-SSB-2 / Zone 7 - Site South B (Deep) - Station 2	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-15	Z7-SSB-3 / Zone 7 - Site South B (Deep) - Station 3	x	x	x	x	x	x	x	x	x	x	x	x	
L22395-16	OSZ-1 / Offshore Zone - Station 1	x	x	x	x	x	x	x	x	x	x	x	x	

1 Nutrients = Ammonia
2 TPH = NWTPH-Dx and Total Oil and Grease
3 Metals = Hg, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn, Al, Fe, Sn

TABLE 2
QC SAMPLE FREQUENCY FOR SEDIMENT CHEMICAL AND PHYSICAL PARAMETERS

Parameter	Method Blank	Duplicate	Triplicate	Matrix Spike	SRM	Surrogates
Ammonia Nitrogen	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	5% minimum, 1 per QC batch	No	No
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	No	1 per QC batch	No
Sulfides	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	5% minimum, 1 per QC batch	No	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
Herbicides	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	No	Yes
OP Pesticides	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	No	Yes
Tributyltin	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	No	Yes
TPH	1 per QC batch	10% minimum, 1 per QC batch	No	No	No	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	< 50%	< 75%	< 75% *	
high matrix spike recovery	L	L	> 150%	>125%	>125% *	
low standard reference material recovery	G	G	< 80%	NA (< 80% for Hg)	< 80%	
high standard reference material recovery	L	L	>120%	>120%	>120%	
high duplicate relative percent difference	E	E	>100 %	>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**	**	NA	NA	NA	
less than the method detection limit	<MDL	U	NA	NA	NA	
contamination reported in blank	B	B	>MDL	>MDL	>MDL	
biased data based on very low surrogate recoveries	X	X	all surrogates <10%	NA	NA	average surrogate recovery for BNAs
biased data based on low surrogate recoveries	G	G	all surrogates <50%	NA	NA	average surrogate recovery for BNAs
biased data based on high surrogate recoveries	L	L	all surrogates >150%	NA	NA	average surrogate recovery 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, <RDL is not flagged since the RDL value is not entered into the Sedqual templates.

CONVENTIONAL ANALYSES QC DATA

METAL CHEMISTRY QC DATA

ORGANIC CHEMISTRY QC DATA

CHAIN OF CUSTODY FORMS

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/28/02 01:43
Run ID: R73488 Workgroup: WG59118 (NH3 KCL Extraction)

MB:WG59118-1 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.1	.2	mg/Kg	<MDL	

MB:WG59118-2 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.1	.2	mg/Kg	<MDL	

MB:WG59118-3 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.1	.2	mg/Kg	<MDL	

LCS:WG59118-4 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LCS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg		1.25	1.41	113		80-120			

SB:WG59118-5 MB:WG59118-1 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg	<MDL	5	5.6	112		80-120								

LD:WG59118-6 LT:WG59118-7 L22024-3 Matrix: FRSHWTRSED Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: 423258-01 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg	2.76		2.82					2.83				1		20

MS:WG59118-8 L22024-3 Matrix: FRSHWTRSED Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: 423258-01 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg	2.76	5	8.32	111		75-125			

LD:WG59118-9 LT:WG59118-10 L22395-3 Matrix: SALTWTRSED Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg	3.03		2.67					2.65				8		20

MS:WG59118-11 L22395-2 Matrix: SALTWTRSED Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg	3.03	5	8.05	100		75-125			

LCS:WG59118-12 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LCS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg		1.25	1.43	115		80-120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/28/02 01:44
Run ID: R74300 Workgroup: WG59000 (TOC for MOSS sediments - Oct 2001)

MB:WG59000-1 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Organic Carbon	500	1000	mg/Kg	<MDL	

SRM:WG59000-2 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	2400	4800	mg/Kg		33480	34600	103		80-120			

LD:WG59000-3 LT:WG59000-4 L22395-1 Matrix: SALTWTRSED Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	600	1200	mg/Kg	6280		6510					6590				2		20

MB:WG59000-5 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Organic Carbon	500	1000	mg/Kg	<MDL	

SRM:WG59000-6 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	2500	5000	mg/Kg		33480	35400	106		80-120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/28/02 01:44
Run ID: R73643 Workgroup: WG59310 (North Outfall Siting study, 423457)

MB:WG59310-1 Matrix: OTHR SOLID Listtype: CVTOTS Method: SM2540-G (03-01-007-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Solids	.005	.01	%	<MDL	

MB:WG59310-1 Matrix: OTHR SOLID Listtype: CVTVS Method: SM2540-G (03-01-007-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Volatile Solids	.005	.01	%	<MDL	

LD:WG59310-2 LT:WG59310-3 L22395-1 Matrix: SALTWTRSED Listtype: CVTOTS Method: SM2540-G (03-01-007-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Solids	.005	.01	%	45.6		45.9					45.8				0		20

LD:WG59310-2 LT:WG59310-3 L22395-1 Matrix: SALTWTRSED Listtype: CVTVS Method: SM2540-G (03-01-007-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Volatile Solids	.005	.01	%	2.26		2.24					2.23				1		20

Lab Triplicate Results
Particle Size Distribution

phi size	Enter Sample Data as phi size										Flag
	L22395-1	dup	trip		L22395-1	dup	trip				
<-2	0.4	0.2	0.6					Average	STD DEV	%RSD	
-2	0.2	0.2	0.4	% gravel	1	0.9	1.6	1.166667	0.378594	32.4509	E
-1	0.4	0.5	0.6	% sand	50.3	49	51.2	50.16667	1.106044	2.204739	
0	0.2	0.2	0.4	% silt	32.7	32.8	31.8	32.43333	0.550757	1.69812	
1	0.4	0.5	1.1	% clay	16	17.4	15.2	16.2	1.113553	6.873783	
2	4.2	4.5	6.4								
3	35.3	30.9	30	total =	100	100.1	99.8				
4	10.2	12.9	13.3								
5	2.4	2.1	1.8								
6	13	12	11.7								
7	7.8	7.9	9								
8	9.5	10.8	9.3								
9	5.9	6.4	5.9								
10	3.1	3.4	3.2								
>10	7	7.6	6.1								
% gravel = <-2 to -1											
% sand = 0 to +4											
% silt = +5 to +8											
% clay = +9 to >10											
Note: If the RSD is > 20% for a category ~~and if the average is > 10%,~~ the data for that category should be flagged with E.											

CBF
3/29/02

Lab Triplicate Results
Particle Size Distribution

phi size	Enter Sample Data as phi size										Flag
	L22395-11	dup	trip		L22395-11	dup	trip				
<-2	6.6	6.3	10.2					Average	STD DEV	%RSD	
-2	4.5	2.6	4.4	% gravel	21.6	21	26.3	22.96667	2.902298	12.637	
-1	10.5	12.1	11.7	% sand	65.8	65.4	60.9	64.03333	2.720907	4.249204	
0	4.9	6.3	5.4	% silt	8.2	9.1	8.6	8.633333	0.450925	5.223069	
1	6.5	6	6.6	% clay	4.5	4.4	4.3	4.4	0.1	2.272727	
2	14.5	14.1	12								
3	33.1	33.3	31.3	total =	100.1	99.9	100.1				
4	6.8	5.7	5.6								
5	3.4	4.2	3.9								
6	0.8	1.4	0.8								
7	1.7	1.8	2.3								
8	2.3	1.7	1.6								
9	1.3	1.2	0.2								
10	0.7	0.7	0								
>10	2.5	2.5	4.1								
% gravel = <-2 to -1											
% sand = 0 to +4											
% silt = +5 to +8											
% clay = +9 to >10											
Note: If the RSD is > 20% for a category ~~and if the average is > 10%,~~ the data for that category should be flagged with E.											

CBE 3/29/02

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: DR89-REGL, LLC
Matrix: Sediment
Project: 423457
1011-428
Date Received: NA

Data Release Authorized:
Reported: 11/27/01 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units	Result
Method Blank 10/12/01 10121#1	Preserved Total Solids	mg residue	< 1.00 U
Method Blank 10/11/01 10111#1	Sulfide	mg/L	< 0.05 U

ANALYTICAL RESOURCES INCORPORATED

QA Report - Replicate Analysis

QC Report No: DR89-REGL, LLC
Matrix: Sediment
Project: 423457
1011-428
Date Received: 10/10/01

Data Release Authorized:
Reported: 11/27/01 Dr. M.A. Perkins

REPLICATE ANALYSIS RESULTS
CONVENTIONALS

Constituent	Units	Sample Value	Replicate Value(s)	RPD/RSD
ARI ID: 01-17921, DR89 D	**Client Sample ID: L22395-9**			
Preserved Total Solids	Percent	41.9	42.0 42.0	RSD: 0.1%
Sulfide	mg/kg	63.0	68.0 64.0	RSD: 4.1%

ANALYTICAL RESOURCES INCORPORATED

QA Report - Matrix Spike/Matrix Spike Duplicate Analysis

QC Report No: DR89-REGL, LLC
Matrix: Sediment
Project: 423457
1011-428
Date Received: 10/10/01

Data Release Authorized:
Reported: 11/27/01 Dr. M.A. Perkins

MATRIX SPIKE QA/QC REPORT
CONVENTIONALS

Constituent	Units	Sample Value	Spike Value	Spike Added	Recovery
ARI ID: 01-17921, DR89 D	**Client Sample ID: L22395-9**				
Sulfide	mg/kg	63	401	436	77.6%

MS/MSD Recovery Limits: 75 - 125 %

ANALYTICAL RESOURCES INCORPORATED

QA Report - Laboratory Control Samples

QC Report No: DR89-REGL, LLC
Project: 423457
1011-428
Date Received: NA

Data Release Authorized:
Reported: 11/27/01 Dr. M.A. Perkins

LABORATORY CONTROL SAMPLES
CONVENTIONALS

Constituent	Units	Measured Value	True Value	Recovery
Laboratory Control Sample				
Sulfide	mg/L	6.42	7.59	84.6%

Date analyzed: 10/11/01 Batch ID: 10111#1

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: DS21-REGL, LLC
Matrix: Sediment
Project: 423457
Date Received: NA

Data Release Authorized: MP
Reported: 10/26/01 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units	Result
Method Blank 10/17/01 10171#1	Preserved Total Solids	mg residue	< 1.00 U
Method Blank 10/17/01 10171#1	Sulfide	mg/L	< 0.05 U

33B

ANALYTICAL RESOURCES INCORPORATED

QA Report - Laboratory Control Samples

QC Report No: DS21-REGL, LLC
Project: 423457
Date Received: NA

Data Release Authorized:
Reported: 10/26/01 Dr. M.A. Perkins

LABORATORY CONTROL SAMPLES
CONVENTIONALS

Constituent	Units	Measured Value	True Value	Recovery
Laboratory Control Sample				
Sulfide	mg/L	6.15	6.82	90.2%

Date analyzed: 10/17/01 Batch ID: 10171#1

33C

ANALYTICAL RESOURCES INCORPORATED

QA Report - Replicate Analysis

QC Report No: DS21-REGL, LLC
Matrix: Sediment
Project: 423457
Date Received: 10/15/01

Data Release Authorized
Reported: 10/26/01 Dr. M.A. Perkins

REPLICATE ANALYSIS RESULTS
CONVENTIONALS

Constituent	Units	Sample Value	Replicate Value(s)	RPD/RSD
ARI ID: 01-18078, DS21 D	**Client Sample ID: P22395-6**			
Preserved Total Solids	Percent	44.2	44.6 44.7	RSD: 0.6%
Sulfide	mg/kg	89.0	85.0 82.0	RSD: 4.1%

33D

ANALYTICAL RESOURCES INCORPORATED

QA Report - Matrix Spike/Matrix Spike Duplicate Analysis

QC Report No: DS21-REGL, LLC
Matrix: Sediment
Project: 423457
Date Received: 10/15/01

Data Release Authorized:
Reported: 10/26/01 Dr. M.A. Perkins

MATRIX SPIKE QA/QC REPORT
CONVENTIONALS

Constituent	Units	Sample Value	Spike Value	Spike Added	Recovery
ARI ID: 01-18078, DS21 D Client Sample ID: P22395-6					
Sulfide	mg/kg	89	468	383	99.0%

MS/MSD Recovery Limits: 75 - 125 %

33E

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: DS29-REGL, LLC
Matrix: Sediment
Project: 423457
Date Received: NA

Data Release Authorized: MB
Reported: 10/25/01 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units	Result
Method Blank			
10/19/01	Sulfide	mg/L	< 0.05 U
10191#1			

ANALYTICAL RESOURCES INCORPORATED

QA Report - Laboratory Control Samples

QC Report No: DS29-REGL, LLC
Project: 423457
Date Received: NA

Data Release Authorized: MB
Reported: 10/25/01 Dr. M.A. Perkins

LABORATORY CONTROL SAMPLES
CONVENTIONALS

Constituent	Units	Measured Value	True Value	Recovery
Laboratory Control Sample				
Sulfide	mg/L	6.76	6.98	96.8%

Date analyzed: 10/19/01 Batch ID: 10191#1

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 08:18
Run ID: R73642 Workgroup: WG58967 (N Outfall Seds - 11/28/01)

SB:WG58967-1 MB:WG58967-2 Matrix: BLANK WTR Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.004	.02	mg/L	<MDL	1.2	1.18	99		85-115								
Aluminum, Total, ICP	.1	.5	mg/L	<MDL	12	11.8	98		85-115								
Arsenic, Total, ICP	.05	.25	mg/L	<MDL	4	3.93	98		85-115								
Beryllium, Total, ICP	.001	.005	mg/L	<MDL	0.4	.396	99		85-115								
Cadmium, Total, ICP	.003	.015	mg/L	<MDL	1.2	1.15	96		85-115								
Chromium, Total, ICP	.005	.025	mg/L	<MDL	1.2	1.17	98		85-115								
Copper, Total, ICP	.004	.02	mg/L	<MDL	1.2	1.17	98		85-115								
Iron, Total, ICP	.05	.25	mg/L	<MDL	50	47.8	96		85-115								
Manganese, Total, ICP	.002	.01	mg/L	<MDL	5	5.05	101		85-115								
Nickel, Total, ICP	.02	.1	mg/L	<MDL	1.2	1.15	96		85-115								
Lead, Total, ICP	.03	.15	mg/L	<MDL	4	3.86	97		85-115								
Antimony, Total, ICP	.03	.15	mg/L	<MDL	4	3.9	98		85-115								
Selenium, Total, ICP	.05	.25	mg/L	<MDL	2	1.95	97		85-115								
Tin, Total, ICP	.07	.35	mg/L	<MDL	4	3.88	97		85-115								
Thallium, Total, ICP	.2	1	mg/L	<MDL	4	3.82	95		85-115								
Zinc, Total, ICP	.005	.025	mg/L	<MDL	5	4.84	97		85-115								

MB:WG58967-2 Matrix: BLANK WTR Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Silver, Total, ICP	.004	.02	mg/L	<MDL	
Aluminum, Total, ICP	.1	.5	mg/L	<MDL	
Arsenic, Total, ICP	.05	.25	mg/L	<MDL	
Beryllium, Total, ICP	.001	.005	mg/L	<MDL	
Cadmium, Total, ICP	.003	.015	mg/L	<MDL	
Chromium, Total, ICP	.005	.025	mg/L	<MDL	
Copper, Total, ICP	.004	.02	mg/L	<MDL	
Iron, Total, ICP	.05	.25	mg/L	<MDL	
Manganese, Total, ICP	.002	.01	mg/L	<MDL	
Nickel, Total, ICP	.02	.1	mg/L	<MDL	
Lead, Total, ICP	.03	.15	mg/L	<MDL	
Antimony, Total, ICP	.03	.15	mg/L	<MDL	
Selenium, Total, ICP	.05	.25	mg/L	<MDL	
Tin, Total, ICP	.07	.35	mg/L	<MDL	
Thallium, Total, ICP	.2	1	mg/L	<MDL	
Zinc, Total, ICP	.005	.025	mg/L	<MDL	

LCS ERA Soil

~~SRM~~:WG58967-3 Matrix: SOIL Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.8	4.02	mg/Kg		107	116	109		120			
Aluminum, Total, ICP	20	100	mg/Kg		4800	3970	83		120			
Arsenic, Total, ICP	10	50.2	mg/Kg		53.2	53	100		120			
Beryllium, Total, ICP	.2	1	mg/Kg		68.3	69.4	102		120			
Cadmium, Total, ICP	.6	3.01	mg/Kg		151	150	99		120			
Chromium, Total, ICP	1	5.02	mg/Kg		99.4	94.5	95		120			
Copper, Total, ICP	.8	4.02	mg/Kg		59.2	61.4	104		120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 08:18
Run ID: R73642 Workgroup: WG58967 (N Outfall Seds - 11/28/01)

LCS ERA Soil

~~SRM~~:WG58967-3 Matrix: SOIL Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Iron, Total, ICP	10	50.2	mg/Kg		9880	8670	88		120			
Manganese, Total, ICP	.4	2.01	mg/Kg		218	221	101		120			
Tin, Total, ICP	14	70.3	mg/Kg		97.5	95.8	98		120			
Nickel, Total, ICP	4	20.1	mg/Kg		63.3	62.1	98		120			
Lead, Total, ICP	6	30.1	mg/Kg		97.8	107	110		120			
Antimony, Total, ICP	6	30.1	mg/Kg		49.8	46.1	93		120			
Selenium, Total, ICP	10	50.2	mg/Kg		143	153	107		120			
Thallium, Total, ICP	40	201	mg/Kg		103	110	105		120			
Zinc, Total, ICP	1	5.02	mg/Kg		123	131	106		120			

SRM:WG58967-4 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

PACS-1

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Arsenic, Total, ICP	10	50.2	mg/Kg		211	165	78		120			
Cadmium, Total, ICP	.6	3.01	mg/Kg		2.38	2.7	115		120			
Chromium, Total, ICP	1	5.02	mg/Kg		113	53.4	47		120			
Copper, Total, ICP	.8	4.02	mg/Kg		452	396	88		120			
Manganese, Total, ICP	.4	2.01	mg/Kg		470	263	56		120			
Tin, Total, ICP	14	70.3	mg/Kg		41.1	37	90		120			
Nickel, Total, ICP	4	20.1	mg/Kg		44.1	31.3	71		120			
Lead, Total, ICP	6	30.1	mg/Kg		404	355	88		120			
Antimony, Total, ICP	6	30.1	mg/Kg		171	52.8	31		120			
Selenium, Total, ICP	10	50.2	mg/Kg		1.09	<MDL	0		120			
Zinc, Total, ICP	1	5.02	mg/Kg		824	737	89		120			

LD:WG58967-5 L22395-2 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.2	1.01	mg/Kg	<MDL		<MDL						20
Aluminum, Total, ICP	5.1	25.3	mg/Kg	7100		7050				1		20
Arsenic, Total, ICP	2.5	12.7	mg/Kg	<MDL		<MDL						20
Beryllium, Total, ICP	.051	.253	mg/Kg	.18		.19						20
Cadmium, Total, ICP	.15	.759	mg/Kg	.21		.16						20
Chromium, Total, ICP	.25	1.27	mg/Kg	17.3		17.1				1		20
Copper, Total, ICP	.2	1.01	mg/Kg	12.9		12.9				0		20
Iron, Total, ICP	2.5	12.7	mg/Kg	11500		11400				1		20
Manganese, Total, ICP	.1	.506	mg/Kg	139		140				1		20
Tin, Total, ICP	3.5	17.7	mg/Kg	<MDL		<MDL						20
Nickel, Total, ICP	1	5.06	mg/Kg	16		16				0		20
Lead, Total, ICP	1.5	7.59	mg/Kg	8.76		8.78				0		20
Antimony, Total, ICP	1.5	7.59	mg/Kg	<MDL		<MDL						20
Selenium, Total, ICP	2.5	12.7	mg/Kg	<MDL		<MDL						20
Thallium, Total, ICP	10	50.6	mg/Kg	<MDL		<MDL						20
Zinc, Total, ICP	.25	1.27	mg/Kg	37		37.8				2		20

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 08:18
Run ID: R73642 Workgroup: WG58967 (N Outfall Seds - 11/28/01)

MS:WG58967-6 L22395-2 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.19	.953	mg/Kg	<MDL	1.2	54.6	95		75-125			
Aluminum, Total, ICP	4.8	23.8	mg/Kg	7100	12	9460	412	L	75-125			
Arsenic, Total, ICP	2.4	11.9	mg/Kg	<MDL	4	182	96		75-125			
Beryllium, Total, ICP	.048	.238	mg/Kg	.18	.4	18.3	95		75-125			
Cadmium, Total, ICP	.14	.715	mg/Kg	.21	1.2	53.1	92		75-125			
Chromium, Total, ICP	.24	1.19	mg/Kg	17.3	1.2	71.9	96		75-125			
Copper, Total, ICP	.19	.953	mg/Kg	12.9	1.2	67.2	95		75-125			
Iron, Total, ICP	2.4	11.9	mg/Kg	11500	50	14100	106		75-125			
Manganese, Total, ICP	.095	.477	mg/Kg	139	5	380	101		75-125			
Tin, Total, ICP	3.3	16.7	mg/Kg	<MDL	4	173	91		75-125			
Nickel, Total, ICP	.95	4.77	mg/Kg	16	1.2	67.7	90		75-125			
Lead, Total, ICP	1.4	7.15	mg/Kg	8.76	4	194	97		75-125			
Antimony, Total, ICP	1.4	7.15	mg/Kg	<MDL	4	59.7	31	G	75-125			
Selenium, Total, ICP	2.4	11.9	mg/Kg	<MDL	2	89.5	94		75-125			
Thallium, Total, ICP	9.5	47.7	mg/Kg	<MDL	4	172	90		75-125			
Zinc, Total, ICP	.24	1.19	mg/Kg	37	5	258	93		75-125			

SDIL:WG58967-7 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SDIL Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 08:19
Run ID: R72488 Workgroup: WG58543 (11/5/01 North Outfall Siting Study)

MB:WG58543-1 Matrix: BLANK WTR Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Mercury, Total, CVAA	.0002	.002	mg/L	<MDL	

SB:WG58543-2 MB:WG58543-1 Matrix: BLANK WTR Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.0002	.002	mg/L	<MDL	0.005	.0049	98		85-115								

SRM:WG58543-3 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: PKey: SED
PACS-1

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.098	.98	mg/Kg		4.57	4.44	97		120 — 80			

LD:WG58543-4 L22395-5 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.019	.194	mg/Kg	.046		.042						20

MS:WG58543-5 L22395-5 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.019	.194	mg/Kg	.046	.005	.521	98		75-125			

A/M
1/10/02
MM

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Oct 24 2001, 01:52 pm

Work Group: WG58354 (BS-116 BNALL) for Department: 7 - Organics, Trace

Created: 22-OCT-01 Due: Operator: lm/mm

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22395-1	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-10	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-11	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-12	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-13	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-14	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-15	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-16	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-2	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-3	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-4	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-5	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-6	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-7	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-8	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-9	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22419-1	421250U	AMBIENT SUBTIDAL SEDS.	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	11-DEC-01
L22419-2	421250U	AMBIENT SUBTIDAL SEDS.	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	11-DEC-01
L22419-3	421250U	AMBIENT SUBTIDAL SEDS.	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	11-DEC-01
L22419-4	421250U	AMBIENT SUBTIDAL SEDS.	SED	S	BNALL	SALTWTRSED	PREP	U	23-OCT-01	11-DEC-01
WG58354-1	MB			S	BNALL	OTHR SOLID	PREP	U	22-OCT-01	
WG58354-2	SB			S	BNALL	OTHR SOLID	PREP	U	22-OCT-01	
WG58354-3	MS		SED	S	BNALL	SALTWTRSED	PREP	U	22-OCT-01	
WG58354-4	MSD		SED	S	BNALL	SALTWTRSED	PREP	U	22-OCT-01	
WG58354-5	LD		SED	S	BNALL	SALTWTRSED	PREP	U	22-OCT-01	
WG58354-6	SRM			S	BNALL	OTHR SOLID	PREP	U	22-OCT-01	

Comments:

L22395-1	1 grab CHEM / 3-rep TAXONOMY
L22395-10	1 grab CHEM / 3-rep TAXONOMY
L22395-11	1 grab CHEM / 3-rep TAXONOMY
L22395-12	1 grab CHEM / 3-rep TAXONOMY
L22395-13	1 grab CHEM / 3-rep TAXONOMY
L22395-14	1 grab CHEM / 3-rep TAXONOMY
L22395-15	1 grab CHEM / 3-rep TAXONOMY
L22395-16	1 grab CHEM / 3-rep TAXONOMY
L22395-2	1 grab CHEM / 3-rep TAXONOMY
L22395-3	1 grab CHEM / 3-rep TAXONOMY
L22395-4	1 grab CHEM / 3-rep TAXONOMY
L22395-5	1 grab CHEM / 3-rep TAXONOMY
L22395-6	1 grab CHEM / 3-rep TAXONOMY
L22395-7	1 grab CHEM / 3-rep TAXONOMY
L22395-8	1 grab CHEM / 3-rep TAXONOMY
L22395-9	1 grab CHEM / 3-rep TAXONOMY
WG58354-1	MB102301
WG58354-2	WG58354-1
WG58354-3	L22395-1
WG58354-4	WG58354-3 L22395-1
WG58354-5	L22395-1
WG58354-6	1944

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 03:56
Run ID: R74105 Workgroup: WG58354 (BS-116 BNALL)

MB:WG58354-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	
Phenol	9	18	ug/Kg	<MDL	
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	
2-Chlorophenol	8	16	ug/Kg	<MDL	
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	
Hexachloroethane	15	30	ug/Kg	<MDL	
Nitrobenzene	16	32	ug/Kg	<MDL	
Isophorone	19	38	ug/Kg	<MDL	
2-Nitrophenol	15	30	ug/Kg	<MDL	
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	
Naphthalene	14	28	ug/Kg	<MDL	
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	
2-Chloronaphthalene	16	32	ug/Kg	<MDL	
Acenaphthylene	15	30	ug/Kg	<MDL	
Dimethyl Phthalate	11	22	ug/Kg	<MDL	
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	
Acenaphthene	7	14	ug/Kg	<MDL	
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	
Fluorene	13	26	ug/Kg	<MDL	
Diethyl Phthalate	6	12	ug/Kg	<MDL	
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	
Pentachlorophenol	5	10	ug/Kg	<MDL	
Phenanthrene	4	8	ug/Kg	<MDL	
Anthracene	4	8	ug/Kg	<MDL	
Di-N-Butyl Phthalate	5	10	ug/Kg	9.9	B
Fluoranthene	8	16	ug/Kg	<MDL	
Pyrene	4	8	ug/Kg	<MDL	
Benzyl Butyl Phthalate	6	12	ug/Kg	<MDL	
Benzo(a)anthracene	2	4	ug/Kg	<MDL	
Chrysene	4	8	ug/Kg	<MDL	
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	22.9	B
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	
Benzo(b)fluoranthene	3	6	ug/Kg	<MDL	
Benzo(k)fluoranthene	3	6	ug/Kg	<MDL	
Benzo(a)pyrene	3	6	ug/Kg	7.76	B
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	<MDL	
Dibenzo(a,h)anthracene	7	14	ug/Kg	10	B
Benzo(g,h,i)perylene	8	16	ug/Kg	<MDL	
Aniline	19	38	ug/Kg	<MDL	

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 03:56
Run ID: R74105 Workgroup: WG58354 (BS-116 BNALL)

MB:WG58354-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Benzyl Alcohol	6	12	ug/Kg	<MDL	
2-Methylphenol	19	38	ug/Kg	<MDL	
4-Methylphenol	16	32	ug/Kg	<MDL	
Benzoic Acid	6	12	ug/Kg	<MDL	
2-Methylnaphthalene	14	28	ug/Kg	<MDL	
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	
Dibenzofuran	14	28	ug/Kg	<MDL	
Carbazole	7	14	ug/Kg	<MDL	
Coprostanol	14	28	ug/Kg	<MDL	
Caffeine	6	12	ug/Kg	<MDL	

SB:WG58354-2 MB:WG58354-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	66.6667	38	57		50-150								100
Phenol	9	18	ug/Kg	<MDL	66.6667	29.8	45	*	50-150								100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	66.6667	28	41	*	50-150								100
2-Chlorophenol	8	16	ug/Kg	<MDL	66.6667	28.6	43	*	50-150								100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	28.5	43	*	50-150								100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	66.6667	29.8	45	*	50-150								100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	30.6	46	*	50-150								100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	66.6667	33.3	50		50-150								100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	66.6667	50.7	76		50-150								100
Hexachloroethane	15	30	ug/Kg	<MDL	66.6667	30	45	*	50-150								100
Nitrobenzene	16	32	ug/Kg	<MDL	66.6667	18	27	*	50-150								100
Isophorone	19	38	ug/Kg	<MDL	66.6667	47.4	71		50-150								100
2-Nitrophenol	15	30	ug/Kg	<MDL	66.6667	36.9	55		50-150								100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	66.6667	30	45	*	50-150								100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	66.6667	37.1	56		50-150								100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	27.1	41	*	50-150								100
Naphthalene	14	28	ug/Kg	<MDL	66.6667	28	42	*	50-150								100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	66.6667	24.5	37	*	50-150								100
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	66.6667	36.1	54		50-150								100
2-Chloronaphthalene	16	32	ug/Kg	<MDL	66.6667	31	47	*	50-150								100
Acenaphthylene	15	30	ug/Kg	<MDL	66.6667	33.7	51		50-150								100
Dimethyl Phthalate	11	22	ug/Kg	<MDL	66.6667	39.8	60		50-150								100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	66.6667	48.2	72		50-150								100
Acenaphthene	7	14	ug/Kg	<MDL	66.6667	33.1	50		50-150								100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	66.6667	48.3	72		50-150								100
Fluorene	13	26	ug/Kg	<MDL	66.6667	38.9	58		50-150								100
Diethyl Phthalate	6	12	ug/Kg	<MDL	66.6667	48.5	73		50-150								100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	66.6667	38.2	57		50-150								100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	66.6667	36	54		50-150								100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	66.6667	41.1	62		50-150								100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	66.6667	45	68		50-150								100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	66.6667	42	63		50-150								100
Pentachlorophenol	5	10	ug/Kg	<MDL	66.6667	40.5	61		50-150								100
Phenanthrene	4	8	ug/Kg	<MDL	66.6667	45.3	68		50-150								100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 03:56
Run ID: R74105 Workgroup: WG58354 (BS-116 BNALL)

SB:WG58354-2 MB:WG58354-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Anthracene	4	8	ug/Kg	<MDL	66.6667	48.6	73		50-150								100
Di-N-Butyl Phthalate	5	10	ug/Kg	9.9	66.6667	66.9	86		50-150								100
Fluoranthene	8	16	ug/Kg	<MDL	66.6667	51.9	78		50-150								100
Pyrene	4	8	ug/Kg	<MDL	66.6667	56.5	85		50-150								100
Benzyl Butyl Phthalate	6	12	ug/Kg	<MDL	66.6667	57.3	86		50-150								100
Benzo(a)anthracene	2	4	ug/Kg	<MDL	66.6667	56.2	84		50-150								100
Chrysene	4	8	ug/Kg	<MDL	66.6667	58.6	88		50-150								100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	22.9	66.6667	96.3	110		50-150								100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	66.6667	54.1	81		50-150								100
Benzo(b)fluoranthene	3	6	ug/Kg	<MDL	66.6667	50.3	75		50-150								100
Benzo(k)fluoranthene	3	6	ug/Kg	<MDL	66.6667	67.8	102		50-150								100
Benzo(a)pyrene	3	6	ug/Kg	7.76	66.6667	55.3	71		50-150								100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	<MDL	66.6667	62.7	94		50-150								100
Dibenzo(a,h)anthracene	7	14	ug/Kg	10	66.6667	65.8	84		50-150								100
Benzo(g,h,i)perylene	8	16	ug/Kg	<MDL	66.6667	50.3	76		50-150								100
Aniline	19	38	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Benzyl Alcohol	6	12	ug/Kg	<MDL	66.6667	41.7	63		50-150								100
2-Methylphenol	19	38	ug/Kg	<MDL	66.6667	27	41	*	50-150								100
4-Methylphenol	16	32	ug/Kg	<MDL	66.6667	45.4	68		50-150								100
Benzoic Acid	6	12	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
2-Methylnaphthalene	14	28	ug/Kg	<MDL	66.6667	30.3	46	*	50-150								100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	66.6667	47.3	71		50-150								100
Dibenzofuran	14	28	ug/Kg	<MDL	66.6667	36.7	55		50-150								100
Carbazole	7	14	ug/Kg	<MDL	66.6667	65.3	98		50-150								100
Coprostanol	14	28	ug/Kg	<MDL	666.6667	<MDL	0	*	50-150								100
Caffeine	6	12	ug/Kg	<MDL	66.6667	53.1	80		50-150								100

MS:WG58354-3 MSD:WG58354-4 L22395-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	66.6667	23	34	G	50-150	66.6667	31	46	*	50-150			100
Phenol	9	18	ug/Kg	<MDL	66.6667	35.9	54		50-150	66.6667	41.2	62		50-150	14		100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	66.6667	19	29	G	50-150	66.6667	23	34	*	50-150			100
2-Chlorophenol	8	16	ug/Kg	<MDL	66.6667	29.6	44	G	50-150	66.6667	34.3	51		50-150	15		100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	25.4	38	G	50-150	66.6667	26.4	40	*	50-150	5		100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	66.6667	26.3	39	G	50-150	66.6667	26.4	40	*	50-150	3		100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	25.4	38	G	50-150	66.6667	27.7	42	*	50-150	10		100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	66.6667	23	34	G	50-150	66.6667	31.4	47	*	50-150	32		100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	66.6667	57.9	87		50-150	66.6667	62.1	93		50-150	7		100
Hexachloroethane	15	30	ug/Kg	<MDL	66.6667	21	32	G	50-150	66.6667	22	33	*	50-150			100
Nitrobenzene	16	32	ug/Kg	<MDL	66.6667	<MDL	0	X	50-150	66.6667	19	29	*	50-150			100
Isophorone	19	38	ug/Kg	<MDL	66.6667	46	69		50-150	66.6667	52.8	79		50-150	14		100
2-Nitrophenol	15	30	ug/Kg	<MDL	66.6667	34.3	52		50-150	66.6667	41.2	62		50-150	18		100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	66.6667	42.6	64		50-150	66.6667	43	64		50-150	0		100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	66.6667	29	43	G	50-150	66.6667	37	56		50-150	26		100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	66.6667	51.7	78		50-150	66.6667	57	85		50-150	9		100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	22.9	34	G	50-150	66.6667	27.5	41	*	50-150	19		100
Naphthalene	14	28	ug/Kg	<MDL	66.6667	25	37	G	50-150	66.6667	30.1	45	*	50-150	20		100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	66.6667	20.4	31	G	50-150	66.6667	25.8	39	*	50-150	23		100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 03:56
Run ID: R74105 Workgroup: WG58354 (BS-116 BNALL)

MS:WG58354-3 MSD:WG58354-4 L22395-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	66.6667	56.3	84		50-150	66.6667	58.8	88		50-150	5		100
2-Chloronaphthalene	16	32	ug/Kg	<MDL	66.6667	35.4	53		50-150	66.6667	41.1	62		50-150	16		100
Acenaphthylene	15	30	ug/Kg	<MDL	66.6667	42.6	64		50-150	66.6667	46.1	69		50-150	8		100
Dimethyl Phthalate	11	22	ug/Kg	<MDL	66.6667	43.3	65		50-150	66.6667	45.8	69		50-150	6		100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	66.6667	54.7	82		50-150	66.6667	55.9	84		50-150	2		100
Acenaphthene	7	14	ug/Kg	<MDL	66.6667	37.9	57		50-150	66.6667	41.3	62		50-150	8		100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	66.6667	51.2	77		50-150	66.6667	56.6	85		50-150	10		100
Fluorene	13	26	ug/Kg	<MDL	66.6667	45.8	69		50-150	66.6667	48	72		50-150	4		100
Diethyl Phthalate	6	12	ug/Kg	<MDL	66.6667	51.8	78		50-150	66.6667	53	79		50-150	1		100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	66.6667	43.7	66		50-150	66.6667	45	68		50-150	3		100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	66.6667	54	81		50-150	66.6667	51	77		50-150	5		100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	66.6667	49.2	74		50-150	66.6667	48.3	72		50-150	3		100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	66.6667	57.1	86		50-150	66.6667	56.5	85		50-150	1		100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	66.6667	49.5	74		50-150	66.6667	47.7	72		50-150	3		100
Pentachlorophenol	5	10	ug/Kg	<MDL	66.6667	59.3	89		50-150	66.6667	72.5	109		50-150	20		100
Phenanthrene	4	8	ug/Kg	18	66.6667	65.8	72		50-150	66.6667	65.1	71		50-150	1		100
Anthracene	4	8	ug/Kg	11.2	66.6667	61.3	92		50-150	66.6667	60.5	91		50-150	1		100
Di-N-Butyl Phthalate	5	10	ug/Kg	13.4	66.6667	71.7	88		50-150	66.6667	74.1	91		50-150	3		100
Fluoranthene	8	16	ug/Kg	36.1	66.6667	85.3	74		50-150	66.6667	78	63		50-150	16		100
Pyrene	4	8	ug/Kg	44.6	66.6667	83	58		50-150	66.6667	77.2	49	*	50-150	17		100
Benzyl Butyl Phthalate	6	12	ug/Kg	8.7	66.6667	62.9	81		50-150	66.6667	60.9	78		50-150	4		100
Benzo(a)anthracene	2	4	ug/Kg	21.1	66.6667	75.3	81		50-150	66.6667	71.8	76		50-150	6		100
Chrysene	4	8	ug/Kg	22.1	66.6667	73.2	77		50-150	66.6667	68.4	70		50-150	10		100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	12	66.6667	67.2	83		50-150	66.6667	79.9	102		50-150	21		100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	66.6667	52.9	79		50-150	66.6667	57.2	86		50-150	8		100
Benzo(b)fluoranthene	3	6	ug/Kg	17.8	66.6667	66.5	73		50-150	66.6667	63.7	69		50-150	6		100
Benzo(k)fluoranthene	3	6	ug/Kg	12.6	66.6667	69.9	86		50-150	66.6667	55.9	65		50-150	28		100
Benzo(a)pyrene	3	6	ug/Kg	28.3	66.6667	73.2	67		50-150	66.6667	69.6	62		50-150	8		100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	19	66.6667	77.9	88		50-150	66.6667	72.8	81		50-150	8		100
Dibenzo(a,h)anthracene	7	14	ug/Kg	12	66.6667	71.5	89		50-150	66.6667	66.7	82		50-150	8		100
Benzo(g,h,i)perylene	8	16	ug/Kg	8.8	66.6667	68.8	90		50-150	66.6667	62.2	80		50-150	12		100
Aniline	19	38	ug/Kg	<MDL	66.6667	<MDL	0	X	50-150	66.6667	<MDL			50-150			100
Benzyl Alcohol	6	12	ug/Kg	<MDL	66.6667	37.5	56		50-150	66.6667	50.3	75		50-150	29		100
2-Methylphenol	19	38	ug/Kg	<MDL	66.6667	47.9	72		50-150	66.6667	52.2	78		50-150	8		100
4-Methylphenol	16	32	ug/Kg	<MDL	66.6667	66.2	99		50-150	66.6667	68.9	103		50-150	4		100
Benzoic Acid	6	12	ug/Kg	109	66.6667	100	-14	X	50-150	66.6667	106	-5	*	50-150	-95		100
2-Methylnaphthalene	14	28	ug/Kg	<MDL	66.6667	34.7	52		50-150	66.6667	39.5	59		50-150	13		100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	66.6667	59.1	89		50-150	66.6667	63.9	96		50-150	8		100
Dibenzofuran	14	28	ug/Kg	<MDL	66.6667	42.5	64		50-150	66.6667	44.2	66		50-150	3		100
Carbazole	7	14	ug/Kg	<MDL	66.6667	68.3	102		50-150	66.6667	68.1	102		50-150	0		100
Coprostanol	14	28	ug/Kg	<MDL	666.6667	443	66		50-150	666.6667	403	60		50-150	10		100
Caffeine	6	12	ug/Kg	<MDL	66.6667	58	87		50-150	66.6667	57.8	87		50-150	0		100

LD:WG58354-5 L22395-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL		<MDL						100
Phenol	9	18	ug/Kg	<MDL		<MDL						100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL		<MDL						100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab After Moved QC Report - 03/28/02 08:07
Run ID: R74105 Workgroup: WG58354 (BS-116 BNALL)

LD:WG58354-5 L22395-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
2-Chlorophenol	8	16	ug/Kg	<MDL		<MDL						100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL		<MDL						100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL		<MDL						100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL		<MDL						100
Hexachloroethane	15	30	ug/Kg	<MDL		<MDL						100
Nitrobenzene	16	32	ug/Kg	<MDL		<MDL						100
Isophorone	19	38	ug/Kg	<MDL		<MDL						100
2-Nitrophenol	15	30	ug/Kg	<MDL		<MDL						100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL		<MDL						100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL		<MDL						100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL		<MDL						100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
Naphthalene	14	28	ug/Kg	<MDL		<MDL						100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL		<MDL						100
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL		<MDL						100
2-Chloronaphthalene	16	32	ug/Kg	<MDL		<MDL						100
Acenaphthylene	15	30	ug/Kg	<MDL		<MDL						100
Dimethyl Phthalate	11	22	ug/Kg	<MDL		<MDL						100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL		<MDL						100
Acenaphthene	7	14	ug/Kg	<MDL		<MDL						100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL		<MDL						100
Fluorene	13	26	ug/Kg	<MDL		<MDL						100
Diethyl Phthalate	6	12	ug/Kg	<MDL		<MDL						100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL		<MDL						100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL		<MDL						100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL		<MDL						100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL		<MDL						100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL		<MDL						100
Pentachlorophenol	5	10	ug/Kg	<MDL		<MDL						100
Phenanthrene	4	8	ug/Kg	18		15.8				13		100
Anthracene	4	8	ug/Kg	11.2		10.5				6		100
Di-N-Butyl Phthalate	5	10	ug/Kg	13.4		14.7				10		100
Fluoranthene	8	16	ug/Kg	36.1		28.9				22		100
Pyrene	4	8	ug/Kg	44.6		31.8				33		100
Benzyl Butyl Phthalate	6	12	ug/Kg	8.7		<MDL						100
Benzo(a)anthracene	2	4	ug/Kg	21.1		15.9				28		100
Chrysene	4	8	ug/Kg	22.1		20.8				6		100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	12		16.9				34		100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL		<MDL						100
Benzo(b)fluoranthene	3	6	ug/Kg	17.8		17				5		100
Benzo(k)fluoranthene	3	6	ug/Kg	12.6		10				22		100
Benzo(a)pyrene	3	6	ug/Kg	28.3		22.1				24		100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	19		15				25		100
Dibenzo(a,h)anthracene	7	14	ug/Kg	12		12						100
Benzo(g,h,i)perylene	8	16	ug/Kg	8.8		<MDL						100
Aniline	19	38	ug/Kg	<MDL		<MDL						100
Benzyl Alcohol	6	12	ug/Kg	<MDL		<MDL						100
2-Methylphenol	19	38	ug/Kg	<MDL		<MDL						100
4-Methylphenol	16	32	ug/Kg	<MDL		<MDL						100

LD:WG58354-5 L22395-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Benzoic Acid	6	12	ug/Kg	109		97.7				11		100
2-Methylnaphthalene	14	28	ug/Kg	<MDL		<MDL						100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL		<MDL						100
Dibenzofuran	14	28	ug/Kg	<MDL		<MDL						100
Carbazole	7	14	ug/Kg	<MDL		<MDL						100
Coprostanol	14	28	ug/Kg	<MDL		<MDL						100
Caffeine	6	12	ug/Kg	<MDL		<MDL						100

SRM:WG58354-6 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Naphthalene	140	2800	ug/Kg		1629.3333	280	17	G	80-120			100
Phenanthrene	400	800	ug/Kg		5202.6667	4400	85		80-120			100
Anthracene	400	800	ug/Kg		1746.6667	1400	80		80-120			100
Fluoranthene	800	1600	ug/Kg		8802.6667	8310	94		80-120			100
Pyrene	400	800	ug/Kg		9573.3333	8050	84		80-120			100
Benzo(a)anthracene	200	400	ug/Kg		4658.6667	4270	92		80-120			100
Chrysene	400	800	ug/Kg		4797.3333	5030	105		80-120			100
Benzo(b)fluoranthene	300	600	ug/Kg		3818.6667	3910	102		80-120			100
Benzo(k)fluoranthene	300	600	ug/Kg		2269.3333	2410	106		80-120			100
Benzo(a)pyrene	300	600	ug/Kg		4242.6667	3740	88		80-120			100
Indeno(1,2,3-Cd)Pyrene	900	1800	ug/Kg		2744	2470	90		80-120			100
Dibenzo(a,h)anthracene	700	1400	ug/Kg		418.6667	740	178	L	80-120			100
Benzo(g,h,i)perylene	800	1600	ug/Kg		2802.6667	2460	88		80-120			100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/13/02 03:57
Run ID: R74105 Workgroup: WG58354 (BS-116 BNALL)

Sample #	2-Fluorophenol		d5-Phenol		d5-Nitrobenzene		d4-2-Chlorophenol	d4-1,2-Dichlorobenzene	2-Fluorobiphenyl	2,4,6-Tribromophenol	d14-Terphenyl
	50-150		50-150		50-150		50-150	50-150	50-150	50-150	50-150
L22395-1	53	avg=64.5	61	avg=56.25	42		57	39	63	87	81
L22395-10	44 G	avg=44.25	38 G	avg=52.5	38		41 G	28	55	54 G	89
L22395-11	34 G	avg=35.5	28 G	avg=47.25	30 G		30 G	25 G	46 G	50 G	88 G
L22395-12	40 G	avg=40.75	30 G	avg=52	35		35 G	29	52	58 G	92
L22395-13	35 G	avg=38.75	25 G	avg=49	31 G		34 G	21 G	49 G	61 G	95 G
L22395-14	41	avg=54.75	36	avg=53.5	36		39	33	52	103	93
L22395-15	47	avg=53	27	avg=57.75	42		43	37	51	95	101
L22395-16	46	avg=56.5	37	avg=53.75	41		45	35	47	98	92
L22395-2	45	avg=58.25	50	avg=51.75	36		45	33	52	93	86
L22395-3	44	avg=57.75	48	avg=51.75	34		45	32	52	94	89
L22395-4	41	avg=53	45	avg=49.5	32 G		42	26 G	51 G	84	89 G
L22395-5	41 G	avg=46.75	42 G	avg=49.75	35 G		41 G	31 G	50 G	63 G	83 G
L22395-6	38 G	avg=43	41 G	avg=50.5	34		37 G	28	51	56 G	89
L22395-7	37 G	avg=41.25	40 G	avg=48.5	33 G		36 G	24 G	48 G	52 G	89 G
L22395-8	45 G	avg=48.25	42 G	avg=52	39		44 G	25	55	62 G	89
L22395-9	44	avg=50.25	40	avg=54.75	37		44	34	59	73	89
L22419-1	67	avg=72	57	avg=66.25	59		67	46	74	97	86
L22419-2	62	avg=66.5	47	avg=64.25	56		61	44	68	96	89
L22419-3	70	avg=78.75	74	avg=66.5	58		75	46	71	96	91
L22419-4	68	avg=72	51	avg=69.75	60		66	43	79	103	97
WG58354-1	50 G	avg=48.25	46 G	avg=52.25	43		48 G	42	43	49 G	81
WG58354-2	44 G	avg=47.5	42 G	avg=52.75	40		43 G	41	44	61 G	86
WG58354-3	45	avg=57.5	49	avg=51.5	36		44	36	52	92	82
WG58354-4	50	avg=64.25	57	avg=55	43		53	39	58	97	80
WG58354-5	47	avg=63.75	57	avg=54	39		52	34	61	99	82
WG58354-6	69	avg=87.75	83	avg=74	67		80	51	97	119	81

all a time ~~12/2/01~~ 12/2/01

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Oct 30 2001, 10:58 am

Work Group: WG58384 (PPLLS#02-clpestll) for Department: 7 - Organics, Trace

Created: 23-OCT-01 Due: Operator: lm

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22395-1	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-10	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-11	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-12	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-13	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-14	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-15	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-16	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-2	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-3	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-4	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-5	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-6	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-7	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-8	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-9	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
WG58384-1	MB			S	PESTLL	OTHR SOLID	PREP	U	23-OCT-01	
WG58384-2	SB			S	PESTLL	OTHR SOLID	PREP	U	23-OCT-01	
WG58384-3	MS		SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	
WG58384-4	MSD		SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	
WG58384-5	LD		SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	
WG58384-6	SRM		SED	S	PESTLL	SALTWTRSED	PREP	U	23-OCT-01	

Comments:

L22395-1	1 grab CHEM / 3-rep TAXONOMY
L22395-10	1 grab CHEM / 3-rep TAXONOMY
L22395-11	1 grab CHEM / 3-rep TAXONOMY
L22395-12	1 grab CHEM / 3-rep TAXONOMY
L22395-13	1 grab CHEM / 3-rep TAXONOMY
L22395-14	1 grab CHEM / 3-rep TAXONOMY
L22395-15	1 grab CHEM / 3-rep TAXONOMY
L22395-16	1 grab CHEM / 3-rep TAXONOMY
L22395-2	1 grab CHEM / 3-rep TAXONOMY
L22395-3	1 grab CHEM / 3-rep TAXONOMY
L22395-4	1 grab CHEM / 3-rep TAXONOMY
L22395-5	1 grab CHEM / 3-rep TAXONOMY
L22395-6	1 grab CHEM / 3-rep TAXONOMY
L22395-7	1 grab CHEM / 3-rep TAXONOMY
L22395-8	1 grab CHEM / 3-rep TAXONOMY
L22395-9	1 grab CHEM / 3-rep TAXONOMY
WG58384-1	MB102401
WG58384-2	WG58384-1
WG58384-3	L22395-1
WG58384-4	WG58384-3 L22395-1
WG58384-5	L22395-1
WG58384-6	1944

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-24
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KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/06/01 02:26
Run ID: R73424 Workgroup: WG58384 (PPLLS#02-clpestll)

MB:WG58384-1 Matrix: OTHR SOLID Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Alpha-BHC	.5	1	ug/Kg	<MDL	
Beta-BHC	.5	1	ug/Kg	<MDL	
Delta-BHC	.5	1	ug/Kg	<MDL	
Gamma-BHC (Lindane)	.5	1	ug/Kg	<MDL	
Heptachlor	.5	1	ug/Kg	<MDL	
Aldrin	1	2	ug/Kg	<MDL	
Heptachlor Epoxide	.5	1	ug/Kg	<MDL	
Endosulfan I	1	2	ug/Kg	<MDL	
Dieldrin	1	2	ug/Kg	<MDL	
4,4'-DDE	1	2	ug/Kg	<MDL	
Endrin	1	2	ug/Kg	<MDL	
Endosulfan II	1	2	ug/Kg	<MDL	
4,4'-DDD	1	2	ug/Kg	<MDL	
Endrin Aldehyde	2	4	ug/Kg	<MDL	
Endosulfan Sulfate	1	2	ug/Kg	<MDL	
4,4'-DDT	1	2	ug/Kg	<MDL	
Methoxychlor	5	10	ug/Kg	<MDL	
Chlordane	.5	1	ug/Kg	<MDL	
Toxaphene	10	20	ug/Kg	<MDL	

SB:WG58384-2 MB:WG58384-1 Matrix: OTHR SOLID Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Alpha-BHC	.5	1	ug/Kg	<MDL	10	6.2	62		50-150								
Beta-BHC	.5	1	ug/Kg	<MDL	10	8.18	82		50-150								
Delta-BHC	.5	1	ug/Kg	<MDL	10	8.95	89		50-150								
Gamma-BHC (Lindane)	.5	1	ug/Kg	<MDL	10	7.14	71		50-150								
Heptachlor	.5	1	ug/Kg	<MDL	10	7.36	74		50-150								
Aldrin	1	2	ug/Kg	<MDL	10	6.01	60		50-150								
Heptachlor Epoxide	.5	1	ug/Kg	<MDL	10	8.05	81		50-150								
Endosulfan I	1	2	ug/Kg	<MDL	10	7.99	80		50-150								
Dieldrin	1	2	ug/Kg	<MDL	10	8.61	86		50-150								
4,4'-DDE	1	2	ug/Kg	<MDL	10	8.85	89		50-150								
Endrin	1	2	ug/Kg	<MDL	10	9.81	98		50-150								
Endosulfan II	1	2	ug/Kg	<MDL	10	8.66	87		50-150								
4,4'-DDD	1	2	ug/Kg	<MDL	10	9.71	97		50-150								
Endrin Aldehyde	2	4	ug/Kg	<MDL	10	4.82	48	*	50-150								
Endosulfan Sulfate	1	2	ug/Kg	<MDL	10	7.91	79		50-150								
4,4'-DDT	1	2	ug/Kg	<MDL	10	8.87	89		50-150								
Methoxychlor	5	10	ug/Kg	<MDL	10	9.2	92		50-150								

MS:WG58384-3 MSD:WG58384-4 L22395-1 Matrix: SALTWTRSED Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Alpha-BHC	.5	1	ug/Kg	<MDL	10	7.96	80		50-150	10	9.69	97		50-150	19		100
Beta-BHC	.5	1	ug/Kg	<MDL	10	8.09	81		50-150	10	11.1	111		50-150	31		100
Delta-BHC	.5	1	ug/Kg	<MDL	10	8.77	88		50-150	10	11.7	117		50-150	28		100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/06/01 02:26
Run ID: R73424 Workgroup: WG58384 (PPLLS#02-clpestll)

MS:WG58384-3 MSD:WG58384-4 L22395-1 Matrix: SALTWTRSED Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Gamma-BHC (Lindane)	.5	1	ug/Kg	<MDL	10	8.24	82		50-150	10	10.7	107		50-150	26		100
Heptachlor	.5	1	ug/Kg	<MDL	10	9.12	91		50-150	10	11.7	117		50-150	25		100
Aldrin	1	2	ug/Kg	<MDL	10	7.43	74		50-150	10	9.48	95		50-150	25		100
Heptachlor Epoxide	.5	1	ug/Kg	<MDL	10	7.97	80		50-150	10	9.49	95		50-150	17		100
Endosulfan I	1	2	ug/Kg	<MDL	10	7.66	77		50-150	10	10.1	101		50-150	27		100
Dieldrin	1	2	ug/Kg	<MDL	10	7.51	75		50-150	10	10.2	102		50-150	31		100
4,4'-DDE	1	2	ug/Kg	<MDL	10	8.11	81		50-150	10	10.7	107		50-150	28		100
Endrin	1	2	ug/Kg	<MDL	10	8.83	88		50-150	10	12.1	121		50-150	32		100
Endosulfan II	1	2	ug/Kg	<MDL	10	7.61	76		50-150	10	10.5	105		50-150	32		100
4,4'-DDD	1	2	ug/Kg	<MDL	10	8.16	82		50-150	10	10.5	105		50-150	25		100
Endrin Aldehyde	2	4	ug/Kg	<MDL	10	<MDL	0	X	50-150	10	5.41	54		50-150	200	*	100
Endosulfan Sulfate	1	2	ug/Kg	<MDL	10	6.78	68		50-150	10	9.68	97		50-150	35		100
4,4'-DDT	1	2	ug/Kg	<MDL	10	7.1	71		50-150	10	10.3	103		50-150	37		100
Methoxychlor	5	10	ug/Kg	<MDL	10	7.4	74		50-150	10	10	100		50-150			100

LD:WG58384-5 L22395-1 Matrix: SALTWTRSED Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Alpha-BHC	.5	1	ug/Kg	<MDL		<MDL						100
Beta-BHC	.5	1	ug/Kg	<MDL		<MDL						100
Delta-BHC	.5	1	ug/Kg	<MDL		<MDL						100
Gamma-BHC (Lindane)	.5	1	ug/Kg	<MDL		<MDL						100
Heptachlor	.5	1	ug/Kg	<MDL		<MDL						100
Aldrin	1	2	ug/Kg	<MDL		<MDL						100
Heptachlor Epoxide	.5	1	ug/Kg	<MDL		<MDL						100
Endosulfan I	1	2	ug/Kg	<MDL		<MDL						100
Dieldrin	1	2	ug/Kg	<MDL		<MDL						100
4,4'-DDE	1	2	ug/Kg	<MDL		<MDL						100
Endrin	1	2	ug/Kg	<MDL		<MDL						100
Endosulfan II	1	2	ug/Kg	<MDL		<MDL						100
4,4'-DDD	1	2	ug/Kg	<MDL		<MDL						100
Endrin Aldehyde	2	4	ug/Kg	<MDL		<MDL						100
Endosulfan Sulfate	1	2	ug/Kg	<MDL		<MDL						100
4,4'-DDT	1	2	ug/Kg	<MDL		<MDL						100
Methoxychlor	5	10	ug/Kg	<MDL		<MDL						100
Chlordane	.5	1	ug/Kg	<MDL		<MDL						100
Toxaphene	10	20	ug/Kg	<MDL		<MDL						100

SRM:WG58384-6 Matrix: SALTWTRSED Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
4,4'-DDT	5.3	10.7	ug/Kg		117.3333	97.3	83		80-120			
Chlordane	2.7	5.33	ug/Kg		16.8533	19.9	118		80-120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/06/01 02:26
Run ID: R73424 Workgroup: WG58384 (PPLLS#02-clpestll)

Sample #	2,4,5,6-Tetrachlo-ro-m-xylene 50-150	Decachlorobiphenyl 50-150
L22395-1	84	94
L22395-10	73	88
L22395-11	81	94
L22395-12	87	93
L22395-13	75	80
L22395-14	62	78
L22395-15	78	81
L22395-16	87	86
L22395-2	66	75
L22395-3	66	76
L22395-4	57	63
L22395-5	82	87
L22395-6	85	77
L22395-7	68	86
L22395-8	77	75
L22395-9	75	84
WG58384-1	57	96
WG58384-2	53	95
WG58384-3	80	82
WG58384-4	90	103
WG58384-5	81	99
WG58384-6	110	122

Hold time: ~~12/2/01~~ 12/2/01

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Oct 30 2001, 10:58 am

Work Group: WG58385 (PPLLS#02-pcbll) for Department: 7 - Organics, Trace

Created: 23-OCT-01 Due: Operator: lm

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22395-1	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-10	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-11	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-12	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-13	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-14	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-15	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-16	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-2	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-3	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-4	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-5	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-6	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-7	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-8	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-9	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
WG58385-1	MB			S	PCBLL	OTHR SOLID	PREP	U	23-OCT-01	
WG58385-2	SB			S	PCBLL	OTHR SOLID	PREP	U	23-OCT-01	
WG58385-3	MS		SED	S	PCBLL	SALTWTRSED	PREP	U	23-OCT-01	
WG58385-4	MSD		SED	S	PCBLL	SALTWTRSED	PREP	U	23-OCT-01	
WG58385-5	LD		SED	S	PCBLL	SALTWTRSED	PREP	U	23-OCT-01	
WG58385-6	SRM			S	PCBLL	OTHR SOLID	PREP	U	23-OCT-01	

Comments:

L22395-1	1 grab CHEM / 3-rep TAXONOMY
L22395-10	1 grab CHEM / 3-rep TAXONOMY
L22395-11	1 grab CHEM / 3-rep TAXONOMY
L22395-12	1 grab CHEM / 3-rep TAXONOMY
L22395-13	1 grab CHEM / 3-rep TAXONOMY
L22395-14	1 grab CHEM / 3-rep TAXONOMY
L22395-15	1 grab CHEM / 3-rep TAXONOMY
L22395-16	1 grab CHEM / 3-rep TAXONOMY
L22395-2	1 grab CHEM / 3-rep TAXONOMY
L22395-3	1 grab CHEM / 3-rep TAXONOMY
L22395-4	1 grab CHEM / 3-rep TAXONOMY
L22395-5	1 grab CHEM / 3-rep TAXONOMY
L22395-6	1 grab CHEM / 3-rep TAXONOMY
L22395-7	1 grab CHEM / 3-rep TAXONOMY
L22395-8	1 grab CHEM / 3-rep TAXONOMY
L22395-9	1 grab CHEM / 3-rep TAXONOMY
WG58385-1	MB102401
WG58385-2	WG58385-1
WG58385-3	L22395-2
WG58385-4	WG58385-3 L22395-2
WG58385-5	L22395-1
WG58385-6	HS2

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 03/25/02 04:13
Run ID: R73388 Workgroup: WG58385 (PPLLS#02-pcbll)

MB:WG58385-1 Matrix: OTHR SOLID Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Aroclor 1016	1.3	2.5	ug/Kg	<MDL	
Aroclor 1221	2.5	5	ug/Kg	<MDL	
Aroclor 1232	2.5	5	ug/Kg	<MDL	
Aroclor 1242	1.3	2.5	ug/Kg	<MDL	
Aroclor 1248	1.3	2.5	ug/Kg	<MDL	
Aroclor 1254	1.3	2.5	ug/Kg	<MDL	
Aroclor 1260	1.3	2.5	ug/Kg	<MDL	

SB:WG58385-2 MB:WG58385-1 Matrix: OTHR SOLID Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aroclor 1016	1.3	2.5	ug/Kg	<MDL	18.75	13	69		50-150								
Aroclor 1260	1.3	2.5	ug/Kg	<MDL	18.75	15.9	85		50-150								

MS:WG58385-3 MSD:WG58385-4 L22395-2 Matrix: SALTWTRSED Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aroclor 1016	1.3	2.5	ug/Kg	<MDL	18.75	19	101		50-150	18.75	17.2	92		50-150	9		100
Aroclor 1260	1.3	2.5	ug/Kg	<MDL	18.75	17.8	95		50-150	18.75	18	96		50-150	1		100

LD:WG58385-5 L22395-1 Matrix: SALTWTRSED Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aroclor 1016	1.3	2.5	ug/Kg	<MDL		<MDL						100
Aroclor 1221	2.5	5	ug/Kg	<MDL		<MDL						100
Aroclor 1232	2.5	5	ug/Kg	<MDL		<MDL						100
Aroclor 1242	1.3	2.5	ug/Kg	<MDL		<MDL						100
Aroclor 1248	1.3	2.5	ug/Kg	<MDL		<MDL						100
Aroclor 1254	1.3	2.5	ug/Kg	<MDL		<MDL						100
Aroclor 1260	1.3	2.5	ug/Kg	<MDL		<MDL						100

SRM:WG58385-6 Matrix: OTHR SOLID Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aroclor 1254	2.7	5.33	ug/Kg		118	102	86		80-120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/06/01 08:14
Run ID: R73388 Workgroup: WG58385 (PPLLS#02-pcbll)

Sample #	2,4,5,6-Tetrachlo-ro-m-xylene 50-150	Decachlorobiphenyl 50-150
L22395-1	72	105
L22395-10	61	107
L22395-11	64	117
L22395-12	67	113
L22395-13	63	116
L22395-14	55	113
L22395-15	64	108
L22395-16	77	128
L22395-2	70	101
L22395-3	73	108
L22395-4	51	80
L22395-5	72	114
L22395-6	73	106
L22395-7	56	107
L22395-8	70	103
L22395-9	63	109
WG58385-1	56	100
WG58385-2	74	126
WG58385-3	107	138
WG58385-4	94	139
WG58385-5	67	104
WG58385-6	89	115

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Nov 09 2001, 10:15 am

Work Group: WG58271 (DS#104 N. Outfall Seds) for Department: 7 - Organics, Trace

Created: 17-OCT-01 Due: Operator: JSF

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22395-1	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-10	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-11	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-12	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-13	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-14	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-15	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-16	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-2	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-3	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-4	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-5	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-6	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	25-OCT-01	09-JAN-02
L22395-7	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	23-OCT-01	07-JAN-02
L22395-8	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
L22395-9	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	22-OCT-01	06-JAN-02
WG58271-1	MB			S	WTPH-DX	OTHR SOLID	PREP	U	17-OCT-01	
WG58271-2	SB			S	WTPH-DX	OTHR SOLID	PREP	U	17-OCT-01	
WG58271-3	SB			S	WTPH-DX	OTHR SOLID	PREP	U	17-OCT-01	
WG58271-4	LD		SED	S	WTPH-DX	SALTWTRSED	PREP	U	17-OCT-01	
WG58271-5	LD		SED	S	WTPH-DX	SALTWTRSED	PREP	U	17-OCT-01	

Comments:

L22395-1	1 grab CHEM / 3-rep TAXONOMY
L22395-10	1 grab CHEM / 3-rep TAXONOMY
L22395-11	1 grab CHEM / 3-rep TAXONOMY
L22395-12	1 grab CHEM / 3-rep TAXONOMY
L22395-13	1 grab CHEM / 3-rep TAXONOMY
L22395-14	1 grab CHEM / 3-rep TAXONOMY
L22395-15	1 grab CHEM / 3-rep TAXONOMY
L22395-16	1 grab CHEM / 3-rep TAXONOMY
L22395-2	1 grab CHEM / 3-rep TAXONOMY
L22395-3	1 grab CHEM / 3-rep TAXONOMY
L22395-4	1 grab CHEM / 3-rep TAXONOMY
L22395-5	1 grab CHEM / 3-rep TAXONOMY
L22395-6	1 grab CHEM / 3-rep TAXONOMY
L22395-7	1 grab CHEM / 3-rep TAXONOMY
L22395-8	1 grab CHEM / 3-rep TAXONOMY
L22395-9	1 grab CHEM / 3-rep TAXONOMY
WG58271-1	MB20011017
WG58271-2	WG58271-1 MO
WG58271-3	WG58271-1 DSL
WG58271-4	L22395-1
WG58271-5	L22395-11

DS104

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 11/16/01 05:10
Run ID: R72870 Workgroup: WG58271 (DS#104 N. Outfall Seds)

MB:WG58271-1 Matrix: OTHR SOLID Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Diesel Range (>C12-C24)	25	25	mg/Kg	<MDL	
Lube Oil Range (>C24)	25	25	mg/Kg	<MDL	

SB:WG58271-2 MB:WG58271-1 Matrix: OTHR SOLID Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Lube Oil Range (>C24)	25	25	mg/Kg	<MDL	150	117	78		50-150								

SB:WG58271-3 MB:WG58271-1 Matrix: OTHR SOLID Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Diesel Range (>C12-C24)	25	25	mg/Kg	<MDL	150	136	91		50-150								

LD:WG58271-4 L22395-1 Matrix: SALTWTRSED Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Diesel Range (>C12-C24)	25	25	mg/Kg	<MDL		<MDL						100
Lube Oil Range (>C24)	25	25	mg/Kg	<MDL		<MDL						100

LD:WG58271-5 L22395-11 Matrix: SALTWTRSED Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Diesel Range (>C12-C24)	25	25	mg/Kg	<MDL		<MDL						100
Lube Oil Range (>C24)	25	25	mg/Kg	<MDL		<MDL						100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 11/16/01 05:10
Run ID: R72870 Workgroup: WG58271 (DS#104 N. Outfall Seds)

Sample #	2-Fluorobiphenyl	Pentacosane
	50-150	50-150
L22395-1	90	90
L22395-10	97	95
L22395-11	95	101
L22395-12	89	92
L22395-13	92	96
L22395-14	99	103
L22395-15	90	96
L22395-16	92	96
L22395-2	86	90
L22395-3	90	95
L22395-4	95	98
L22395-5	93	93
L22395-6	89	94
L22395-7	88	93
L22395-8	92	93
L22395-9	86	91
WG58271-1	94	98
WG58271-2	93	95
WG58271-3	91	94
WG58271-4	90	92
WG58271-5	90	92

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Dec 06 2001, 01:23 pm

Work Group: WG59070 (BU#58 TBT) for Department: 7 - Organics, Trace

Created: 03-DEC-01 Due: Operator: gw/lm/mm

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22024-1	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	14-DEC-01	14-DEC-01
L22024-10	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	17-DEC-01	17-DEC-01
L22024-11	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	17-DEC-01	17-DEC-01
L22024-12 *	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	17-DEC-01	17-DEC-01
L22024-13	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	23-DEC-01	23-DEC-01
L22024-2	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	14-DEC-01	14-DEC-01
L22024-3	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	16-DEC-01	16-DEC-01
L22024-4	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	16-DEC-01	16-DEC-01
L22024-6	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	16-DEC-01	16-DEC-01
L22024-7	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	17-DEC-01	17-DEC-01
L22024-9	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	22-DEC-01	22-DEC-01
L22395-1	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	09-JAN-02	09-JAN-02
L22395-2	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	09-JAN-02	09-JAN-02
L22395-3	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	13-JAN-02	13-JAN-02
L22395-4	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	07-JAN-02	07-JAN-02
L22395-5	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	09-JAN-02	09-JAN-02
L22395-6	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	09-JAN-02	09-JAN-02
L22395-7	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	07-JAN-02	07-JAN-02
L22395-8	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-JAN-02	06-JAN-02
L22395-9	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-JAN-02	06-JAN-02
WG59070-1	MB			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	03-DEC-01	
WG59070-2	SB			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	03-DEC-01	
WG59070-3	MS		SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	03-DEC-01	
WG59070-4	MSD		SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	03-DEC-01	
WG59070-5	LD		SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	03-DEC-01	
WG59070-6	SRM			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	03-DEC-01	

Comments:

L22024-1	Bothell Landing Bridge (boat launch)
L22024-10	Samm. River bridge at 90th St. (new; Riverwalk Restoration site)
L22024-11	Samm. River below mouth of Bear Creek
L22024-12	Confluence with Sammamish River
L22024-13	FREP
L22024-2	Bothell bike trail bridge (in park)
L22024-3	Samm. River below mouth of Little Bear Creek
L22024-4	Samm. River below mouth of Woodin Creek
L22024-6	Samm. River 145th St. bridge
L22024-7	Samm. River 124th St. irrigation return
L22024-9	Samm. River bridge at 116th St.
L22395-1	1 grab CHEM / 3-rep TAXONOMY
L22395-2	1 grab CHEM / 3-rep TAXONOMY
L22395-3	1 grab CHEM / 3-rep TAXONOMY
L22395-4	1 grab CHEM / 3-rep TAXONOMY
L22395-5	1 grab CHEM / 3-rep TAXONOMY
L22395-6	1 grab CHEM / 3-rep TAXONOMY
L22395-7	1 grab CHEM / 3-rep TAXONOMY
L22395-8	1 grab CHEM / 3-rep TAXONOMY
L22395-9	1 grab CHEM / 3-rep TAXONOMY
WG59070-1	MB120301
WG59070-2	WG59070-1
WG59070-3	L22024-3
WG59070-4	WG59070-3 L22024-3
WG59070-5	L22024-4
WG59070-6	PACS-2

*Removed from workgroup

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/31/01 02:17
Run ID: R74154 Workgroup: WG59070 (BU#58 TBT)

MB:WG59070-1 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Mono-n-Butyltin	1.7	3.37	ug/Kg	<MDL	
Di-n-Butyltin	.35	.7	ug/Kg	<MDL	
Tri-n-Butyltin	.21	.415	ug/Kg	<MDL	
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	

SB:WG59070-2 MB:WG59070-1 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	<MDL	31.2	23.3	75		50-150								100
Di-n-Butyltin	.35	.7	ug/Kg	<MDL	38.4	29.6	77		50-150								100
Tri-n-Butyltin	.21	.415	ug/Kg	<MDL	44.55	39.4	88		50-150								100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	50	42.4	85		50-150								100

MS:WG59070-3 MSD:WG59070-4 L22024-3 Matrix: FRSHWTRSED Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: 423258-01 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	3.2	31.2	23.9	67		50-150	31.2	21.2	58		50-150	14		100
Di-n-Butyltin	.35	.7	ug/Kg	1.03	38.4	35.8	91		50-150	38.4	29.4	74		50-150	21		100
Tri-n-Butyltin	.21	.415	ug/Kg	.423	44.55	37.4	83		50-150	44.55	32.1	71		50-150	16		100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	50	42.4	85		50-150	50	37.1	74		50-150	14		100

LD:WG59070-5 L22024-4 Matrix: FRSHWTRSED Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: 423258-01 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	2		4.33				72		100
Di-n-Butyltin	.35	.7	ug/Kg	.709		4.48				145	E	100
Tri-n-Butyltin	.21	.415	ug/Kg	<MDL		.554				200	E	100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL		<MDL						100

SRM:WG59070-6 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Di-n-Butyltin	4.7	9.33	ug/Kg		1352	1140	85		80-120			120
Tri-n-Butyltin	2.8	5.53	ug/Kg		1512	1430	95		80-120			120

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/31/01 02:17
Run ID: R74154 Workgroup: WG59070 (BU#58 TBT)

Sample #	Tripropyltin	Tripentyltin
	50-150	50-150
L22024-1	75	107
L22024-10	72	91
L22024-11	72	94
L22024-13	75	102
L22024-2	74	102
L22024-3	77	103
L22024-4	79	108
L22024-6	73	107
L22024-7	76	97
L22024-9	80	92
L22395-1	74	94
L22395-2	73	96
L22395-3	76	102
L22395-4	69	100
L22395-5	72	101
L22395-6	77	101
L22395-7	76	101
L22395-8	76	99
L22395-9	66	93
WG59070-1	88	97
WG59070-2	90	93
WG59070-3	73	95
WG59070-4	68	86
WG59070-5	79	111
WG59070-6	80	94

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Dec 13 2001, 03:33 pm

Work Group: WG59241 (BU#59-TBT) for Department: 7 - Organics, Trace

Created: 11-DEC-01 Due: Operator: lm/mm/gw

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22293-1	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-2	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-3	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-4	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	26-APR-04	26-APR-04
L22293-5	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-6	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-7	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22294-1	421253AU	NPDES ALKI PT. SUBTIDAL SEDS	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	23-JAN-02	23-JAN-02
L22294-2	421253AU	NPDES ALKI PT. SUBTIDAL SEDS	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	23-JAN-02	23-JAN-02
L22294-3	421253AU	NPDES ALKI PT. SUBTIDAL SEDS	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	23-JAN-02	23-JAN-02
L22294-4	421253AU	NPDES ALKI PT. SUBTIDAL SEDS	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	23-JAN-02	23-JAN-02
L22294-5	421253AU	NPDES ALKI PT. SUBTIDAL SEDS	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	23-JAN-02	23-JAN-02
L22294-6	421253AU	NPDES ALKI PT. SUBTIDAL SEDS	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	23-JAN-02	23-JAN-02
L22395-10	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	13-JAN-02	13-JAN-02
L22395-11	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	13-JAN-02	13-JAN-02
L22395-12	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	13-JAN-02	13-JAN-02
L22395-13	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	13-JAN-02	13-JAN-02
L22395-14	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	13-JAN-02	13-JAN-02
L22395-15	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	13-JAN-02	13-JAN-02
L22395-16	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	13-JAN-02	13-JAN-02
WG59241-1	MB			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	11-DEC-01	
WG59241-2	SB			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	11-DEC-01	
WG59241-3	MS		SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	11-DEC-01	
WG59241-4	MSD		SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	11-DEC-01	
WG59241-5	LD		SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	11-DEC-01	
WG59241-6	SRM			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	11-DEC-01	

Comments:

L22293-1	CHEM composite/3-rep TAXONOMY
L22293-2	CHEM composite/3-rep TAXONOMY
L22293-3	CHEM composite/3-rep TAXONOMY
L22293-4	CHEM composite/3-rep TAXONOMY
L22293-5	CHEM composite/3-rep TAXONOMY
L22293-6	CHEM composite/3-rep TAXONOMY
L22293-7	CHEM composite only
L22294-1	CHEM composite
L22294-2	CHEM composite
L22294-3	CHEM composite
L22294-4	CHEM composite
L22294-5	CHEM composite
L22294-6	CHEM composite
L22395-10	1 grab CHEM / 3-rep TAXONOMY
L22395-11	1 grab CHEM / 3-rep TAXONOMY
L22395-12	1 grab CHEM / 3-rep TAXONOMY
L22395-13	1 grab CHEM / 3-rep TAXONOMY
L22395-14	1 grab CHEM / 3-rep TAXONOMY
L22395-15	1 grab CHEM / 3-rep TAXONOMY
L22395-16	1 grab CHEM / 3-rep TAXONOMY
WG59241-1	MB121101
WG59241-2	WG59241-1
WG59241-3	L22293-1
WG59241-4	WG59241-3 L22293-1
WG59241-5	L22293-2
WG59241-6	PACS2

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/20/01 02:45
Run ID: R74178 Workgroup: WG59241 (BU#59-TBT)

MB:WG59241-1 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Mono-n-Butyltin	1.7	3.37	ug/Kg	2.4	B
Di-n-Butyltin	.35	.7	ug/Kg	.951	B
Tri-n-Butyltin	.21	.415	ug/Kg	<MDL	
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	

SB:WG59241-2 MB:WG59241-1 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	2.4	31.2	21.4	61		50-150								100
Di-n-Butyltin	.35	.7	ug/Kg	.951	38.4	27.2	68		50-150								100
Tri-n-Butyltin	.21	.415	ug/Kg	<MDL	44.55	33.1	74		50-150								100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	50	33.9	68		50-150								100

MS:WG59241-3 MSD:WG59241-4 L22293-1 Matrix: SALTWTRSED Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: 421253RU PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	4.94	31.2	24.2	62		50-150	31.2	26.1	68		50-150	9		100
Di-n-Butyltin	.35	.7	ug/Kg	2.05	38.4	33	81		50-150	38.4	33	81		50-150	0		100
Tri-n-Butyltin	.21	.415	ug/Kg	.733	44.55	40.6	90		50-150	44.55	39.2	86		50-150	5		100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	50	42.3	85		50-150	50	41.2	82		50-150	4		100

LD:WG59241-5 L22293-2 Matrix: SALTWTRSED Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: 421253RU PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	3.89		4.26				9		100
Di-n-Butyltin	.35	.7	ug/Kg	.772		.908				16		100
Tri-n-Butyltin	.21	.415	ug/Kg	.587		.556				5		100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL		<MDL						100

SRM:WG59241-6 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Di-n-Butyltin	4.7	9.33	ug/Kg		1352	1470	109		80-120			120
Tri-n-Butyltin	2.8	5.53	ug/Kg		1512	1110	73	G	80-120			120

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/20/01 02:45
Run ID: R74178 Workgroup: WG59241 (BU#59-TBT)

Sample #	Tripropyltin	Tripentyltin
	50-150	50-150
L22293-1	80	102
L22293-2	80	96
L22293-3	84	97
L22293-4	78	96
L22293-5	78	103
L22293-6	80	97
L22293-7	77	96
L22294-1	80	99
L22294-2	80	98
L22294-3	74	95
L22294-4	84	99
L22294-5	78	95
L22294-6	87	101
L22395-10	77	91
L22395-11	86	98
L22395-12	86	103
L22395-13	89	104
L22395-14	85	101
L22395-15	84	101
L22395-16	80	96
WG59241-1	77	82
WG59241-2	74	79
WG59241-3	79	96
WG59241-4	79	100
WG59241-5	79	95
WG59241-6	87	97

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Jan 24 2002, 09:19 am

Work Group: WG59984 (OP#619 oppest-short) for Department: 7 - Organics, Trace

Created: 23-JAN-02 Due: Operator: lm/gw

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22395-1	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	25-OCT-01	13-JAN-02
L22395-10	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	23-OCT-01	13-JAN-02
L22395-11	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	23-OCT-01	13-JAN-02
L22395-12	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	23-OCT-01	13-JAN-02
L22395-13	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	22-OCT-01	13-JAN-02
L22395-14	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	22-OCT-01	13-JAN-02
L22395-15	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	22-OCT-01	13-JAN-02
L22395-16	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-2	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	25-OCT-01	13-JAN-02
L22395-3	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	29-OCT-01	13-JAN-02
L22395-4	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	23-OCT-01	13-JAN-02
L22395-5	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	25-OCT-01	13-JAN-02
L22395-6	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	25-OCT-01	13-JAN-02
L22395-7	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	23-OCT-01	13-JAN-02
L22395-8	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	22-OCT-01	13-JAN-02
L22395-9	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	22-OCT-01	13-JAN-02
WG59984-1	MB			S	OPPEST-SHORT	OTHR SOLID	PREP	U	23-JAN-02	
WG59984-2	SB			S	OPPEST-SHORT	OTHR SOLID	PREP	U	23-JAN-02	
WG59984-3	MS		SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	23-JAN-02	
WG59984-4	MSD		SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	23-JAN-02	
WG59984-5	LD		SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	23-JAN-02	

Comments:

L22395-1	1 grab CHEM / 3-rep TAXONOMY
L22395-10	1 grab CHEM / 3-rep TAXONOMY
L22395-11	1 grab CHEM / 3-rep TAXONOMY
L22395-12	1 grab CHEM / 3-rep TAXONOMY
L22395-13	1 grab CHEM / 3-rep TAXONOMY
L22395-14	1 grab CHEM / 3-rep TAXONOMY
L22395-15	1 grab CHEM / 3-rep TAXONOMY
L22395-16	1 grab CHEM / 3-rep TAXONOMY
L22395-2	1 grab CHEM / 3-rep TAXONOMY
L22395-3	1 grab CHEM / 3-rep TAXONOMY
L22395-4	1 grab CHEM / 3-rep TAXONOMY
L22395-5	1 grab CHEM / 3-rep TAXONOMY
L22395-6	1 grab CHEM / 3-rep TAXONOMY
L22395-7	1 grab CHEM / 3-rep TAXONOMY
L22395-8	1 grab CHEM / 3-rep TAXONOMY
L22395-9	1 grab CHEM / 3-rep TAXONOMY
WG59984-1	MB012302
WG59984-2	WG59984-1
WG59984-3	L22395-1
WG59984-4	WG59984-3 L22395-1
WG59984-5	L22395-3

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/01/02 11:25
Run ID: R76413 Workgroup: WG59984 (OP#619 oppest-short)

3:WG59984-1 Matrix: OTHR SOLID Listtype: OROPPEST-SHORT Method: EPA 3540C/8141A (7-3-04-000) Project: PKey: SED

arameter	Mdl	Rdl	Units	MB Value	Qual
horate	33	66.7	ug/Kg	<MDL	
iazinon	20	33.3	ug/Kg	<MDL	
isulfoton	20	33.3	ug/Kg	<MDL	
arathion-Methyl	53	100	ug/Kg	<MDL	
alathion	53	100	ug/Kg	<MDL	
hlorpyrifos	33	66.7	ug/Kg	<MDL	
arathion-Ethyl	53	100	ug/Kg	<MDL	

SB:WG59984-2 MB:WG59984-1 Matrix: OTHR SOLID Listtype: OROPPEST-SHORT Method: EPA 3540C/8141A (7-3-04-000) Project: PKey: SED

arameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
horate	33	66.7	ug/Kg	<MDL	166.6667	156	94		50-150								100
iazinon	20	33.3	ug/Kg	<MDL	166.6667	160	96		50-150								100
isulfoton	20	33.3	ug/Kg	<MDL	166.6667	158	95		50-150								100
arathion-Methyl	53	100	ug/Kg	<MDL	166.6667	177	106		50-150								100
alathion	53	100	ug/Kg	<MDL	166.6667	152	91		50-150								100
hlorpyrifos	33	66.7	ug/Kg	<MDL	166.6667	152	91		50-150								100
arathion-Ethyl	53	100	ug/Kg	<MDL	166.6667	172	103		50-150								100

S:WG59984-3 MSD:WG59984-4 L22395-1 Matrix: SALTWTRSED Listtype: OROPPEST-SHORT Method: EPA 3540C/8141A (7-3-04-000) Project: 423457 PKey: SED

arameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
horate	33	66.7	ug/Kg	<MDL	166.6667	143	86		50-150	166.6667	131	79		50-150	8		100
iazinon	20	33.3	ug/Kg	<MDL	166.6667	172	103		50-150	166.6667	179	107		50-150	4		100
isulfoton	20	33.3	ug/Kg	<MDL	166.6667	183	110		50-150	166.6667	158	95		50-150	15		100
arathion-Methyl	53	100	ug/Kg	<MDL	166.6667	244	147		50-150	166.6667	265	159	*	50-150	8		100
lalathion	53	100	ug/Kg	<MDL	166.6667	200	120		50-150	166.6667	193	116		50-150	3		100
hlorpyrifos	33	66.7	ug/Kg	<MDL	166.6667	183	110		50-150	166.6667	182	109		50-150	1		100
arathion-Ethyl	53	100	ug/Kg	<MDL	166.6667	245	147		50-150	166.6667	251	150		50-150	2		100

D:WG59984-5 L22395-3 Matrix: SALTWTRSED Listtype: OROPPEST-SHORT Method: EPA 3540C/8141A (7-3-04-000) Project: 423457 PKey: SED

arameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
horate	33	66.7	ug/Kg	<MDL		<MDL						100
iazinon	20	33.3	ug/Kg	<MDL		<MDL						100
isulfoton	20	33.3	ug/Kg	<MDL		<MDL						100
arathion-Methyl	53	100	ug/Kg	<MDL		<MDL						100
lalathion	53	100	ug/Kg	<MDL		<MDL						100
hlorpyrifos	33	66.7	ug/Kg	<MDL		<MDL						100
arathion-Ethyl	53	100	ug/Kg	<MDL		<MDL						100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/01/02 11:25
Run ID: R76413 Workgroup: WG59984 (OP#619 oppest-short)

mple #	Chlorpyrifos-D10 50-150
2395-1	93
2395-10	87
2395-11	91
2395-12	96
2395-13	93
2395-14	81
2395-15	86
2395-16	85
2395-2	91
2395-3	95
2395-4	80
2395-5	77
2395-6	80
2395-7	78
2395-8	76
2395-9	82
59984-1	72
59984-2	92
59984-3	106
59984-4	104
59984-5	106

A/m
10/30/01
pms

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Oct 29 2001, 01:24 pm

Work Group: WG58447 (OILT - N.OUTFALL) for Department: 7 - Organics, Trace

Created: 29-OCT-01 Due: Operator: GMW

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22395-1	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	08-NOV-01	09-JAN-02
L22395-10	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	06-NOV-01	07-JAN-02
L22395-11	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	06-NOV-01	07-JAN-02
L22395-12	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	06-NOV-01	07-JAN-02
L22395-13	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	05-NOV-01	06-JAN-02
L22395-14	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	05-NOV-01	06-JAN-02
L22395-15	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	05-NOV-01	06-JAN-02
L22395-16	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	12-NOV-01	13-JAN-02
L22395-2	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	08-NOV-01	09-JAN-02
L22395-3	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	12-NOV-01	13-JAN-02
L22395-4	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	06-NOV-01	07-JAN-02
L22395-5	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	08-NOV-01	09-JAN-02
L22395-6	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	08-NOV-01	09-JAN-02
L22395-7	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	06-NOV-01	07-JAN-02
L22395-8	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	05-NOV-01	06-JAN-02
L22395-9	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	05-NOV-01	06-JAN-02
WG58447-1	MB			S	OILT	OTHR SOLID	WKGP	U	29-OCT-01	
WG58447-2	SB			S	OILT	OTHR SOLID	WKGP	U	29-OCT-01	
WG58447-3	LD		SED	S	OILT	SALTWTRSED	WKGP	U	29-OCT-01	
WG58447-4	LT		SED	S	OILT	SALTWTRSED	WKGP	U	29-OCT-01	

Comments:

L22395-1	1 grab CHEM / 3-rep TAXONOMY
L22395-10	1 grab CHEM / 3-rep TAXONOMY
L22395-11	1 grab CHEM / 3-rep TAXONOMY
L22395-12	1 grab CHEM / 3-rep TAXONOMY
L22395-13	1 grab CHEM / 3-rep TAXONOMY
L22395-14	1 grab CHEM / 3-rep TAXONOMY
L22395-15	1 grab CHEM / 3-rep TAXONOMY
L22395-16	1 grab CHEM / 3-rep TAXONOMY
L22395-2	1 grab CHEM / 3-rep TAXONOMY
L22395-3	1 grab CHEM / 3-rep TAXONOMY
L22395-4	1 grab CHEM / 3-rep TAXONOMY
L22395-5	1 grab CHEM / 3-rep TAXONOMY
L22395-6	1 grab CHEM / 3-rep TAXONOMY
L22395-7	1 grab CHEM / 3-rep TAXONOMY
L22395-8	1 grab CHEM / 3-rep TAXONOMY
L22395-9	1 grab CHEM / 3-rep TAXONOMY
WG58447-1	MB011029
WG58447-2	WG58447-1
WG58447-3	L22395-1
WG58447-4	WG58447-3 L22395-1

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 10/30/01 11:05
Run ID: R72304 Workgroup: WG58447 (OILT - N.OUTFALL)

MB:WG58447-1 Matrix: OTHR SOLID Listtype: OROILT Method: SM5520-B,D,F (07-03-014-000) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Oil And Grease, Total	100	250	mg/Kg	<MDL	

SB:WG58447-2 MB:WG58447-1 Matrix: OTHR SOLID Listtype: OROILT Method: SM5520-B,D,F (07-03-014-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Oil And Grease, Total	100	250	mg/Kg	<MDL	1998.9	2210	111		80-120								

LD:WG58447-3 LT:WG58447-4 L22395-1 Matrix: SALTWTRSED Listtype: OROILT Method: SM5520-B,D,F (07-03-014-000) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Oil And Grease, Total	100	250	mg/Kg	852		947					1030				9		20

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Feb 09 2002, 01:24 pm

Work Group: WG60300 (Herbicides for Moss sediments.) for Department: 7 - Organics, Trace

Created: 09-FEB-02 Due: Operator: DM

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22395-1	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	25-OCT-01	13-JAN-02
L22395-10	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	23-OCT-01	13-JAN-02
L22395-11	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	23-OCT-01	13-JAN-02
L22395-12	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	23-OCT-01	13-JAN-02
L22395-13	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	22-OCT-01	13-JAN-02
L22395-14	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	22-OCT-01	13-JAN-02
L22395-15	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	22-OCT-01	13-JAN-02
L22395-16	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	29-OCT-01	13-JAN-02
L22395-2	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	25-OCT-01	13-JAN-02
L22395-3	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	29-OCT-01	13-JAN-02
L22395-4	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	23-OCT-01	13-JAN-02
L22395-5	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	25-OCT-01	13-JAN-02
L22395-6	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	25-OCT-01	13-JAN-02
L22395-7	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	23-OCT-01	13-JAN-02
L22395-8	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	22-OCT-01	13-JAN-02
L22395-9	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	22-OCT-01	13-JAN-02

Comments:

L22395-1	1 grab CHEM / 3-rep TAXONOMY
L22395-10	1 grab CHEM / 3-rep TAXONOMY
L22395-11	1 grab CHEM / 3-rep TAXONOMY
L22395-12	1 grab CHEM / 3-rep TAXONOMY
L22395-13	1 grab CHEM / 3-rep TAXONOMY
L22395-14	1 grab CHEM / 3-rep TAXONOMY
L22395-15	1 grab CHEM / 3-rep TAXONOMY
L22395-16	1 grab CHEM / 3-rep TAXONOMY
L22395-2	1 grab CHEM / 3-rep TAXONOMY
L22395-3	1 grab CHEM / 3-rep TAXONOMY
L22395-4	1 grab CHEM / 3-rep TAXONOMY
L22395-5	1 grab CHEM / 3-rep TAXONOMY
L22395-6	1 grab CHEM / 3-rep TAXONOMY
L22395-7	1 grab CHEM / 3-rep TAXONOMY
L22395-8	1 grab CHEM / 3-rep TAXONOMY
L22395-9	1 grab CHEM / 3-rep TAXONOMY

Find out where L22395-2 is?
Ask Susan, then Kelli.

STL Seattle

Lab ID:	Method Blank - HS0124
Date Received:	-
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	94		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.67	2.03	
4-Nitrophenol	ND	6.67	1.47	
Dicamba	ND	6.67	1.62	
Dichloroprop	ND	6.67	0.71	
2,4-D	ND	6.67	0.55	
Pentachlorophenol	ND	6.67	0.778	
Silvex (2,4,5-TP)	ND	6.67	2.13	
2,4,5-T	ND	6.67	1.45	
Dinoseb	ND	6.67	0.55	
2,4-DB	ND	6.67	0.935	
MCPP	ND	6.67	1.82	
MCPA	ND	6.67	1	

STL Seattle

Blank Spike Report

Lab ID:	HS0124
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
QC Batch ID:	HS0124

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	Flag
Dalapon	0	667	308	46.2	
Dicamba	0	667	697	105	
2,4-D	0	667	617	92.5	
Pentachlorophenol	0	667	679	102	
Silvex (2,4,5-TP)	0	667	734	110	
Dinoseb	0	667	557	83.5	
MCPP	0	667	733	110	

STL Seattle

Client Name	0
Client ID:	
Lab ID:	SHS0124
Date Received:	-
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	115		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	308	6.67	2.03	
Dicamba	697	6.67	1.62	
2,4-D	617	6.67	0.55	
Pentachlorophenol	679	6.67	0.778	
Silvex (2,4,5-TP)	734	6.67	2.13	
Dinoseb	557	6.67	0.55	
MCPP	733	6.67	1.82	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	L22395-1
Lab ID:	103573-01
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
QC Batch ID:	HS0124

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Dalapon	0	633	242	38.3	237	39	1.8	
Dicamba	0	633	533	84.3	474	78	-7.8	
2,4-D	0	633	506	79.9	455	74.9	-6.5	
Pentachlorophenol	0	633	508	80.3	487	80.1	-0.25	
Silvex (2,4,5-TP)	0	633	515	81.4	496	81.7	0.37	
Dinoseb	0	633	488	77.1	439	72.2	-6.6	
MCPP	0	633	497	78.6	474	78	-0.77	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-1 - ms
Lab ID:	103573S01
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	84		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	242	6.33	1.93	
Dicamba	533	6.33	1.54	
2,4-D	506	6.33	0.522	
Pentachlorophenol	508	6.33	0.738	
Silvex (2,4,5-TP)	515	6.33	2.02	
Dinoseb	488	6.33	0.522	
MCPP	497	6.33	1.73	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-1 - msd
Lab ID:	103573D01
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	84.9		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	237	6.08	1.85	
Dicamba	474	6.08	1.48	
2,4-D	455	6.08	0.501	
Pentachlorophenol	487	6.08	0.709	
Silvex (2,4,5-TP)	496	6.08	1.94	
Dinoseb	439	6.08	0.501	
MCPP	474	6.08	1.66	

STL Seattle

Duplicate Report

Client Sample ID:	L22395-1
Lab ID:	103573-01
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
QC Batch ID:	HS0124

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Parameter Name	Sample Result (ug/kg)	Duplicate Result (ug/kg)	RPD %	Flag
Dalapon	0	0	NC	
4-Nitrophenol	0	0	NC	
Dicamba	0	0	NC	
Dichloroprop	0	0	NC	
2,4-D	0	0	NC	
Pentachlorophenol	0	0	NC	
Silvex (2,4,5-TP)	0	0	NC	
2,4,5-T	0	0	NC	
Dinoseb	0	0	NC	
2,4-DB	0	0	NC	
MCPP	0	0	NC	
MCPA	0	0	NC	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-1 - dup
Lab ID:	103573R01
Date Received:	-
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	85.9		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.61	2.02	
4-Nitrophenol	ND	6.61	1.46	
Dicamba	ND	6.61	1.61	
Dichloroprop	ND	6.61	0.704	
2,4-D	ND	6.61	0.545	
Pentachlorophenol	ND	6.61	0.771	
Silvex (2,4,5-TP)	ND	6.61	2.11	
2,4,5-T	ND	6.61	1.44	
Dinoseb	ND	6.61	0.545	
2,4-DB	ND	6.61	0.927	
MCPP	ND	6.61	1.81	
MCPA	ND	6.61	0.996	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-1
Lab ID:	103573-01
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	85.1		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.13	1.87	
4-Nitrophenol	ND	6.13	1.36	
Dicamba	ND	6.13	1.49	
Dichloroprop	ND	6.13	0.653	
2,4-D	ND	6.13	0.506	
Pentachlorophenol	ND	6.13	0.716	
Silvex (2,4,5-TP)	ND	6.13	1.96	
2,4,5-T	ND	6.13	1.34	
Dinoseb	ND	6.13	0.506	
2,4-DB	ND	6.13	0.86	
MCPP	ND	6.13	1.68	
MCPA	ND	6.13	0.924	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-2
Lab ID:	103573-02
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	91.8		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.54	2	
4-Nitrophenol	ND	6.54	1.45	
Dicamba	ND	6.54	1.59	
Dichloroprop	ND	6.54	0.697	
2,4-D	ND	6.54	0.54	
Pentachlorophenol	ND	6.54	0.763	
Silvex (2,4,5-TP)	ND	6.54	2.09	
2,4,5-T	ND	6.54	1.43	
Dinoseb	ND	6.54	0.54	
2,4-DB	ND	6.54	0.918	
MCPP	ND	6.54	1.79	
MCPA	ND	6.54	0.986	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-3
Lab ID:	103573-03
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	73.8		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.21	1.89	
4-Nitrophenol	ND	6.21	1.37	
Dicamba	ND	6.21	1.51	
Dichloroprop	ND	6.21	0.662	
2,4-D	ND	6.21	0.512	
Pentachlorophenol	ND	6.21	0.725	
Silvex (2,4,5-TP)	ND	6.21	1.98	
2,4,5-T	ND	6.21	1.36	
Dinoseb	ND	6.21	0.512	
2,4-DB	ND	6.21	0.871	
MCPP	ND	6.21	1.7	
MCPA	ND	6.21	0.936	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-4
Lab ID:	103573-04
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	82.4		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.21	1.89	
4-Nitrophenol	ND	6.21	1.37	
Dicamba	ND	6.21	1.51	
Dichloroprop	ND	6.21	0.661	
2,4-D	ND	6.21	0.512	
Pentachlorophenol	ND	6.21	0.725	
Silvex (2,4,5-TP)	ND	6.21	1.98	
2,4,5-T	ND	6.21	1.36	
Dinoseb	ND	6.21	0.512	
2,4-DB	ND	6.21	0.871	
MCPP	ND	6.21	1.7	
MCPA	ND	6.21	0.935	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-5
Lab ID:	103573-05
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	72.8		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.06	1.85	
4-Nitrophenol	ND	6.06	1.34	
Dicamba	ND	6.06	1.47	
Dichloroprop	ND	6.06	0.646	
2,4-D	ND	6.06	0.5	
Pentachlorophenol	ND	6.06	0.707	
Silvex (2,4,5-TP)	ND	6.06	1.94	
2,4,5-T	ND	6.06	1.32	
Dinoseb	ND	6.06	0.5	
2,4-DB	ND	6.06	0.85	
MCPP	ND	6.06	1.66	
MCPA	ND	6.06	0.913	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-6
Lab ID:	103573-06
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	72		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.23	1.9	
4-Nitrophenol	ND	6.23	1.38	
Dicamba	ND	6.23	1.51	
Dichloroprop	ND	6.23	0.663	
2,4-D	ND	6.23	0.513	
Pentachlorophenol	ND	6.23	0.726	
Silvex (2,4,5-TP)	ND	6.23	1.99	
2,4,5-T	ND	6.23	1.36	
Dinoseb	ND	6.23	0.513	
2,4-DB	ND	6.23	0.873	
MCPP	ND	6.23	1.7	
MCPA	ND	6.23	0.937	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-7
Lab ID:	103573-07
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	84.2		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.29	1.92	
4-Nitrophenol	ND	6.29	1.39	
Dicamba	ND	6.29	1.53	
Dichloroprop	ND	6.29	0.67	
2,4-D	ND	6.29	0.519	
Pentachlorophenol	ND	6.29	0.734	
Silvex (2,4,5-TP)	ND	6.29	2.01	
2,4,5-T	ND	6.29	1.37	
Dinoseb	ND	6.29	0.519	
2,4-DB	ND	6.29	0.882	
MCPP	ND	6.29	1.72	
MCPA	ND	6.29	0.948	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-8
Lab ID:	103573-08
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	81.9		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.56	2	
4-Nitrophenol	ND	6.56	1.45	
Dicamba	ND	6.56	1.59	
Dichloroprop	ND	6.56	0.698	
2,4-D	ND	6.56	0.541	
Pentachlorophenol	ND	6.56	0.765	
Silvex (2,4,5-TP)	ND	6.56	2.1	
2,4,5-T	ND	6.56	1.43	
Dinoseb	ND	6.56	0.541	
2,4-DB	ND	6.56	0.92	
MCPP	ND	6.56	1.79	
MCPA	ND	6.56	0.988	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-9
Lab ID:	103573-09
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	91.4		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.04	1.84	
4-Nitrophenol	ND	6.04	1.34	
Dicamba	ND	6.04	1.47	
Dichloroprop	ND	6.04	0.643	
2,4-D	ND	6.04	0.498	
Pentachlorophenol	ND	6.04	0.705	
Silvex (2,4,5-TP)	ND	6.04	1.93	
2,4,5-T	ND	6.04	1.32	
Dinoseb	ND	6.04	0.498	
2,4-DB	ND	6.04	0.847	
MCPP	ND	6.04	1.65	
MCPA	ND	6.04	0.91	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-10
Lab ID:	103573-10
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	107		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	5.94	1.81	
4-Nitrophenol	ND	5.94	1.31	
Dicamba	ND	5.94	1.44	
Dichloroprop	ND	5.94	0.633	
2,4-D	ND	5.94	0.49	
Pentachlorophenol	ND	5.94	0.693	
Silvex (2,4,5-TP)	ND	5.94	1.9	
2,4,5-T	ND	5.94	1.3	
Dinoseb	ND	5.94	0.49	
2,4-DB	ND	5.94	0.833	
MCPP	ND	5.94	1.63	
MCPA	ND	5.94	0.895	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-11
Lab ID:	103573-11
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	100		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.58	2.01	
4-Nitrophenol	ND	6.58	1.45	
Dicamba	ND	6.58	1.6	
Dichloroprop	ND	6.58	0.701	
2,4-D	ND	6.58	0.543	
Pentachlorophenol	ND	6.58	0.767	
Silvex (2,4,5-TP)	ND	6.58	2.1	
2,4,5-T	ND	6.58	1.44	
Dinoseb	ND	6.58	0.543	
2,4-DB	ND	6.58	0.923	
MCPP	ND	6.58	1.8	
MCPA	ND	6.58	0.991	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-12
Lab ID:	103573-12
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	108		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.23	1.9	
4-Nitrophenol	ND	6.23	1.38	
Dicamba	ND	6.23	1.51	
Dichloroprop	ND	6.23	0.664	
2,4-D	ND	6.23	0.514	
Pentachlorophenol	ND	6.23	0.727	
Silvex (2,4,5-TP)	ND	6.23	1.99	
2,4,5-T	ND	6.23	1.36	
Dinoseb	ND	6.23	0.514	
2,4-DB	ND	6.23	0.874	
MCPP	ND	6.23	1.71	
MCPA	ND	6.23	0.939	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-13
Lab ID:	103573-13
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	1/31/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	68.3		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.59	2.01	
4-Nitrophenol	ND	6.59	1.46	
Dicamba	ND	6.59	1.6	
Dichloroprop	ND	6.59	0.702	
2,4-D	ND	6.59	0.544	
Pentachlorophenol	ND	6.59	0.769	
Silvex (2,4,5-TP)	ND	6.59	2.11	
2,4,5-T	ND	6.59	1.44	
Dinoseb	ND	6.59	0.544	
2,4-DB	ND	6.59	0.924	
MCPP	ND	6.59	1.8	
MCPA	ND	6.59	0.993	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-14
Lab ID:	103573-14
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	86.4		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.21	1.9	
4-Nitrophenol	ND	6.21	1.37	
Dicamba	ND	6.21	1.51	
Dichloroprop	ND	6.21	0.662	
2,4-D	ND	6.21	0.513	
Pentachlorophenol	ND	6.21	0.725	
Silvex (2,4,5-TP)	ND	6.21	1.99	
2,4,5-T	ND	6.21	1.36	
Dinoseb	ND	6.21	0.513	
2,4-DB	ND	6.21	0.871	
MCPP	ND	6.21	1.7	
MCPA	ND	6.21	0.936	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-15
Lab ID:	103573-15
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	87.7		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.59	2.01	
4-Nitrophenol	ND	6.59	1.46	
Dicamba	ND	6.59	1.6	
Dichloroprop	ND	6.59	0.701	
2,4-D	ND	6.59	0.543	
Pentachlorophenol	ND	6.59	0.768	
Silvex (2,4,5-TP)	ND	6.59	2.1	
2,4,5-T	ND	6.59	1.44	
Dinoseb	ND	6.59	0.543	
2,4-DB	ND	6.59	0.924	
MCPP	ND	6.59	1.8	
MCPA	ND	6.59	0.992	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22395-16
Lab ID:	103573-16
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	79.6		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.1	1.86	
4-Nitrophenol	ND	6.1	1.35	
Dicamba	ND	6.1	1.48	
Dichloroprop	ND	6.1	0.649	
2,4-D	ND	6.1	0.503	
Pentachlorophenol	ND	6.1	0.711	
Silvex (2,4,5-TP)	ND	6.1	1.95	
2,4,5-T	ND	6.1	1.33	
Dinoseb	ND	6.1	0.503	
2,4-DB	ND	6.1	0.855	
MCPP	ND	6.1	1.67	
MCPA	ND	6.1	0.918	

LABORATORY WORK ORDER
Chain of Custody

King County Department of Natural Resources
Water and Land Resources Division
Environmental Laboratory
322 West Ewing Street
Seattle, Washington 98119-1507

Project Name: MOSS Subtidal Sediments
Project Number: 423457
Laboratory Project Manager: Katherine Bourbonais/John Blaine
Telephone Number: 684 2382/2384

Sample Number (Note: Use only one Login No. per sheet.)	Client Locator	Collect Date	Collect Time	TOC/TOTS/TVS	NH3	TOTSULFIDE *	PSD *	Al/Fe/Mn/Sn/PP ICP/HG-CVAA	BNALL/PESTLL/PCBLL/OILT	WTPH-DX	TRIBUTYLTIN							Number of Containers	Comments
L22395 -15	Z7-SSB-3	8OCT01	0930	1	1	1	1	1	1	1	1							8	
L22395 -14	Z7-SSB-2	8OCT01	1106	↓	↓	↓	↓	↓	↓	↓	↓							8	
L22395 -13	Z7-SSB-1	↓	1235															8	
L22395 -9	Z7-SNB-3		1355															8	
L22395 -8	Z7-SNB-2	✓	1455	✓	✓	✓	✓	✓	✓	✓	✓							8	
L -																			
L -																			
L -																			
L -																			
L -																			
L -																			

Additional Comments:

* Sub-contracted lab parameters.

Total Number of Containers 40

Sampled By:

Relinquished By:		Received By:	
Signature: John A. Blaine	Date: 10-9-01	Signature: Kathy Puckett	Date: 10-9-01
Printed Name: John A. Blaine	Time: 1630	Printed Name: Kathy Puckett	Time: 839
Organization: King County Environmental Laboratory		Organization: King County Environmental Laboratory	

LABORATORY WORK ORDER
Chain of Custody

King County Department of Natural Resources
Water and Land Resources Division
Environmental Laboratory
322 West Ewing Street
Seattle, Washington 98119-1507

Project Name: MOSS Subtidal Sediments
Project Number: 423457
Laboratory Project Manager: Katherine Bourbonais/John Blaine
Telephone Number: 684 2382/2384

Note: Use only one Login No. per sheet. Sample Number	Client Locator	Collect Date	Collect Time	TOC/TOTS/TVS	NH3	TOTSULFIDE *	PSD *	Al/Fe/Mn/Sn/PP ICP/HG-CVAA	BNALL/PESTLL/PCBLL/OILT	WTPH-DX	TRIBUTYLTIN							Number of Containers	Comments
L 21395-4	26-SB-1	10-9-01		1	1	1	1	1	1	1	1							8	
L -7	27-SNB-1	↓		↓	↓	↓	↓	↓	↓	↓	↓							↓	
L -10	27-SSA-1																		
L -11	" -2																		
L -12	" -3																		
L -																			
L -																			
L -																			
L -																			
L -																			
L -																			

Analyses

Additional Comments:

* Sub-contracted lab parameters.

Total Number of Containers ____

Sampled By:

Relinquished By:		Received By:	
Signature	John A. Blaine	Signature	Frederick W. Rothhopf
Date	10-9-01	Date	10-9-01
Printed Name	John A. Blaine	Printed Name	FREDERICK W. ROTHHOPF
Time	1702	Time	1702
Organization	King County Environmental Laboratory	Organization	King County Environmental Laboratory

LABORATORY WORK ORDER
Chain of Custody

King County Department of Natural Resources
Water and Land Resources Division
Environmental Laboratory
322 West Ewing Street
Seattle, Washington 98119-1507

Project Name: MOSS Subtidal Sediments
Project Number: 423457
Laboratory Project Manager: Katherine Bourbonais/John Blaine
Telephone Number: 684 2382/2384

Note: Use only one Login No. per sheet. Sample Number	Client Locator	Collect Date	Collect Time	TOC/TOTS/TVS	NH3	TOTSULFIDE *	PSD *	Al/Fe/Mn/Sn/PP ICP/HG-CVAA	BNALL/PESTLL/PCBLL/OILT	WTPH-DX	TRIBUTYLTIN							Number of Containers	Comments
L 22395 - 1	Z5-1	11-04-01	1228	X	X	X	X	X	X	X	X								
L 22395 - 5	Z6-SB-2	↓	1014	↓	↓	↓	↓	↓	↓	↓	↓								
L 22395 - 6	Z6-SB-3		1104																
L 22395 - 2	Z5-2		1305																
L -																			
L -																			
L -																			
L -																			
L -																			
L -																			
L -																			

Additional Comments:

* Sub-contracted lab parameters.

Total Number of Containers

Sampled By: KL, JB, DW, AL, MK

Relinquished By:		Received By:	
Signature	Donna Weast	Signature	Kelly Pucket
Date	10/11/01	Date	10-11-01
Printed Name	Donna Weast	Printed Name	Kelley Puckett
Time	1641	Time	1641
Organization	King County Environmental Laboratory	Organization	King County Environmental Laboratory

LABORATORY WORK ORDER
Chain of Custody

King County Department of Natural Resources
Water and Land Resources Division
Environmental Laboratory
322 West Ewing Street
Seattle, Washington 98119-1507

Project Name: MOSS Subtidal Sediments
Project Number: 423457
Laboratory Project Manager: Katherine Bourbonais/John Blaine
Telephone Number: 684 2382/2384

Note: Use only one Login No. per sheet. Sample Number	Client Locator	Collect Date	Collect Time	TOC/TOTS/TVS	NH3	TOTSULFIDE *	PSD *	Al/Fe/Mn/Sn/PP ICP/HG-CVAA	BNALL/PESTLL/PCBLL/OILT	WTPH-DX	TRIBUTYLTIN							Number of Containers	Comments
L22395 -7	Z7-SNB-1	9OCT01	0955																
L22395 -10	Z7-SSA-1	9OCT01	1036																
L22395 -11	Z7-SSA-2	9OCT01	1150																
L22395 -12	Z7-SSA-3	9OCT01	1250																
L -	~~Z6-SBI-1~~																		
L22395 -4	Z6-SB-1	9OCT01	1429																
L -																			
L22395 -3	Z5-3	15Oct01	1040	X	X	X	X	X	X	X	X								
L22395 -16	OSZ-1	15Oct01	1200	X	X	X	X	X	X	X	X								
L -																			
L -																			

4 (
1/15/01

Additional Comments:

* Sub-contracted lab parameters.

Total Number of Containers ___

Sampled By:

Relinquished By:
Signature [signature] Date 10/15/01
Printed Name Bob Kruger Time 1509
Organization King County Environmental Laboratory

Received By:
Signature [signature] Date 10/15/01
Printed Name FREDERICK W GROTHKOPP Time 1509
Organization King County Environmental Laboratory

Appendix D
Chemistry Quality Assurance Review
Nearshore Sediments

KING COUNTY ENVIRONMENTAL LABORATORY
QUALITY ASSURANCE REVIEW

for

Marine Outfall Siting Study
Baseline Sediment Characterization Study
Nearshore Subtidal Sites

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Date: April 3, 2002

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INTRODUCTION

This quality assurance (QA) narrative is intended to document the QA review conducted on the chemistry analyses performed for the Marine Outfall Siting Study, Baseline Sediment Characterization Study, Nearshore Subtidal Sites. 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 and the Sediment Management Standards (WAC 173-204-610). 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 in December 4th, 2001 as part of the Marine Outfall Siting Study, Baseline Sediment Characterization Study, Nearshore Subtidal Sites.

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

The KC Laboratory distinguishes between the reporting detection limit (RDL) and the method detection limit (MDL).

- The RDL is defined as *the minimum concentration of a chemical constituent that can be reliably quantified.*
- 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. All analytical parameters are reported with detection limit(s). 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.

Storage Conditions and Holding Times

Storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. The approach used to evaluate Total Organic Carbon for holding time has been established between the KC Laboratory and Ecology during previous QA1 review efforts. Extraction 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.

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. Lab Control Samples (or spiked blanks) may also be analyzed by the analytical laboratory as part of overall quality control but the results are not used to qualify the sample data.

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).

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.

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.

Data Qualifiers
The data qualification system used for this data submission is presented in Table 3. These data qualifiers address situations that require qualification and generally conform to QA1 guidance. Changes made to SRM data qualification have been discussed with and approved by the Sediment Management Unit of Ecology. Table 3 also shows the qualifiers used for the Sedqual electronic data format.

Units and Significant Figures
Data have been reported in accordance with laboratory policy at the time of data generation. 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 10 subtidal sediment samples on December 4, 2001. 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 characterize the sediment quality at nearshore sites associated with King County's planned new wastewater treatment plant. The prescribed station coordinates are presented in the following table along with the actual coordinates recorded for the grab sample used for chemistry testing. Actual coordinates for the benthic sample grabs are not included in this table. All coordinates are listed below in state plane coordinate system North American Datum 1983 (NAD83).

Lab ID #	Station ID	Northing Coordinates		Easting Coordinates	
		Prescribed Station	Grab Sample	Prescribed Station	Grab Sample
L22953-1	Z5-TRSED-1	303610	303612	1260645	1260653
L22953-2	Z5-TRSED-2	302768	302768	1260087	1260087
L22953-3	Z5-TRSED-3	301926	301926	1259205	1259205
L22953-4	Z6-TRSED-1	297921	297921	1256090	1256090
L22953-5	Z6-TRSED-2	296162	296171	1255567	1255557
L22953-6	Z6-TRSED-3	294583	294583	1255383	1255383
L22953-7	Z7-TRSED-1	289812	289812	1256135	1256135
L22953-8	Z7-TRSED-2	288791	288791	1255484	1255484
L22953-9	Z7-TRSED-3	287568	287580	1255515	1255512
L22953-10	Z6-TRSED-3	294583	294583	1255383	1255383

Sediment grab samples were collected from the King County research vessel *Liberty*, which is equipped with a differential global positioning system (DGPS). Field coordinates were recorded using DGPS for each deployment of the grab as it contacted the sediment. All grab sample coordinates were within the expected 6-meter radius of the prescribed station coordinates. The prescribed station coordinates shown in this table do not necessarily match the coordinates defined in the Sampling and Analysis Plan for this sampling event. The prescribed coordinates were adjusted in the field during sample collection.

Sample Collection and Handling

Samples were collected from the top 10 cm for chemistry testing using a stainless steel, modified, 0.1 m^2 Van Veen grab sampler deployed from the *Liberty* via hydrowire. Water depth at the 10 stations ranged between 9 and 31 meters (not corrected for tide). Except for Station Z6-TRSED-2, between 10-17 cm of sediment was recovered in each grab, allowing collection of a sample aliquot from the top 10 cm as necessary. For Station Z6-TRSED-2 the grab recovered only 9.5 cm of depth therefore slightly less than 9 cm of depth was collected for analysis. When necessary, less than the top 10 cm of sediment from other stations was taken in an attempt to exclude the sediment that had touched the sides or bottom of the grab sampler. For benthic taxonomy samples, the entire contents of one grab sample deployment were processed, including the sediment in touch with the sides of the sampler.

Chemistry samples were comprised of sediment collected from an individual grab at each station. The 10 cm portion of each grab was collected using a stainless steel spoon and was thoroughly homogenized and sample aliquots split out into pre-labeled containers. Sample containers were supplied by the King County Environmental Laboratory and were pre-cleaned according to analytical specifications.

Individual sets of sample homogenizing equipment were dedicated to each station, precluding the need for decontamination of the field gear. The Van Veen grab sampler was decontaminated between stations by scrubbing with a brush and ambient seawater followed by a thorough *in situ* rinsing.

Samples were stored in ice-filled coolers from the time of collection until delivery to the King County Environmental Laboratory. Samples were delivered under chain-of-custody and were maintained in secure areas of each lab throughout the analytical process. Samples were stored frozen (-18°C) by the laboratory until analysis with the exception of samples for particle size distribution (PSD), NWTPH-Dx and Total Sulfides analysis. Sample containers for PSD, NWTPH-Dx and Total Sulfides were stored refrigerated at approximately 4°C. A more complete description of sample handling and storage can be found in each analytical chemistry section of this narrative.

Copies of chain-of-custody forms are included as an appendix to this QA review narrative.

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
Analysis for Particle Size Distribution (PSD) was subcontracted to Am Test Inc. of Redmond, WA and Total Sulfide was subcontracted to ARI Inc. of Seattle, WA. All other testing was performed at the King County Environmental Laboratory.

Methods
Ammonia analysis was performed in accordance with Standard Method (SM)4500-NH3-G following a KCl extraction (Plumb, 1981). 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 and total volatile solids analyses were performed in accordance with SM2540-G. Total sulfide analysis was performed in accordance with EPA 376.2 and SM4500-S2-D.

Detection Limits, Units and Significant Figures
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.

Storage Conditions and Holding Times
Sample storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. 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	Date Extracted*	Date Analyzed	Sample Holding Time	Extract Holding Time
Ammonia	L22953-1 to -10	04-Dec-2001	11-Dec-2001	12-Dec-2001	6 Months at -20°C	14 days at -20°C
Particle Size Distribution	L22953-1 to -10	04-Dec-2001	NA	13-Dec-2001	6 Months at 4°C	NA
Total Organic Carbon	L22953-1	04-Dec-2001	14-Jan-2002	17-Jan-2002	6 Months at -20°C	6 Months at -20°C
	L22953-2 to 7	04-Dec-2001	14-Jan-2002	18-Jan-2002		
	L22953-8 to 10	04-Dec-2001	14-Jan-2002	30-Jan-2002		
Total Solids and Total Volatile Solids	L22953-1 to -10	04-Dec-2001	NA	13-Dec-2001	6 months at -20°C	NA
Total Sulfide	L22953-1 to -10	04-Dec-2001	07-Dec-2001	07-Dec-2001	7 days at 4°C	7 days at 4°C

* Sample preparation start date for TOC.

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

Method Blanks
Method blanks were analyzed in connection with ammonia nitrogen/solids/total sulfides/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 TOC analysis was within the 80 to 120% QC limits. No other SRMs are available for the other parameters.

Matrix Spikes
The matrix spike recovery for ammonia nitrogen was within the 75 to 125% QC limits. The matrix spike recovery for total sulfide was within the 65 to 135% QC limits.

Laboratory Replicate Samples
Laboratory triplicate samples were analyzed for all conventional parameters. The percent relative standard deviations (%RSD) for all triplicate analyses were less than or equal to the 20% QC limit, except for the PSD category of Silt. The %RSD of the Silt category for the Lab Triplicate was greater than the 20% control limit for PSD. This category represents 10% or less of the total particle distribution of the QC sample. Higher variability is expected for any category whenever it represents 10% or less of the total, therefore no corrective actions were taken except that Silt results for all samples are qualified with an "E" flag.

METALS CHEMISTRY

Completeness
Metal chemistry data are reported for samples L22953–1-10. These samples were analyzed for mercury and other elements in association with the complete set of QC samples outlined in Table 2.

Methods
Mercury analysis was performed in accordance with EPA Method 7471. Analysis for other elements was performed in accordance with EPA method 3050/6010.

Target List
The reported target list includes all priority pollutant metals (antimony, arsenic, beryllium, cadmium, chromium, copper, nickel, lead, selenium, silver, thallium and zinc) and other elements including aluminum, iron, manganese, and tin. Additional metals have been reported as available.

Detection Limits, Units and Significant Figures
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.

Storage Conditions and Holding Times
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	L22953-1-10	12/04/01	12/28/01	01/04/02	2 Years at -18°C	6 months
Total Mercury	L22953-1-10	12/04/01	12/28/01	12/31/02	28 days at -18°C	NA

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

Method Blanks
All metals method blanks results were less than the MDL.

Standard Reference Materials
The SRM analyzed in association with samples included in this data submission is NRCC PACS-1. This SRM is not certified for silver, aluminum, beryllium, iron or thallium. An SRM recovery less than the QC limit of 80% has not been used to qualify data other than Mercury because the digestion technique used for sample analysis is different from the technique used during analysis to determine the SRM values. Only SRM recoveries greater than 120% (and outside 80% to 120% for Mercury) will be used to qualify data.

All metals SRM recoveries were less than the QC upper limit of 120% and Mercury was also above the 80% limit therefore not metals data is to be qualified based on SRM response.

Matrix Spikes
All matrix spike recoveries were within the 75 to 125% QC limits except Antimony and Aluminum. The reported matrix spike recovery of 74% 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. The reported matrix spike recovery of 280% for aluminum is greater than the 125% QC limit. Matrix effects on

aluminum results cannot be evaluated due to a background aluminum concentration in the sample greater than four times the spike concentration. Aluminum results for all samples in this data submission have been qualified with an *L* 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%.

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.

Subcontracted Analyses

Analysis for Chlorophenoxy Herbicides was subcontracted to Severn-Trent. of Tacoma, WA.

Methods

BNA analysis was performed in accordance with EPA method 8270C. PCB and chlorinated pesticides analysis was performed in accordance with EPA methods 8082 and 8081A. NWTPH-Dx analyses were conducted using Washington Ecology "Analytical Methods for Petroleum Hydrocarbons"(1997). Herbicides (chlorinated) analysis was performed in accordance with EPA method 8151 modified with GC/MS detection. OP Pesticides were analyzed in accordance with EPA method 8270C modified for GC/MS SIM detection. Oil and grease was analyzed in accordance with SM5520-B.

Tributyltin analysis was performed in accordance with KC Laboratory methodology which follows guidance specified in several papers (Unger, et.al., 1986; Krone, et. al., NOAA, 1989; and the Washington State Department of Ecology Manchester Laboratory Standard Operating Procedure). Tributyltin analytical results were quantified using GC/MS in the SIM mode.

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.

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

Detection Limits, Units and Significant Figures

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.

Storage Conditions and Holding Times

Sample storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. The dates and holding time criteria for the actual storage conditions used for conventional analyses are listed in the following table.

Parameter	Lab ID#	Date	Date	Date	Sample Holding	Extract Holding

		Collected	Extracted	Analyzed	Time	Time
BNAs	L22953-1-10	12/04/01	12/27/01	1/7/02	1 year at -18°C	40 days at 4°C
ChloroPest/PCBs	L22953-1-10	12/04/01	12/27/01	1/9-14/02	1 year at -18°C	40 days at 4°C
Total Oil and Grease	L22953-1-10	12/04/01	12/18/01	12/18/01	6 months at -18°C	Same as sample
NWTPH-Dx	L22953-1-10	12/04/01	12/10/01	12/19-20/01	14 Days at 4°C	40 days at 4°C
Herbicides	L22953-1-10	12/04/01	1/28/02	2/2/02	1 year at -18°C	40 days at 4°C
Organo-Phos. Pesticides	L22953-1-10	12/04/01	1/29/02	1/31/02	1 year at -18°C	40 days at 4°C
TBT	L22953-1-10	12/04/01	2/11/02	2/21/02	1 year at -18°C	40 days at 4°C

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

Method Blanks

1. BNAs

The method blank analyzed with BNAs for all samples had a result above the MDL for Di-n-Butyl Phthalate, Benzo(a)pyrene and Benzo(b)fluoranthene. Sample results for these parameters for all samples have been qualified with the B flag. All Di-n-Butyl Phthalate, Benzo(a)pyrene and Benzo(b)fluoranthene results for these samples may be biased by the background contamination and should be treated as estimated values.

2. Tributyltin

The method blank analyzed for all samples showed responses for Di-n-butyltin, Mono-n-butyltin and Tri-n-butyltin above the MDL. All sample results for Di-n-butyltin, Mono-n-butyltin and Tri-n-butyltin for all samples have been qualified with the B flag and most are expected to be highly biased by this blank contamination and must be treated as estimated values.

All other method blank results (PCB/Chlorinated Pesticides, OP Pesticides, NWTPH-Dx, Total Oil and Grease and Herbicides) were less than the MDL.

Surrogate Recoveries

1. BNAs

Individual sample data associated with either the acid or base/neutral parameters are qualified when the average surrogate recovery for either or both the acid and base/neutral fractions are outside the 50 to 150% QC limits. The following table summarizes the average surrogate recoveries that are **outside** the QC limits and the appropriate flag.

Lab ID#	Average Acid Surrogate Recovery	Flag Applied to Acid Compounds	Average B/N Surrogate Recovery	Flag Applied to B/N Compounds
L22953-4	41	G	42	G
L22953-9	49	G	52	

2. PCBs and Chlorinated Pesticides

Chlorinated Pesticides and PCBs are analyzed using separate GC methods. For both methods, sample data are qualified when both surrogate recoveries are outside QC limits. For each set of analyses, at least one surrogate recovery was within the 50 to 150% QC limits for all samples in this data submission.

4. NWTPH-Dx
NWTPH-Dx sample data are qualified when both surrogate recoveries are outside QC acceptance limits. For the NWTPH-Dx at least one surrogate was within the 50 to 150% QC limits.

5. OP Pesticides
OP Pesticide sample data are qualified when the individual surrogate recovery is outside the QC limits. Surrogate recoveries were within the 50 to 150% QC limits for all samples in this data submission.

6. Tributyltin sample data are qualified when both surrogate recoveries are outside QC limits. At least one surrogate recovery was within the 50 to 150% QC limits for all samples in this data submission.

7. Total Oil and Grease
No surrogates are used with this method.

8. Herbicides
Herbicide sample data are qualified when the individual surrogate recovery is outside the QC limits. Surrogate recoveries were within the 50 to 150% QC limits for all samples in this data submission

Standard Reference Materials

1. BNAs
The sediment SRM analyzed in association with the reported BNA results is 1944, certified by the National Institute of Standards and Technology (NIST). SRM 1944 contains a partial list of compounds for BNA analysis. Results for this partial list of compounds for all samples have been qualified based on the SRM recoveries outside the 80 to 120% QC limits. All recoveries and flags are summarized in the following table.

Compound	% Recovery	Flag
Naphthalene	19	G
Phenanthrene	86	
Anthracene	66	G
Fluoranthene	110	
Pyrene	81	
Benzo(a)anthracene	109	
Chrysene	116	
Benzo(b)fluoranthene	97	
Benzo(k)fluoranthene	93	
Benzo(a)pyrene	91	
Indeno(1,2,3-c,d)pyrene	81	
Dibenzo(a,h)anthracene	94	
Benzo(g,h,i)perylene	83	

2. PCBs 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. The recovery of the certified parameters must be within 80 to 120% or the appropriate data are flagged. The SRM results for both SRMs are summarized below:

Compound	% Recovery	Flag
DDT	78	G
Chlordane	82	
Aroclor 1254	109	

3. Tributyltin

The sediment SRM analyzed in association with the reported Tributyltin results is PACS2, certified by the National Research Council of Canada. PACS2 contains certified levels of 2 parameters (Di-n-butyltin and Tri-n-butyltin). The recovery of the certified parameters must be within 80 to 120% or the appropriate data are flagged. The SRM results are summarized below:

Compound	**% Recovery**	**Flag**
Mono-n-butyltin	103	
Di-n-butyltin	62	G
Tri-n-butyltin	46	G

A sediment SRM is not available for OP Pesticides, NWTPH-Dx, Total Oil and Grease or Herbicides.

Matrix Spikes

1. BNAs

By QA1 guidelines, the matrix spike recoveries for each BNA compound must be within the 50 to 150% QC limits. If not, all results for those particular compounds within the batch of samples must be flagged as follows. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. The following table summarizes the matrix spike recoveries for specific compounds that are **outside** the QC limits and the appropriate flag.

Compound	% Recovery	Flag
Fluoranthene	153	L
Aniline	0	X
Benzyl Alcohol	15	G
Benzoic Acid	49	G

2. PCBs and Chlorinated Pesticides

By QA1 guidelines, the matrix spike recoveries for Pesticide and PCB compounds must be within the 50 to 150% QC limits. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. Aroclor 1260 and 1016 only are used as the spiking compounds for PCB analysis. The following table summarizes the matrix spike recoveries for specific compounds that are **outside** the QC limits and the appropriate flag applied to all associated samples.

Compound	% Recovery	Flag

Endrin Aldehyde	36	G

4. NWTPH-Dx
Matrix spikes are not performed for the NWTPH methods.

5. OP Pesticides
The matrix spike recoveries for all OP Pesticide target compounds must be within the 50 to 150% QC limits. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. The following table summarizes the matrix spike recoveries for specific compounds that are **outside** the QC limits and the appropriate flag applied to all associated samples.

Compound	**% Recovery**	**Flag**
Parathion - Methyl	162	L
Parathion - Ethyl	166	L

6. TBT
The tributyltin matrix spike recoveries for both batches were within the 50 to 150% QC limits, therefore no flags have been added relative to matrix spike failures.

7. Total Oil and Grease
Matrix spikes are not done for this method.

8. Herbicides
By QA1 guidelines, the matrix spike recoveries for Herbicide compounds must be within the 50 to 150% QC limits. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. The following table summarizes the matrix spike recoveries for specific compounds that are **outside** the QC limits and the appropriate flag applied to all associated samples.

Compound	**% Recovery**	**Flag**
Dalapon	40	G

Laboratory Replicate Samples
Lab Replicate (duplicate) samples for Organics have a target acceptance limit 100% for the Relative Percent Difference (RPD). All duplicate analyses showed acceptable RPD values except for the following:

1. BNAs
The RPD for Phenol for the duplicate analysis of Sample L22953-1 was 200%. All results for this parameter have been flagged with an “E” for all samples.

Calibration / Quantification Qualifiers
The BNA analysis for Sample L22953-7 showed a response for response for Fluoranthene that was 20% above the highest point of the calibration curve. The sample extract was not diluted and re-analyzed therefore the result for Fluoranthene for this particular sample has been flagged with >MR and E. These flags indicate the response is above the measurement range and therefore the quantitative response should be considered an estimate.

TABLE 1
SEDIMENT SAMPLE INVENTORY

Sample	Locator / Description	Sulfides	PSD	Nutrients[1]	TPH[2]	Solids	TOC	Metals[3]	BNAs	Pest/ PCBs	TBT	Herb	OP Pest	Comments
L22953-1	Z5-TRSED-1 / Zone 5 Trench sediments - North	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-2	Z5-TRSED-2 / Zone 5 Trench sediments - Middle	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-3	Z5-TRSED-3 / Zone 5 Trench sediments - South	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-4	Z6-TRSED-1 / Zone 6 Trench sediments - North	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-5	Z6-TRSED-2 / Zone 6 Trench sediments - Middle	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-6	Z6-TRSED-3 / Zone 6 Trench sediments - South	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-7	Z7-TRSED-1 / Zone 7 Trench sediments - North	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-8	Z7-TRSED-2 / Zone 7 Trench sediments - Middle	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-9	Z7-TRSED-3 / Zone 7 Trench sediments - South	x	x	x	x	x	x	x	x	x	x	x	x	
L22953-10	Z6-TRSED-3 / Zone 6 Trench sediments - South	x	x	x	x	x	x	x	x	x	x	x	x	Field Duplicate

1 Nutrients = Ammonia
2 TPH = NWTPH-Dx and Total Oil and Grease
3 Metals = Hg, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn, Al, Fe, Sn

TABLE 2
QC SAMPLE FREQUENCY FOR SEDIMENT CHEMICAL AND PHYSICAL PARAMETERS

Parameter	Method Blank	Duplicate	Triplicate	Matrix Spike	SRM	Surrogates
Ammonia Nitrogen	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	5% minimum, 1 per QC batch	As Available	No
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	No	1 per QC batch	No
Sulfides	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	5% minimum, 1 per QC batch	No	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
Herbicides	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	No	Yes
OP Pesticides	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	No	Yes
Tributyltin	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	No	Yes
TPH	1 per QC batch	10% minimum, 1 per QC batch	No	No	No	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	< 50%	< 75%	< 75% *	
high matrix spike recovery	L	L	> 150%	>125%	>125% *	
low standard reference material recovery	G	G	< 80%	NA	< 80%	
high standard reference material recovery	L	L	>120%	>120%	>120%	
high duplicate relative percent difference	E	E	>100 %	>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**	**	NA	NA	NA	
less than the method detection limit	<MDL	U	NA	NA	NA	
contamination reported in blank	B	B	>MDL	>MDL	>MDL	
biased data based on very low surrogate recoveries	X	X	all surrogates <10%	NA	NA	average surrogate recovery for BNAs
biased data based on low surrogate recoveries	G	G	all surrogates <50%	NA	NA	average surrogate recovery for BNAs
biased data based on high surrogate recoveries	L	L	all surrogates >150%	NA	NA	average surrogate recovery 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, <RDL is not flagged since the RDL value is not entered into the Sedqual templates.

CONVENTIONAL ANALYSES QC DATA

METAL CHEMISTRY QC DATA

ORGANIC CHEMISTRY QC DATA

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/28/02 01:59
Run ID: R73744 Workgroup: WG59348 (NH3-KCL Extraction)

MB:WG59348-1 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.1	.2	mg/Kg	<MDL	

MB:WG59348-2 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.1	.2	mg/Kg	<MDL	

MB:WG59348-3 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.1	.2	mg/Kg	<MDL	

LCS:WG59348-4 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LCS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg		1.25	1.42	113		80-120			

SB:WG59348-5 MB:WG59348-1 Matrix: OTHR SOLID Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg	<MDL	5	5.31	106		80-120								

LD:WG59348-6 LT:WG59348-7 L22953-6 Matrix: SALTWTRSED Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg	2.09		2.08					2.15				2		20

MS:WG59348-8 L22953-6 Matrix: SALTWTRSED Listtype: CVNH3-KCL Method: SM4500-NH3-G(03-03-014-000)KCL Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.1	.2	mg/Kg	2.09	5	7.42	107		75-125			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/31/02 10:50
Run ID: R76233 Workgroup: WG59841 (N. Outfall TOC)

MB:WG59841-1 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Organic Carbon	500	1000	mg/Kg	<MDL	

SRM:WG59841-2 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	2500	5000	mg/Kg		33480	35100	105		80-120			

LD:WG59841-3 LT:WG59841-4 L22953-1 Matrix: SALTWTRSED Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	400	800	mg/Kg	1530		1450					1580				4		20

MB:WG59841-5 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Organic Carbon	500	1000	mg/Kg	<MDL	

SRM:WG59841-6 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	2500	5000	mg/Kg		33480	31800	95		80-120			

MB:WG59841-7 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Organic Carbon	500	1000	mg/Kg	<MDL	

SRM:WG59841-8 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	2500	5000	mg/Kg		33480	34000	101		80-120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/28/02 02:00
Run ID: R73745 Workgroup: WG59335 (TOTS/TVS, NORTH OUTFALL, 423457)

MB:WG59335-1 Matrix: OTHR SOLID Listtype: CVTOTS Method: SM2540-G (03-01-007-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Solids	.005	.01	%	<MDL	

MB:WG59335-1 Matrix: OTHR SOLID Listtype: CVTVS Method: SM2540-G (03-01-007-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Volatile Solids	.005	.01	%	<MDL	

LD:WG59335-2 LT:WG59335-3 L22953-1 Matrix: SALTWTRSED Listtype: CVTOTS Method: SM2540-G (03-01-007-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Solids	.005	.01	%	75.7		74.7					77.7				2		20

LD:WG59335-2 LT:WG59335-3 L22953-1 Matrix: SALTWTRSED Listtype: CVTVS Method: SM2540-G (03-01-007-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Volatile Solids	.005	.01	%	.639		.634					.674				3		20

Lab Triplicate Results
Particle Size Distribution

phi size	Enter Sample Data as phi size										Flag
	L22953-2	dup	trip		L22953-2	dup	trip				
<-2	0.4	0	0					Average	STD DEV	%RSD	
-2	0	0.1	0.4	% gravel	0.8	0.6	0.8	0.733333	0.11547	15.74592	
-1	0.4	0.5	0.4	% sand	96.5	97.5	96.9	96.96667	0.503322	0.519067	
0	4	3.1	3.5	% silt	2.8	1.8	2.4	2.333333	0.503322	21.57096	E
1	27.9	26.3	28.4	% clay	0	0	0	0	0	-	
2	56.5	58.3	57								
3	7.6	9.1	7.5	total =	100.1	99.9	100.1				
4	0.5	0.7	0.5								
5	1.4	0.4	0.7								
6	0	0	0.3								
7	1.2	1	1								
8	0.2	0.4	0.4								
9	0	0	0								
10	0	0	0								
>10	0	0	0								
% gravel = <-2 to -1											
% sand = 0 to +4											
% silt = +5 to +8											
% clay = +9 to >10											
Note: If the RSD is > 20% for a category, the data for that category should be flagged with an E.											

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: DX02-REGL, LLC
Matrix: Sediment
Project: 423457
Date Received: NA

Data Release Authorized: MP
Reported: 12/19/01 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units	Result
Method Blank 12/09/01 12091#1	Preserved Total Solids	mg residue	< 1.00 U
Method Blank 12/07/01 12071#1	Sulfide	mg/L	< 0.05 U

ANALYTICAL RESOURCES INCORPORATED

QA Report - Laboratory Control Samples

QC Report No: DX02-REGL, LLC
Project: 423457
Date Received: NA

Data Release Authorized:
Reported: 12/19/01 Dr. M.A. Perkins

LABORATORY CONTROL SAMPLES
CONVENTIONALS

Constituent	Units	Measured Value	True Value	Recovery
Laboratory Control Sample				
Sulfide	mg/L	9.36	9.84	95.1%

Date analyzed: 12/07/01 Batch ID: 12071#1

ANALYTICAL RESOURCES INCORPORATED

QA Report - Replicate Analysis

QC Report No: DX02-REGL, LLC
Project: 423457
Date Received: 12/05/01

Matrix: Sediment

Data Release Authorized: MA
Reported: 12/19/01 Dr. M.A. Perkins

REPLICATE ANALYSIS RESULTS
CONVENTIONALS

Constituent	Units	Sample Value	Replicate Value(s)	RPD/RSD
ARI ID: 01-21265, DX02 A	**Client Sample ID: L22953-1**			
Preserved Total Solids	Percent	76.7	77.2 76.9	RSD: 0.3%
Sulfide	mg/kg	2.50	3.60 3.40	RSD: 18.5%

ANALYTICAL RESOURCES INCORPORATED

QA Report - Matrix Spike/Matrix Spike Duplicate Analysis

QC Report No: DX02-REGL, LLC
Matrix: Sediment
Project: 423457
Date Received: 12/05/01

Data Release Authorized:
Reported: 12/19/01 Dr. M.R. Perkins

MATRIX SPIKE QA/QC REPORT
CONVENTIONALS

Constituent	Units	Sample Value	Spike Value	Spike Added	Recovery
ARI ID: 01-21265; DX02 A	**Client Sample ID: L22953-1**				
Sulfide	mg/kg	2.5	160	192	82.2%

MS/MSD Recovery Limits: 75 - 125 %

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/14/02 09:42
Run ID: R75450 Workgroup: WG59492 (12/20/01 North Outfall Siting)

SB:WG59492-1 MB:WG59492-2 Matrix: BLANK WTR Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.004	.02	mg/L	<MDL	1.2	1.16	97		85-115								
Aluminum, Total, ICP	.1	.5	mg/L	<MDL	12	11.9	99		85-115								
Arsenic, Total, ICP	.05	.25	mg/L	<MDL	4	3.91	98		85-115								
Beryllium, Total, ICP	.001	.005	mg/L	<MDL	0.4	.393	98		85-115								
Cadmium, Total, ICP	.003	.015	mg/L	<MDL	1.2	1.13	95		85-115								
Chromium, Total, ICP	.005	.025	mg/L	<MDL	1.2	1.17	97		85-115								
Copper, Total, ICP	.004	.02	mg/L	<MDL	1.2	1.16	97		85-115								
Iron, Total, ICP	.05	.25	mg/L	<MDL	50	48.5	97		85-115								
Manganese, Total, ICP	.002	.01	mg/L	<MDL	5	5.03	101		85-115								
Nickel, Total, ICP	.02	.1	mg/L	<MDL	1.2	1.14	95		85-115								
Lead, Total, ICP	.03	.15	mg/L	<MDL	4	3.88	97		85-115								
Antimony, Total, ICP	.03	.15	mg/L	<MDL	4	3.97	99		85-115								
Selenium, Total, ICP	.05	.25	mg/L	<MDL	2	1.91	95		85-115								
Tin, Total, ICP	.07	.35	mg/L	<MDL	4	3.82	96		85-115								
Thallium, Total, ICP	.2	1	mg/L	<MDL	4	3.74	93		85-115								
Zinc, Total, ICP	.005	.025	mg/L	<MDL	5	4.81	96		85-115								

MB:WG59492-2 Matrix: BLANK WTR Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Silver, Total, ICP	.004	.02	mg/L	<MDL	
Aluminum, Total, ICP	.1	.5	mg/L	<MDL	
Arsenic, Total, ICP	.05	.25	mg/L	<MDL	
Beryllium, Total, ICP	.001	.005	mg/L	<MDL	
Cadmium, Total, ICP	.003	.015	mg/L	<MDL	
Chromium, Total, ICP	.005	.025	mg/L	<MDL	
Copper, Total, ICP	.004	.02	mg/L	<MDL	
Iron, Total, ICP	.05	.25	mg/L	<MDL	
Manganese, Total, ICP	.002	.01	mg/L	<MDL	
Nickel, Total, ICP	.02	.1	mg/L	<MDL	
Lead, Total, ICP	.03	.15	mg/L	<MDL	
Antimony, Total, ICP	.03	.15	mg/L	<MDL	
Selenium, Total, ICP	.05	.25	mg/L	<MDL	
Tin, Total, ICP	.07	.35	mg/L	<MDL	
Thallium, Total, ICP	.2	1	mg/L	<MDL	
Zinc, Total, ICP	.005	.025	mg/L	<MDL	

LCS
~~SRM~~:WG59492-3 Matrix: SOIL Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED
ERA Soil

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.98	4.88	mg/Kg		107	119	112		120			
Aluminum, Total, ICP	24	122	mg/Kg		4800	4170	87		120			
Arsenic, Total, ICP	12	61	mg/Kg		53.2	61	114		120			
Beryllium, Total, ICP	.24	1.22	mg/Kg		68.3	76.3	112		120			
Cadmium, Total, ICP	.73	3.66	mg/Kg		151	164	109		120			
Chromium, Total, ICP	1.2	6.1	mg/Kg		99.4	104	104		120			
Copper, Total, ICP	.98	4.88	mg/Kg		59.2	65.1	110		120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/14/02 09:42
Run ID: R75450 Workgroup: WG59492 (12/20/01 North Outfall Siting)

LCS

SRM:WG59492-3 Matrix: SOIL Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

ERA Soil

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Iron, Total, ICP	12	61	mg/Kg		9880	9000	91		120			
Manganese, Total, ICP	.49	2.44	mg/Kg		218	234	107		120			
Tin, Total, ICP	17	85.4	mg/Kg		97.5	102	104		120			
Nickel, Total, ICP	4.9	24.4	mg/Kg		63.3	66.7	105		120			
Lead, Total, ICP	7.3	36.6	mg/Kg		97.8	113	116		120			
Antimony, Total, ICP	7.3	36.6	mg/Kg		49.8	57.5	115		120			
Selenium, Total, ICP	12	61	mg/Kg		143	157	110		120			
Thallium, Total, ICP	49	244	mg/Kg		103	120	118		120			
Zinc, Total, ICP	1.2	6.1	mg/Kg		123	130	106		120			

SRM:WG59492-4 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

PACS-1

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Arsenic, Total, ICP	12	61.3	mg/Kg		211	180	85		120			
Cadmium, Total, ICP	.74	3.68	mg/Kg		2.38	2.5	107		120			
Chromium, Total, ICP	1.2	6.13	mg/Kg		113	54.1	48		120			
Copper, Total, ICP	.98	4.9	mg/Kg		452	425	94		120			
Manganese, Total, ICP	.49	2.45	mg/Kg		470	281	60		120			
Tin, Total, ICP	17	85.8	mg/Kg		41.1	38	92		120			
Nickel, Total, ICP	4.9	24.5	mg/Kg		44.1	31.1	71		120			
Lead, Total, ICP	7.4	36.8	mg/Kg		404	364	90		120			
Antimony, Total, ICP	7.4	36.8	mg/Kg		171	72.4	42		120			
Selenium, Total, ICP	12	61.3	mg/Kg		1.09	<MDL	0		120			
Zinc, Total, ICP	1.2	6.13	mg/Kg		824	765	93		120			

LD:WG59492-5 L22953-6 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.19	.97	mg/Kg	<MDL		<MDL						20
Aluminum, Total, ICP	4.8	24.2	mg/Kg	3540		3740				5		20
Arsenic, Total, ICP	2.4	12.1	mg/Kg	<MDL		<MDL						20
Beryllium, Total, ICP	.048	.242	mg/Kg	.052		.058						20
Cadmium, Total, ICP	.15	.727	mg/Kg	<MDL		<MDL						20
Chromium, Total, ICP	.24	1.21	mg/Kg	6.77		7.06				4		20
Copper, Total, ICP	.19	.97	mg/Kg	2.46		2.9				17		20
Iron, Total, ICP	2.4	12.1	mg/Kg	4510		4670				3		20
Manganese, Total, ICP	.097	.485	mg/Kg	78.9		83.6				6		20
Tin, Total, ICP	3.4	17	mg/Kg	<MDL		<MDL						20
Nickel, Total, ICP	.97	4.85	mg/Kg	6.54		6.93				6		20
Lead, Total, ICP	1.5	7.27	mg/Kg	2		2.3						20
Antimony, Total, ICP	1.5	7.27	mg/Kg	<MDL		<MDL						20
Selenium, Total, ICP	2.4	12.1	mg/Kg	<MDL		<MDL						20
Thallium, Total, ICP	9.7	48.5	mg/Kg	<MDL		<MDL						20
Zinc, Total, ICP	.24	1.21	mg/Kg	11.1		11.8				6		20

MS:WG59492-6 L22953-6 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.19	.968	mg/Kg	<MDL	1.2	55.9	96		75-125			
Aluminum, Total, ICP	4.8	24.2	mg/Kg	3540	12	5170	280	L	75-125			
Arsenic, Total, ICP	2.4	12.1	mg/Kg	<MDL	4	188	97		75-125			
Beryllium, Total, ICP	.048	.242	mg/Kg	.052	.4	19	98		75-125			
Cadmium, Total, ICP	.15	.726	mg/Kg	<MDL	1.2	54.9	95		75-125			
Chromium, Total, ICP	.24	1.21	mg/Kg	6.77	1.2	64	99		75-125			
Copper, Total, ICP	.19	.968	mg/Kg	2.46	1.2	59.1	98		75-125			
Iron, Total, ICP	2.4	12.1	mg/Kg	4510	50	6960	101		75-125			
Manganese, Total, ICP	.097	.484	mg/Kg	78.9	5	324	101		75-125			
Tin, Total, ICP	3.4	16.9	mg/Kg	<MDL	4	183	95		75-125			
Nickel, Total, ICP	.97	4.84	mg/Kg	6.54	1.2	62.1	96		75-125			
Lead, Total, ICP	1.5	7.26	mg/Kg	2	4	185	95		75-125			
Antimony, Total, ICP	1.5	7.26	mg/Kg	<MDL	4	142	74	G	75-125			
Selenium, Total, ICP	2.4	12.1	mg/Kg	<MDL	2	91.3	94		75-125			
Thallium, Total, ICP	9.7	48.4	mg/Kg	<MDL	4	179	92		75-125			
Zinc, Total, ICP	.24	1.21	mg/Kg	11.1	5	244	96		75-125			

SDIL:WG59492-7 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SDIL Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/14/02 09:41
Run ID: R74953 Workgroup: WG59610 (12/31/01 North Outfall Siting Study)

MB:WG59610-1 Matrix: BLANK WTR Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Mercury, Total, CVAA	.0002	.002	mg/L	<MDL	

SB:WG59610-2 MB:WG59610-1 Matrix: BLANK WTR Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.0002	.002	mg/L	<MDL	0.005	.00518	104		85-115								

SRM:WG59610-3 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: PKey: SED

PACS-1

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.098	.976	mg/Kg		4.57	3.98	87		~~120~~ 80-120			

LD:WG59610-4 L22953-5 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.02	.199	mg/Kg	<MDL		<MDL						20

MS:WG59610-5 L22953-5 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.019	.195	mg/Kg	<MDL	.005	.478	98		75-125			

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Dec 14 2001, 02:22 pm

Work Group: WG59223 (DS#107 N Outfall Study) for Department: 7 - Organics, Trace

Created: 10-DEC-01 Due: Operator: JSF

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22953-1	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-10	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-2	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-3	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-4	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-5	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-6	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-7	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-8	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-9	423457	North Outfall Siting Study	SED	S	WTPH-DX	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
WG59223-1	MB			S	WTPH-DX	OTHR SOLID	PREP	U	10-DEC-01	
WG59223-2	SB			S	WTPH-DX	OTHR SOLID	PREP	U	10-DEC-01	
WG59223-3	SB			S	WTPH-DX	OTHR SOLID	PREP	U	10-DEC-01	
WG59223-4	LD		SED	S	WTPH-DX	SALTWTRSED	PREP	U	10-DEC-01	

Comments:

L22953-1	1 grab CHEM
L22953-10	1 grab CHEM [FREP]
L22953-2	1 grab CHEM
L22953-3	1 grab CHEM
L22953-4	1 grab CHEM
L22953-5	1 grab CHEM
L22953-6	1 grab CHEM
L22953-7	1 grab CHEM
L22953-8	1 grab CHEM
L22953-9	1 grab CHEM
WG59223-1	MB20011210
WG59223-2	WG59223-1 MO
WG59223-3	WG59223-1 DSL
WG59223-4	L22953-1

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/21/01 01:29
Run ID: R74378 Workgroup: WG59223 (DS#107 N Outfall Study)

MB:WG59223-1 Matrix: OTHR SOLID Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Diesel Range (>C12-C24)	25	25	mg/Kg	<MDL	
Lube Oil Range (>C24)	25	25	mg/Kg	<MDL	

SB:WG59223-2 MB:WG59223-1 Matrix: OTHR SOLID Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Lube Oil Range (>C24)	25	25	mg/Kg	<MDL	150	127	84		50-150								

SB:WG59223-3 MB:WG59223-1 Matrix: OTHR SOLID Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Diesel Range (>C12-C24)	25	25	mg/Kg	<MDL	150	153	102		50-150								

LD:WG59223-4 L22953-1 Matrix: SALTWTRSED Listtype: ORWTPH-DX Method: WDOE NWTPH-DX (7-3-06-001) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Diesel Range (>C12-C24)	25	25	mg/Kg	<MDL		<MDL						100
Lube Oil Range (>C24)	25	25	mg/Kg	<MDL		<MDL						100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/21/01 01:30
Run ID: R74378 Workgroup: WG59223 (DS#107 N Outfall Study)

Sample #	2-Fluorobiphenyl	Pentacosane
	50-150	50-150
L22953-1	88	93
L22953-10	85	92
L22953-2	88	93
L22953-3	88	92
L22953-4	102	103
L22953-5	106	108
L22953-6	89	93
L22953-7	108	114
L22953-8	87	93
L22953-9	111	109
WG59223-1	89	90
WG59223-2	90	84
WG59223-3	95	94
WG59223-4	92	95

A/m
12/18/01
pms

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Dec 18 2001, 08:47 am

Work Group: WG59411 (OILT) for Department: 7 - Organics, Trace

Created: 18-DEC-01 Due: Operator: MCD

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22953-1	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-10	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-2	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-3	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-4	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-5	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-6	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-7	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-8	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
L22953-9	423457	North Outfall Siting Study	SED	S	OILT	SALTWTRSED	WKGP	U	01-JAN-02	02-FEB-02
WG59411-1	MB			S	OILT	OTHR SOLID	WKGP	U	18-DEC-01	
WG59411-2	SB			S	OILT	OTHR SOLID	WKGP	U	18-DEC-01	
WG59411-3	LD		SED	S	OILT	SALTWTRSED	WKGP	U	18-DEC-01	
WG59411-4	LT		SED	S	OILT	SALTWTRSED	WKGP	U	18-DEC-01	

Comments:

L22953-1	1 grab CHEM
L22953-10	1 grab CHEM [FREP]
L22953-2	1 grab CHEM
L22953-3	1 grab CHEM
L22953-4	1 grab CHEM
L22953-5	1 grab CHEM
L22953-6	1 grab CHEM
L22953-7	1 grab CHEM
L22953-8	1 grab CHEM
L22953-9	1 grab CHEM
WG59411-1	EXTRACTION BLANK
WG59411-2	WG59411-1
WG59411-3	L22953-1
WG59411-4	WG59411-3 L22953-1

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 12/18/01 09:24
Run ID: R74049 Workgroup: WG59411 (OILT)

MB:WG59411-1 Matrix: OTHR SOLID Listtype: OROILT Method: SM5520-B,D,F (07-03-014-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Oil And Grease, Total	100	250	mg/Kg	<MDL	

SB:WG59411-2 MB:WG59411-1 Matrix: OTHR SOLID Listtype: OROILT Method: SM5520-B,D,F (07-03-014-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Oil And Grease, Total	100	250	mg/Kg	<MDL	1996.31	2320	116		80-120								

LD:WG59411-3 LT:WG59411-4 L22953-1 Matrix: SALTWTRSED Listtype: OROILT Method: SM5520-B,D,F (07-03-014-000) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Oil And Grease, Total	100	250	mg/Kg	268		293					284				5		20

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Dec 28 2001, 11:19 am

Work Group: WG59585 (BS#119 BNALL) for Department: 7 - Organics, Trace

Created: 27-DEC-01 Due: Operator: lm/gw/mm

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22953-1	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-10	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-2	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-3	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-4	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-5	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-6	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-7	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-8	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-9	423457	North Outfall Siting Study	SED	S	BNALL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
WG59585-1	MB			S	BNALL	OTHR SOLID	PREP	U	27-DEC-01	
WG59585-2	SB			S	BNALL	OTHR SOLID	PREP	U	27-DEC-01	
WG59585-3	MS		SED	S	BNALL	SALTWTRSED	PREP	U	27-DEC-01	
WG59585-4	MSD		SED	S	BNALL	SALTWTRSED	PREP	U	27-DEC-01	
WG59585-5	LD		SED	S	BNALL	SALTWTRSED	PREP	U	27-DEC-01	
WG59585-6	SRM			S	BNALL	OTHR SOLID	PREP	U	27-DEC-01	

Comments:

L22953-1	1 grab CHEM
L22953-10	1 grab CHEM [FREP]
L22953-2	1 grab CHEM
L22953-3	1 grab CHEM
L22953-4	1 grab CHEM
L22953-5	1 grab CHEM
L22953-6	1 grab CHEM
L22953-7	1 grab CHEM
L22953-8	1 grab CHEM
L22953-9	1 grab CHEM
WG59585-1	MB122701
WG59585-2	WG59585-1
WG59585-3	L22953-1
WG59585-4	WG59585-3 L22953-1
WG59585-5	L22953-1
WG59585-6	SRM 1944

SURR = 50A/25BN x .100mL = 5A/2.5BN x (5/8)/.5mL = 6.25A/3.125BN

TARGET = 50A/25BN/.5mL = 100/50

Sam+spike = 50A + 20 = 70A/45BN
25BN+20 =

x .100mL x (5/8)/.5mL = 8.75A/5.625BN

TARGET = 70A/45BN/.5mL = 140A/90BN

Spike = 20 x .100mL = 2 x (5/8)/.5mL = 2.5

TARGET = 20/.5mL = 40ABN

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/20/02 06:42
Run ID: R77310 Workgroup: WG59585 (BS#119 BNALL)

A/M
3/6/02
MO

MB:WG59585-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	
Phenol	9	18	ug/Kg	<MDL	
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	
2-Chlorophenol	8	16	ug/Kg	<MDL	
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	
Hexachloroethane	15	30	ug/Kg	<MDL	
Nitrobenzene	16	32	ug/Kg	<MDL	
Isophorone	19	38	ug/Kg	<MDL	
2-Nitrophenol	15	30	ug/Kg	<MDL	
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	
Naphthalene	14	28	ug/Kg	<MDL	
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	
2-Chloronaphthalene	16	32	ug/Kg	<MDL	
Acenaphthylene	15	30	ug/Kg	<MDL	
Dimethyl Phthalate	11	22	ug/Kg	<MDL	
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	
Acenaphthene	7	14	ug/Kg	<MDL	
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	
Fluorene	13	26	ug/Kg	<MDL	
Diethyl Phthalate	6	12	ug/Kg	<MDL	
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	
Pentachlorophenol	5	10	ug/Kg	<MDL	
Phenanthrene	4	8	ug/Kg	<MDL	
Anthracene	4	8	ug/Kg	<MDL	
Di-N-Butyl Phthalate	5	10	ug/Kg	5.7	B
Fluoranthene	8	16	ug/Kg	<MDL	
Pyrene	4	8	ug/Kg	<MDL	
Benzyl Butyl Phthalate	6	12	ug/Kg	<MDL	
Benzo(a)anthracene	2	4	ug/Kg	<MDL	
Chrysene	4	8	ug/Kg	<MDL	
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	<MDL	
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	
Benzo(b)fluoranthene	3	6	ug/Kg	4.3	B
Benzo(k)fluoranthene	3	6	ug/Kg	<MDL	
Benzo(a)pyrene	3	6	ug/Kg	3.7	B
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	<MDL	
Dibenzo(a,h)anthracene	7	14	ug/Kg	<MDL	
Benzo(g,h,i)perylene	8	16	ug/Kg	<MDL	
Aniline	19	38	ug/Kg	<MDL	

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/20/02 06:42
Run ID: R77310 Workgroup: WG59585 (BS#119 BNALL)

MB:WG59585-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Benzyl Alcohol	6	12	ug/Kg	<MDL	
2-Methylphenol	19	38	ug/Kg	<MDL	
4-Methylphenol	16	32	ug/Kg	<MDL	
Benzoic Acid	6	12	ug/Kg	<MDL	
2-Methylnaphthalene	14	28	ug/Kg	<MDL	
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	
Dibenzofuran	14	28	ug/Kg	<MDL	
Carbazole	7	14	ug/Kg	<MDL	
Coprostanol	14	28	ug/Kg	<MDL	
Caffeine	6	12	ug/Kg	<MDL	

SB:WG59585-2 MB:WG59585-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	66.6667	35	53		50-150								100
Phenol	9	18	ug/Kg	<MDL	66.6667	30.2	45	*	50-150								100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	66.6667	27	40	*	50-150								100
2-Chlorophenol	8	16	ug/Kg	<MDL	66.6667	29.9	45	*	50-150								100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	32.2	48	*	50-150								100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	66.6667	30.9	46	*	50-150								100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	30.2	45	*	50-150								100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	66.6667	25	38	*	50-150								100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	66.6667	25.4	38	*	50-150								100
Hexachloroethane	15	30	ug/Kg	<MDL	66.6667	35.4	53		50-150								100
Nitrobenzene	16	32	ug/Kg	<MDL	66.6667	31	47	*	50-150								100
Isophorone	19	38	ug/Kg	<MDL	66.6667	29	43	*	50-150								100
2-Nitrophenol	15	30	ug/Kg	<MDL	66.6667	27	40	*	50-150								100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	66.6667	8.1	12	*	50-150								100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	66.6667	28	42	*	50-150								100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	66.6667	32.3	48	*	50-150								100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	31.4	47	*	50-150								100
Naphthalene	14	28	ug/Kg	<MDL	66.6667	29.3	44	*	50-150								100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	66.6667	31.9	48	*	50-150								100
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	66.6667	31.8	48	*	50-150								100
2-Chloronaphthalene	16	32	ug/Kg	<MDL	66.6667	32	47	*	50-150								100
Acenaphthylene	15	30	ug/Kg	<MDL	66.6667	30.5	46	*	50-150								100
Dimethyl Phthalate	11	22	ug/Kg	<MDL	66.6667	34.8	52		50-150								100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	66.6667	37.4	56		50-150								100
Acenaphthene	7	14	ug/Kg	<MDL	66.6667	31.2	47	*	50-150								100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	66.6667	47	70		50-150								100
Fluorene	13	26	ug/Kg	<MDL	66.6667	40.3	60		50-150								100
Diethyl Phthalate	6	12	ug/Kg	<MDL	66.6667	44.3	67		50-150								100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	66.6667	39.8	60		50-150								100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	66.6667	34	51		50-150								100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	66.6667	27.8	42	*	50-150								100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	66.6667	43	65		50-150								100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	66.6667	40.1	60		50-150								100
Pentachlorophenol	5	10	ug/Kg	<MDL	66.6667	56	84		50-150								100
Phenanthrene	4	8	ug/Kg	<MDL	66.6667	45.7	69		50-150								100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/20/02 06:42
Run ID: R77310 Workgroup: WG59585 (BS#119 BNALL)

SB:WG59585-2 MB:WG59585-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Anthracene	4	8	ug/Kg	<MDL	66.6667	43.1	65		50-150								100
Di-N-Butyl Phthalate	5	10	ug/Kg	5.7	66.6667	59.2	80		50-150								100
Fluoranthene	8	16	ug/Kg	<MDL	66.6667	67.1	101		50-150								100
Pyrene	4	8	ug/Kg	<MDL	66.6667	40.9	61		50-150								100
Benzyl Butyl Phthalate	6	12	ug/Kg	<MDL	66.6667	46.7	70		50-150								100
Benzo(a)anthracene	2	4	ug/Kg	<MDL	66.6667	65.2	98		50-150								100
Chrysene	4	8	ug/Kg	<MDL	66.6667	55.7	83		50-150								100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	<MDL	66.6667	45.8	69		50-150								100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	66.6667	37.1	56		50-150								100
Benzo(b)fluoranthene	3	6	ug/Kg	4.3	66.6667	47	64		50-150								100
Benzo(k)fluoranthene	3	6	ug/Kg	<MDL	66.6667	48.5	73		50-150								100
Benzo(a)pyrene	3	6	ug/Kg	3.7	66.6667	46.3	64		50-150								100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	<MDL	66.6667	44.3	66		50-150								100
Dibenzo(a,h)anthracene	7	14	ug/Kg	<MDL	66.6667	49.6	74		50-150								100
Benzo(g,h,i)perylene	8	16	ug/Kg	<MDL	66.6667	57.1	86		50-150								100
Aniline	19	38	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Benzyl Alcohol	6	12	ug/Kg	<MDL	66.6667	21.2	32	*	50-150								100
2-Methylphenol	19	38	ug/Kg	<MDL	66.6667	27	40	*	50-150								100
4-Methylphenol	16	32	ug/Kg	<MDL	66.6667	27	40	*	50-150								100
Benzoic Acid	6	12	ug/Kg	<MDL	66.6667	30.8	46	*	50-150								100
2-Methylnaphthalene	14	28	ug/Kg	<MDL	66.6667	31.7	48	*	50-150								100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	66.6667	38.4	58		50-150								100
Dibenzofuran	14	28	ug/Kg	<MDL	66.6667	35.8	54		50-150								100
Carbazole	7	14	ug/Kg	<MDL	66.6667	77.8	117		50-150								100
Coprostanol	14	28	ug/Kg	<MDL	666.6667	376	56		50-150								100
Caffeine	6	12	ug/Kg	<MDL	66.6667	64.3	96		50-150								100

MS:WG59585-3 MSD:WG59585-4 L22953-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	66.6667	49.3	74		50-150	66.6667	42.7	64		50-150	14		100
Phenol	9	18	ug/Kg	23.8	66.6667	61.3	56		50-150	66.6667	48.5	37	*	50-150	41		100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	66.6667	37.6	56		50-150	66.6667	30.8	46	*	50-150	20		100
2-Chlorophenol	8	16	ug/Kg	<MDL	66.6667	45.8	69		50-150	66.6667	37	56		50-150	21		100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	44.1	66		50-150	66.6667	38.4	58		50-150	13		100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	66.6667	43.7	66		50-150	66.6667	37.8	57		50-150	15		100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	44.2	66		50-150	66.6667	37.6	56		50-150	16		100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	66.6667	35	52		50-150	66.6667	35.6	53		50-150	2		100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	66.6667	40.9	61		50-150	66.6667	33.7	51		50-150	18		100
Hexachloroethane	15	30	ug/Kg	<MDL	66.6667	33.8	51		50-150	66.6667	28	42	*	50-150	19		100
Nitrobenzene	16	32	ug/Kg	<MDL	66.6667	46	69		50-150	66.6667	39	59		50-150	16		100
Isophorone	19	38	ug/Kg	<MDL	66.6667	46.2	69		50-150	66.6667	38.3	58		50-150	17		100
2-Nitrophenol	15	30	ug/Kg	<MDL	66.6667	42.3	63		50-150	66.6667	37	55		50-150	14		100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	66.6667	51.4	77		50-150	66.6667	40.1	60		50-150	25		100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	66.6667	45	67		50-150	66.6667	36.5	55		50-150	20		100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	66.6667	64.6	97		50-150	66.6667	52.6	79		50-150	20		100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	46.6	70		50-150	66.6667	39.4	59		50-150	17		100
Naphthalene	14	28	ug/Kg	<MDL	66.6667	43.5	65		50-150	66.6667	35.6	53		50-150	20		100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	66.6667	48	72		50-150	66.6667	39.9	60		50-150	18		100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/20/02 06:42
Run ID: R77310 Workgroup: WG59585 (BS#119 BNALL)

MS:WG59585-3 MSD:WG59585-4 L22953-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	66.6667	70.1	105		50-150	66.6667	60.6	91		50-150	14		100
2-Chloronaphthalene	16	32	ug/Kg	<MDL	66.6667	55.8	84		50-150	66.6667	47.7	72		50-150	15		100
Acenaphthylene	15	30	ug/Kg	<MDL	66.6667	57.8	87		50-150	66.6667	49.5	74		50-150	16		100
Dimethyl Phthalate	11	22	ug/Kg	<MDL	66.6667	63.3	95		50-150	66.6667	55.7	83		50-150	13		100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	66.6667	70.3	106		50-150	66.6667	58.3	87		50-150	20		100
Acenaphthene	7	14	ug/Kg	<MDL	66.6667	56.8	85		50-150	66.6667	50.2	75		50-150	13		100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	66.6667	75	112		50-150	66.6667	59.9	90		50-150	22		100
Fluorene	13	26	ug/Kg	<MDL	66.6667	72.2	108		50-150	66.6667	60.6	91		50-150	17		100
Diethyl Phthalate	6	12	ug/Kg	<MDL	66.6667	69.3	104		50-150	66.6667	60.1	90		50-150	14		100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	66.6667	71.2	107		50-150	66.6667	61.8	93		50-150	14		100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	66.6667	34	51		50-150	66.6667	32	49	*	50-150			100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	66.6667	51.7	77		50-150	66.6667	47.4	71		50-150	8		100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	66.6667	68.5	103		50-150	66.6667	65.7	98		50-150	5		100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	66.6667	58.9	88		50-150	66.6667	54.8	82		50-150	7		100
Pentachlorophenol	5	10	ug/Kg	<MDL	66.6667	96.9	145		50-150	66.6667	83	125		50-150	15		100
Phenanthrene	4	8	ug/Kg	<MDL	66.6667	71.5	107		50-150	66.6667	59.8	90		50-150	17		100
Anthracene	4	8	ug/Kg	<MDL	66.6667	73.5	110		50-150	66.6667	62.1	93		50-150	17		100
Di-N-Butyl Phthalate	5	10	ug/Kg	<MDL	66.6667	97.9	147		50-150	66.6667	79	118		50-150	22		100
Fluoranthene	8	16	ug/Kg	<MDL	66.6667	102	153	L	50-150	66.6667	80.1	120		50-150	24		100
Pyrene	4	8	ug/Kg	<MDL	66.6667	58.1	87		50-150	66.6667	50.5	76		50-150	13		100
Benzyl Butyl Phthalate	6	12	ug/Kg	<MDL	66.6667	66.9	100		50-150	66.6667	67.7	102		50-150	2		100
Benzo(a)anthracene	2	4	ug/Kg	<MDL	66.6667	89.7	135		50-150	66.6667	75.1	113		50-150	18		100
Chrysene	4	8	ug/Kg	<MDL	66.6667	71.6	107		50-150	66.6667	59.8	90		50-150	17		100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	<MDL	66.6667	65.7	99		50-150	66.6667	66.4	100		50-150	1		100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	66.6667	65.1	98		50-150	66.6667	59	88		50-150	11		100
Benzo(b)fluoranthene	3	6	ug/Kg	<MDL	66.6667	62.3	93		50-150	66.6667	51.9	78		50-150	18		100
Benzo(k)fluoranthene	3	6	ug/Kg	<MDL	66.6667	60.9	91		50-150	66.6667	53.2	80		50-150	13		100
Benzo(a)pyrene	3	6	ug/Kg	<MDL	66.6667	71	106		50-150	66.6667	61.6	92		50-150	14		100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	<MDL	66.6667	48	72		50-150	66.6667	46.3	69		50-150	4		100
Dibenzo(a,h)anthracene	7	14	ug/Kg	<MDL	66.6667	59.1	89		50-150	66.6667	58.4	88		50-150	1		100
Benzo(g,h,i)perylene	8	16	ug/Kg	<MDL	66.6667	58.3	87		50-150	66.6667	54.9	82		50-150	6		100
Aniline	19	38	ug/Kg	<MDL	66.6667	<MDL	0	X	50-150	66.6667	<MDL	0	*	50-150			100
Benzyl Alcohol	6	12	ug/Kg	<MDL	66.6667	9.8	15	G	50-150	66.6667	12.9	19	*	50-150	24		100
2-Methylphenol	19	38	ug/Kg	<MDL	66.6667	53.3	80		50-150	66.6667	39.5	59		50-150	30		100
4-Methylphenol	16	32	ug/Kg	<MDL	66.6667	54.5	82		50-150	66.6667	44.8	67		50-150	20		100
Benzoic Acid	6	12	ug/Kg	111	66.6667	143	49	G	50-150	66.6667	119	12	*	50-150	121	*	100
2-Methylnaphthalene	14	28	ug/Kg	<MDL	66.6667	51.5	77		50-150	66.6667	43.1	65		50-150	17		100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	66.6667	83.1	125		50-150	66.6667	71.7	108		50-150	15		100
Dibenzofuran	14	28	ug/Kg	<MDL	66.6667	66.8	100		50-150	66.6667	55	83		50-150	19		100
Carbazole	7	14	ug/Kg	<MDL	66.6667	98.5	148		50-150	66.6667	76.4	115		50-150	25		100
Coprostanol	14	28	ug/Kg	<MDL	666.6667	382	57		50-150	666.6667	395	59		50-150	3		100
Caffeine	6	12	ug/Kg	<MDL	66.6667	78.5	118		50-150	66.6667	61.9	93		50-150	24		100

LD:WG59585-5 L22953-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL		<MDL						100
Phenol	9	18	ug/Kg	23.8		<MDL				200	E	100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL		<MDL						100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/20/02 06:43
Run ID: R77310 Workgroup: WG59585 (BS#119 BNALL)

LD:WG59585-5 L22953-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
2-Chlorophenol	8	16	ug/Kg	<MDL		<MDL						100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL		<MDL						100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL		<MDL						100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL		<MDL						100
Hexachloroethane	15	30	ug/Kg	<MDL		<MDL						100
Nitrobenzene	16	32	ug/Kg	<MDL		<MDL						100
Isophorone	19	38	ug/Kg	<MDL		<MDL						100
2-Nitrophenol	15	30	ug/Kg	<MDL		<MDL						100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL		<MDL						100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL		<MDL						100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL		<MDL						100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
Naphthalene	14	28	ug/Kg	<MDL		<MDL						100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL		<MDL						100
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL		<MDL						100
2-Chloronaphthalene	16	32	ug/Kg	<MDL		<MDL						100
Acenaphthylene	15	30	ug/Kg	<MDL		<MDL						100
Dimethyl Phthalate	11	22	ug/Kg	<MDL		<MDL						100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL		<MDL						100
Acenaphthene	7	14	ug/Kg	<MDL		<MDL						100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL		<MDL						100
Fluorene	13	26	ug/Kg	<MDL		<MDL						100
Diethyl Phthalate	6	12	ug/Kg	<MDL		<MDL						100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL		<MDL						100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL		<MDL						100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL		<MDL						100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL		<MDL						100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL		<MDL						100
Pentachlorophenol	5	10	ug/Kg	<MDL		<MDL						100
Phenanthrene	4	8	ug/Kg	<MDL		<MDL						100
Anthracene	4	8	ug/Kg	<MDL		<MDL						100
Di-N-Butyl Phthalate	5	10	ug/Kg	<MDL		<MDL						100
Fluoranthene	8	16	ug/Kg	<MDL		<MDL						100
Pyrene	4	8	ug/Kg	<MDL		<MDL						100
Benzyl Butyl Phthalate	6	12	ug/Kg	<MDL		<MDL						100
Benzo(a)anthracene	2	4	ug/Kg	<MDL		<MDL						100
Chrysene	4	8	ug/Kg	<MDL		<MDL						100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	<MDL		12						100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL		<MDL						100
Benzo(b)fluoranthene	3	6	ug/Kg	<MDL		<MDL						100
Benzo(k)fluoranthene	3	6	ug/Kg	<MDL		<MDL						100
Benzo(a)pyrene	3	6	ug/Kg	<MDL		<MDL						100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	<MDL		<MDL						100
Dibenzo(a,h)anthracene	7	14	ug/Kg	<MDL		<MDL						100
Benzo(g,h,i)perylene	8	16	ug/Kg	<MDL		<MDL						100
Aniline	19	38	ug/Kg	<MDL		<MDL						100
Benzyl Alcohol	6	12	ug/Kg	<MDL		<MDL						100
2-Methylphenol	19	38	ug/Kg	<MDL		<MDL						100
4-Methylphenol	16	32	ug/Kg	<MDL		<MDL						100

LD:WG59585-5 L22953-1 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Benzoic Acid	6	12	ug/Kg	111		59.8				60		100
2-Methylnaphthalene	14	28	ug/Kg	<MDL		<MDL						100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL		<MDL						100
Dibenzofuran	14	28	ug/Kg	<MDL		<MDL						100
Carbazole	7	14	ug/Kg	<MDL		<MDL						100
Coprostanol	14	28	ug/Kg	<MDL		<MDL						100
Caffeine	6	12	ug/Kg	<MDL		<MDL						100

SRM:WG59585-6 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Naphthalene	270	2800	ug/Kg		1629.3333	310	19	G	80-120			100
Phenanthrene	400	800	ug/Kg		5202.6667	4470	86		80-120			100
Anthracene	400	800	ug/Kg		1746.6667	1150	66	G	80-120			100
Fluoranthene	800	1600	ug/Kg		8802.6667	9650	110		80-120			100
Pyrene	400	800	ug/Kg		9573.3333	7770	81		80-120			100
Benzo(a)anthracene	200	400	ug/Kg		4658.6667	5080	109		80-120			100
Chrysene	400	800	ug/Kg		4797.3333	5550	116		80-120			100
Benzo(b)fluoranthene	300	600	ug/Kg		3818.6667	3720	97		80-120			100
Benzo(k)fluoranthene	300	600	ug/Kg		2269.3333	2110	93		80-120			100
Benzo(a)pyrene	300	600	ug/Kg		4242.6667	3840	91		80-120			100
Indeno(1,2,3-Cd)Pyrene	900	1800	ug/Kg		2744	2220	81		80-120			100
Dibenzo(a,h)anthracene	270	1400	ug/Kg		418.6667	390	94		80-120			100
Benzo(g,h,i)perylene	800	1600	ug/Kg		2802.6667	2330	83		80-120			100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/20/02 06:43
Run ID: R77310 Workgroup: WG59585 (BS#119 BNALL)

Sample #	2-Fluorophenol		d5-Phenol		d5-Nitrobenzene		d4-2-Chlorophenol	d4-1,2-Dichlorobenzene	2-Fluorobiphenyl	2,4,6-Tribromophenol	d14-Terphenyl
	50-150		50-150		50-150		50-150	50-150	50-150	50-150	50-150
L22953-1	57	avg=69.75	55	avg=63.25	59		58	54	72	109	68
L22953-10	36	avg=51	23	avg=58.5	55		31	46	61	114	72
L22953-2	58	avg=67.75	50	avg=68	63		57	56	77	106	76
L22953-3	41	avg=54	32	avg=56.75	49		39	38	62	104	78
L22953-4	28 G	avg=41.25	20 G	avg=41.5	32 G		27 G	26 G	45 G	90 G	63 G
L22953-5	48	avg=60	36	avg=60.5	55		42	48	68	114	71
L22953-6	46	avg=58.25	32	avg=60.75	56		41	41	70	114	76
L22953-7	45	avg=63.75	45	avg=59.75	56		51	46	73	114	64
L22953-8	45	avg=52	21	avg=56.5	57		36	43	53	106	73
L22953-9	42 G	avg=49	18 G	avg=52	54		32 G	43	48	104 G	63
WG59585-1	44 G	avg=49	41 G	avg=51.75	42		48 G	45	46	63 G	74
WG59585-2	44	avg=51.75	44	avg=49.25	44 G		49	44 G	45 G	70	64 G
WG59585-3	69	avg=86.5	73	avg=72	65		75	62	78	129	83
WG59585-4	59	avg=69.75	56	avg=62.25	54		61	53	66	103	76
WG59585-5	54	avg=68.5	54	avg=62.75	57		58	48	70	108	76
WG59585-6	79	avg=86.25	69	avg=70	73		83	65	63	114	79

Hold time: 2/8/02

A/M 1/18/02

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Jan 03 2002, 01:07 pm

Work Group: WG59586 (PPLLS#4 PESTLL) for Department: 7 - Organics, Trace

Created: 27-DEC-01 Due: Operator: GW/LM/MM

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22953-1	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-10	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-2	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-3	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-4	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-5	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-6	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-7	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-8	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-9	423457	North Outfall Siting Study	SED	S	PESTLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
WG59586-2	SB			S	PESTLL	OTHR SOLID	PREP	U	27-DEC-01	
WG59586-3	MS		SED	S	PESTLL	SALTWTRSED	PREP	U	27-DEC-01	
WG59586-4	MSD		SED	S	PESTLL	SALTWTRSED	PREP	U	27-DEC-01	
WG59586-5	LD		SED	S	PESTLL	SALTWTRSED	PREP	U	27-DEC-01	
WG59586-6	SRM			S	PESTLL	OTHR SOLID	PREP	U	27-DEC-01	
WG59586-7	MB			S	PESTLL	OTHR SOLID	PREP	U	27-DEC-01	

Comments:

L22953-1	1 grab CHEM
L22953-10	1 grab CHEM [FREP]
L22953-2	1 grab CHEM
L22953-3	1 grab CHEM
L22953-4	1 grab CHEM
L22953-5	1 grab CHEM
L22953-6	1 grab CHEM
L22953-7	1 grab CHEM
L22953-8	1 grab CHEM
L22953-9	1 grab CHEM
WG59586-2	WG59586-7
WG59586-3	L22953-1
WG59586-4	WG59586-3 L22953-1
WG59586-5	L22953-1
WG59586-6	#1944
WG59586-7	MB011227

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/16/02 04:08
Run ID: R75417 Workgroup: WG59586 (PPLLS#4 PESTLL)

SB:WG59586-2 MB:WG59586-7 Matrix: OTHR SOLID Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Alpha-BHC	.5	1	ug/Kg	<MDL	10	7.76	78		50-150								
Beta-BHC	.5	1	ug/Kg	<MDL	10	8.96	90		50-150								
Delta-BHC	.5	1	ug/Kg	<MDL	10	8.4	84		50-150								
Gamma-BHC (Lindane)	.5	1	ug/Kg	<MDL	10	8.57	86		50-150								
Heptachlor	.5	1	ug/Kg	<MDL	10	8.39	84		50-150								
Aldrin	1	2	ug/Kg	<MDL	10	7.89	79		50-150								
Heptachlor Epoxide	.5	1	ug/Kg	<MDL	10	9.41	94		50-150								
Endosulfan I	1	2	ug/Kg	<MDL	10	9.09	91		50-150								
Dieldrin	1	2	ug/Kg	<MDL	10	9.94	99		50-150								
4,4'-DDE	1	2	ug/Kg	<MDL	10	9.81	98		50-150								
Endrin	1	2	ug/Kg	<MDL	10	11.3	113		50-150								
Endosulfan II	1	2	ug/Kg	<MDL	10	9.04	90		50-150								
4,4'-DDD	1	2	ug/Kg	<MDL	10	10.6	106		50-150								
Endrin Aldehyde	2	4	ug/Kg	<MDL	10	4.42	44	*	50-150								
Endosulfan Sulfate	1	2	ug/Kg	<MDL	10	8.41	84		50-150								
4,4'-DDT	1	2	ug/Kg	<MDL	10	8.66	87		50-150								
Methoxychlor	5	10	ug/Kg	<MDL	10	9.7	97		50-150								

MS:WG59586-3 MSD:WG59586-4 L22953-1 Matrix: SALTWTRSED Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Alpha-BHC	.5	1	ug/Kg	<MDL	10	8.5	85		50-150	10	8.87	89		50-150	5		100
Beta-BHC	.5	1	ug/Kg	<MDL	10	8.29	83		50-150	10	9.33	93		50-150	11		100
Delta-BHC	.5	1	ug/Kg	<MDL	10	9.04	90		50-150	10	9.37	94		50-150	4		100
Gamma-BHC (Lindane)	.5	1	ug/Kg	<MDL	10	9.06	91		50-150	10	9.36	94		50-150	3		100
Heptachlor	.5	1	ug/Kg	<MDL	10	8.68	87		50-150	10	9.08	91		50-150	4		100
Aldrin	1	2	ug/Kg	<MDL	10	8.01	80		50-150	10	8.34	83		50-150	4		100
Heptachlor Epoxide	.5	1	ug/Kg	<MDL	10	9.33	93		50-150	10	8.94	89		50-150	4		100
Endosulfan I	1	2	ug/Kg	<MDL	10	9.11	91		50-150	10	9.1	91		50-150	0		100
Dieldrin	1	2	ug/Kg	<MDL	10	9.53	95		50-150	10	9.44	94		50-150	1		100
4,4'-DDE	1	2	ug/Kg	<MDL	10	9.5	95		50-150	10	9.37	94		50-150	1		100
Endrin	1	2	ug/Kg	<MDL	10	11.3	113		50-150	10	11.3	113		50-150	0		100
Endosulfan II	1	2	ug/Kg	<MDL	10	8.96	90		50-150	10	8.89	89		50-150	1		100
4,4'-DDD	1	2	ug/Kg	<MDL	10	10.5	105		50-150	10	10.6	106		50-150	1		100
Endrin Aldehyde	2	4	ug/Kg	<MDL	10	3.6	36	G	50-150	10	3.4	34	*	50-150			100
Endosulfan Sulfate	1	2	ug/Kg	<MDL	10	8.18	82		50-150	10	7.94	79		50-150	4		100
4,4'-DDT	1	2	ug/Kg	<MDL	10	8.26	83		50-150	10	6.59	66		50-150	23		100
Methoxychlor	5	10	ug/Kg	<MDL	10	9.1	91		50-150	10	7.8	78		50-150			100

LD:WG59586-5 L22953-1 Matrix: SALTWTRSED Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Alpha-BHC	.5	1	ug/Kg	<MDL		<MDL						100
Beta-BHC	.5	1	ug/Kg	<MDL		<MDL						100
Delta-BHC	.5	1	ug/Kg	<MDL		<MDL						100
Gamma-BHC (Lindane)	.5	1	ug/Kg	<MDL		<MDL						100
Heptachlor	.5	1	ug/Kg	<MDL		<MDL						100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/16/02 04:08
Run ID: R75417 Workgroup: WG59586 (PPLLS#4 PESTLL)

LD:WG59586-5 L22953-1 Matrix: SALTWTRSED Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aldrin	1	2	ug/Kg	<MDL		<MDL						100
Heptachlor Epoxide	.5	1	ug/Kg	<MDL		<MDL						100
Endosulfan I	1	2	ug/Kg	<MDL		<MDL						100
Dieldrin	1	2	ug/Kg	<MDL		<MDL						100
4,4'-DDE	1	2	ug/Kg	<MDL		<MDL						100
Endrin	1	2	ug/Kg	<MDL		<MDL						100
Endosulfan II	1	2	ug/Kg	<MDL		<MDL						100
4,4'-DDD	1	2	ug/Kg	<MDL		<MDL						100
Endrin Aldehyde	2	4	ug/Kg	<MDL		<MDL						100
Endosulfan Sulfate	1	2	ug/Kg	<MDL		<MDL						100
4,4'-DDT	1	2	ug/Kg	<MDL		<MDL						100
Methoxychlor	5	10	ug/Kg	<MDL		<MDL						100
Chlordane	.5	1	ug/Kg	<MDL		<MDL						100
Toxaphene	10	20	ug/Kg	<MDL		<MDL						100

SRM:WG59586-6 Matrix: OTHR SOLID Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
4,4'-DDT	5.3	10.7	ug/Kg		117.3333	91.5	78	G	80-120			
Chlordane	2.7	5.33	ug/Kg		16.32	13.4	82		80-120			

MB:WG59586-7 Matrix: OTHR SOLID Listtype: ORPESTLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Alpha-BHC	.5	1	ug/Kg	<MDL	
Beta-BHC	.5	1	ug/Kg	<MDL	
Delta-BHC	.5	1	ug/Kg	<MDL	
Gamma-BHC (Lindane)	.5	1	ug/Kg	<MDL	
Heptachlor	.5	1	ug/Kg	<MDL	
Aldrin	1	2	ug/Kg	<MDL	
Heptachlor Epoxide	.5	1	ug/Kg	<MDL	
Endosulfan I	1	2	ug/Kg	<MDL	
Dieldrin	1	2	ug/Kg	<MDL	
4,4'-DDE	1	2	ug/Kg	<MDL	
Endrin	1	2	ug/Kg	<MDL	
Endosulfan II	1	2	ug/Kg	<MDL	
4,4'-DDD	1	2	ug/Kg	<MDL	
Endrin Aldehyde	2	4	ug/Kg	<MDL	
Endosulfan Sulfate	1	2	ug/Kg	<MDL	
4,4'-DDT	1	2	ug/Kg	<MDL	
Methoxychlor	5	10	ug/Kg	<MDL	
Chlordane	.5	1	ug/Kg	<MDL	
Toxaphene	10	20	ug/Kg	<MDL	

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/16/02 04:08
Run ID: R75417 Workgroup: WG59586 (PPLLS#4 PESTLL)

Sample #	2,4,5,6-Tetrachlo-ro-m-xylene 50-150	Decachlorobiphenyl 50-150
L22953-1	79	98
L22953-10	92	103
L22953-2	67	97
L22953-3	64	95
L22953-4	70	93
L22953-5	72	92
L22953-6	68	103
L22953-7	88	96
L22953-8	94	103
L22953-9	102	109
WG59586-2	72	106
WG59586-3	83	104
WG59586-4	96	101
WG59586-5	79	93
WG59586-6	79	121
WG59586-7	58	90

Hold time: 2/4/02

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Jan 03 2002, 01:07 pm

Work Group: WG59587 (PPLLS#04 PCBLL) for Department: 7 - Organics, Trace

Created: 27-DEC-01 Due: Operator: GW/LM/MM

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22953-1	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-10	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-2	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-3	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-4	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-5	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-6	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-7	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-8	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-9	423457	North Outfall Siting Study	SED	S	PCBLL	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
WG59587-1	MB			S	PCBLL	OTHR SOLID	PREP	U	27-DEC-01	
WG59587-2	SB			S	PCBLL	OTHR SOLID	PREP	U	27-DEC-01	
WG59587-3	MS		SED	S	PCBLL	SALTWTRSED	PREP	U	27-DEC-01	
WG59587-4	MSD		SED	S	PCBLL	SALTWTRSED	PREP	U	27-DEC-01	
WG59587-5	LD		SED	S	PCBLL	SALTWTRSED	PREP	U	27-DEC-01	
WG59587-6	SRM			S	PCBLL	OTHR SOLID	PREP	U	27-DEC-01	

Comments:

L22953-1	1 grab CHEM
L22953-10	1 grab CHEM [FREP]
L22953-2	1 grab CHEM
L22953-3	1 grab CHEM
L22953-4	1 grab CHEM
L22953-5	1 grab CHEM
L22953-6	1 grab CHEM
L22953-7	1 grab CHEM
L22953-8	1 grab CHEM
L22953-9	1 grab CHEM
WG59587-1	MB011227
WG59587-2	WG59587-1
WG59587-3	L22953-2
WG59587-4	WG59587-3 L22953-2
WG59587-5	L22953-1
WG59587-6	SRM H2S

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/16/02 11:13
Run ID: R75409 Workgroup: WG59587 (PPLLS#04 PCBLL)

A/M 1/18/02

MB:WG59587-1 Matrix: OTHR SOLID Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Aroclor 1016	1.3	2.5	ug/Kg	<MDL	
Aroclor 1221	2.5	5	ug/Kg	<MDL	
Aroclor 1232	2.5	5	ug/Kg	<MDL	
Aroclor 1242	1.3	2.5	ug/Kg	<MDL	
Aroclor 1248	1.3	2.5	ug/Kg	<MDL	
Aroclor 1254	1.3	2.5	ug/Kg	<MDL	
Aroclor 1260	1.3	2.5	ug/Kg	<MDL	

SB:WG59587-2 MB:WG59587-1 Matrix: OTHR SOLID Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aroclor 1016	1.3	2.5	ug/Kg	<MDL	18.75	14.2	76		50-150								
Aroclor 1260	1.3	2.5	ug/Kg	<MDL	18.75	17.6	94		50-150								

MS:WG59587-3 MSD:WG59587-4 L22953-2 Matrix: SALTWTRSED Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aroclor 1016	1.3	2.5	ug/Kg	<MDL	18.75	16.6	89		50-150	18.75	16.8	90		50-150	1		100
Aroclor 1260	1.3	2.5	ug/Kg	<MDL	18.75	17	91		50-150	18.75	17.2	91		50-150	0		100

LD:WG59587-5 L22953-1 Matrix: SALTWTRSED Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aroclor 1016	1.3	2.5	ug/Kg	<MDL		<MDL						100
Aroclor 1221	2.5	5	ug/Kg	<MDL		<MDL						100
Aroclor 1232	2.5	5	ug/Kg	<MDL		<MDL						100
Aroclor 1242	1.3	2.5	ug/Kg	<MDL		<MDL						100
Aroclor 1248	1.3	2.5	ug/Kg	<MDL		<MDL						100
Aroclor 1254	1.3	2.5	ug/Kg	<MDL		<MDL						100
Aroclor 1260	1.3	2.5	ug/Kg	<MDL		<MDL						100

SRM:WG59587-6 Matrix: OTHR SOLID Listtype: ORPCBLL Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Aroclor 1254	2.7	5.33	ug/Kg		111.7867	122	109		80-120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 01/16/02 11:13
Run ID: R75409 Workgroup: WG59587 (PPLLS#04 PCBLL)

Sample #	2,4,5,6-Tetrachlo-ro-m-xylene 50-150	Decachlorobiphenyl 50-150
L22953-1	77	109
L22953-10	88	107
L22953-2	69	103
L22953-3	62	106
L22953-4	66	102
L22953-5	59	104
L22953-6	55	107
L22953-7	84	100
L22953-8	93	107
L22953-9	86	104
WG59587-1	53	105
WG59587-2	74	136
WG59587-3	97	139
WG59587-4	92	130
WG59587-5	71	99
WG59587-6	70	93

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Jan 30 2002, 08:04 am

Work Group: WG60117 (OP#620 oppest-short) for Department: 7 - Organics, Trace

Created: 29-JAN-02 Due: Operator: lm/gw

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22953-1	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-10	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-2	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-3	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-4	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-5	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-6	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-7	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-8	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
L22953-9	423457	North Outfall Siting Study	SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
WG60117-1	MB		SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
WG60117-2	SB		SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	18-DEC-01	02-FEB-02
WG60117-3	MS			S	OPPEST-SHORT	OTHR SOLID	PREP	U	29-JAN-02	
WG60117-4	MSD			S	OPPEST-SHORT	OTHR SOLID	PREP	U	29-JAN-02	
WG60117-5	LD		SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	29-JAN-02	
			SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	29-JAN-02	
			SED	S	OPPEST-SHORT	SALTWTRSED	PREP	U	29-JAN-02	

Comments:

L22953-1	1 grab CHEM
L22953-10	1 grab CHEM [FREP]
L22953-2	1 grab CHEM
L22953-3	1 grab CHEM
L22953-4	1 grab CHEM
L22953-5	1 grab CHEM
L22953-6	1 grab CHEM
L22953-7	1 grab CHEM
L22953-8	1 grab CHEM
L22953-9	1 grab CHEM
WG60117-1	MB012902
WG60117-2	WG60117-1
WG60117-3	L22953-1
WG60117-4	WG60117-3 L22953-1
WG60117-5	L22953-2

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/09/02 10:38
Run ID: R76434 Workgroup: WG60117 (OP#620 oppest-short)

MB:WG60117-1 Matrix: OTHR SOLID Listtype: OROPPEST-SHORT Method: EPA 3540C/8141A (7-3-04-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Phorate	33	66.7	ug/Kg	<MDL	
Diazinon	20	33.3	ug/Kg	<MDL	
Disulfoton	20	33.3	ug/Kg	<MDL	
Parathion-Methyl	53	100	ug/Kg	<MDL	
Malathion	53	100	ug/Kg	<MDL	
Chlorpyrifos	33	66.7	ug/Kg	<MDL	
Parathion-Ethyl	53	100	ug/Kg	<MDL	

SB:WG60117-2 MB:WG60117-1 Matrix: OTHR SOLID Listtype: OROPPEST-SHORT Method: EPA 3540C/8141A (7-3-04-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Phorate	33	66.7	ug/Kg	<MDL	166.6667	101	61		50-150								100
Diazinon	20	33.3	ug/Kg	<MDL	166.6667	168	101		50-150								100
Disulfoton	20	33.3	ug/Kg	<MDL	166.6667	156	94		50-150								100
Parathion-Methyl	53	100	ug/Kg	<MDL	166.6667	177	106		50-150								100
Malathion	53	100	ug/Kg	<MDL	166.6667	165	99		50-150								100
Chlorpyrifos	33	66.7	ug/Kg	<MDL	166.6667	162	97		50-150								100
Parathion-Ethyl	53	100	ug/Kg	<MDL	166.6667	184	111		50-150								100

MS:WG60117-3 MSD:WG60117-4 L22953-1 Matrix: SALTWTRSED Listtype: OROPPEST-SHORT Method: EPA 3540C/8141A (7-3-04-000) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Phorate	33	66.7	ug/Kg	<MDL	166.6667	131	79		50-150	166.6667	131	79		50-150	0		100
Diazinon	20	33.3	ug/Kg	<MDL	166.6667	200	120		50-150	166.6667	205	123		50-150	2		100
Disulfoton	20	33.3	ug/Kg	<MDL	166.6667	176	106		50-150	166.6667	182	109		50-150	3		100
Parathion-Methyl	53	100	ug/Kg	<MDL	166.6667	270	162	L	50-150	166.6667	281	168	*	50-150	4		100
Malathion	53	100	ug/Kg	<MDL	166.6667	220	132		50-150	166.6667	215	129		50-150	2		100
Chlorpyrifos	33	66.7	ug/Kg	<MDL	166.6667	191	115		50-150	166.6667	189	113		50-150	2		100
Parathion-Ethyl	53	100	ug/Kg	<MDL	166.6667	276	166	L	50-150	166.6667	273	164	*	50-150	1		100

LD:WG60117-5 L22953-2 Matrix: SALTWTRSED Listtype: OROPPEST-SHORT Method: EPA 3540C/8141A (7-3-04-000) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Phorate	33	66.7	ug/Kg	<MDL		<MDL						100
Diazinon	20	33.3	ug/Kg	<MDL		<MDL						100
Disulfoton	20	33.3	ug/Kg	<MDL		<MDL						100
Parathion-Methyl	53	100	ug/Kg	<MDL		<MDL						100
Malathion	53	100	ug/Kg	<MDL		<MDL						100
Chlorpyrifos	33	66.7	ug/Kg	<MDL		<MDL						100
Parathion-Ethyl	53	100	ug/Kg	<MDL		<MDL						100

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 02/09/02 10:38
Run ID: R76434 Workgroup: WG60117 (OP#620 oppest-short)

Sample #	Chlorpyrifos-D10 50-150
.22953-1	124
.22953-10	120
.22953-2	104
.22953-3	120
.22953-4	100
.22953-5	96
.22953-6	116
.22953-7	108
.22953-8	108
.22953-9	111
WG60117-1	85
WG60117-2	91
WG60117-3	124
WG60117-4	130
WG60117-5	130

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Feb 15 2002, 08:53 am

Work Group: WG60333 (BU#61-TBT) for Department: 7 - Organics, Trace

Created: 11-FEB-02 Due: Operator: lm/gw

Sample	Project Number	Project Description	PKey	G	Product	Matrix	Stat	UA	Workdate	Duedate
L22024-12	423258-01	Sammamish River water/sediment Q	SED	S	TRIBUTYLTIN	FRSHWTRSED	PREP	U	23-DEC-01	23-DEC-01
L22293-10	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-11	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-12	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-13	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-8	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22293-9	421253RU	NPDES RENTON SUBTIDAL SEDS.	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	06-FEB-02	06-FEB-02
L22953-1	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-10	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-2	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-3	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-4	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-5	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-6	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-7	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-8	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
L22953-9	423457	North Outfall Siting Study	SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	02-FEB-02	02-FEB-02
WG60333-1	MB			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	11-FEB-02	
WG60333-2	SB			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	11-FEB-02	
WG60333-3	MS		SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	11-FEB-02	
WG60333-4	MSD		SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	11-FEB-02	
WG60333-5	LD		SED	S	TRIBUTYLTIN	SALTWTRSED	PREP	U	11-FEB-02	
WG60333-6	SRM			S	TRIBUTYLTIN	OTHR SOLID	PREP	U	11-FEB-02	

Comments:

L22024-12	Confluence with Sammamish River
L22293-10	CHEM composite only
L22293-11	CHEM composite only
L22293-12	CHEM composite only
L22293-13	CHEM composite only
L22293-8	CHEM composite only
L22293-9	CHEM composite only
L22953-1	1 grab CHEM
L22953-10	1 grab CHEM [FREP]
L22953-2	1 grab CHEM
L22953-3	1 grab CHEM
L22953-4	1 grab CHEM
L22953-5	1 grab CHEM
L22953-6	1 grab CHEM
L22953-7	1 grab CHEM
L22953-8	1 grab CHEM
L22953-9	1 grab CHEM
WG60333-1	MB021102
WG60333-2	WG60333-1
WG60333-3	L22953-3
WG60333-4	WG60333-3 L22953-3
WG60333-5	L22953-2
WG60333-6	PACS-2

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 03/06/02 09:52
Run ID: R78065 Workgroup: WG60333 (BU#61-TBT)

MB:WG60333-1 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Mono-n-Butyltin	1	3.37	ug/Kg	1.2	B
Di-n-Butyltin	.35	.7	ug/Kg	.812	B
Tri-n-Butyltin	.21	.415	ug/Kg	1.83	B
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	

SB:WG60333-2 MB:WG60333-1 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	1.2	31.2	32.1	99		50-150								100
Di-n-Butyltin	.35	.7	ug/Kg	.812	38.4	23.1	58		50-150								100
Tri-n-Butyltin	.21	.415	ug/Kg	1.83	44.55	43.8	94		50-150								100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	50	41.9	84		50-150								100

MS:WG60333-3 MSD:WG60333-4 L22953-3 Matrix: SALTWTRSED Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	2.3	31.2	25.2	73		50-150	31.2	27.6	81		50-150	10		100
Di-n-Butyltin	.35	.7	ug/Kg	<MDL	38.4	31.3	82		50-150	38.4	31.5	82		50-150	0		100
Tri-n-Butyltin	.21	.415	ug/Kg	1.67	44.55	34.9	75		50-150	44.55	36.9	79		50-150	5		100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL	50	47.8	96		50-150	50	51.7	103		50-150	7		100

LD:WG60333-5 L22953-2 Matrix: SALTWTRSED Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: 423457 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	1.7	3.37	ug/Kg	2.2		2.1						100
Di-n-Butyltin	.35	.7	ug/Kg	<MDL		<MDL						100
Tri-n-Butyltin	.21	.415	ug/Kg	1.82		1.67				9		100
Tetra-n-Butyltin	.4	.801	ug/Kg	<MDL		<MDL						100

SRM:WG60333-6 Matrix: OTHR SOLID Listtype: ORBUTYLTIN Method: NOAA 1988 (07-03-012-000) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mono-n-Butyltin	56	112	ug/Kg		666	689	103		80-120			100
Di-n-Butyltin	12	23.3	ug/Kg		2136	1320	62	G	80-120			120
Tri-n-Butyltin	6.9	13.8	ug/Kg		2391	1100	46	G	80-120			120

KING COUNTY METRO ENVIRONMENTAL LABORATORY
Lab QC Report - 03/06/02 09:52
Run ID: R78065 Workgroup: WG60333 (BU#61-TBT)

Sample #	Tripropyltin	Tripentyltin
	50-150	50-150
.22024-12	77	95
.22293-10	81	108
.22293-11	78	106
.22293-12	81	100
.22293-13	77	103
.22293-8	81	103
.22293-9	78	102
.22953-1	88	92
.22953-10	90	92
.22953-2	96	102
.22953-3	94	98
L22953-4	87	93
L22953-5	88	111
.22953-6	88	92
.22953-7	92	104
.22953-8	88	98
.22953-9	101	106
WG60333-1	78	97
WG60333-2	78	88
WG60333-3	85	92
WG60333-4	98	99
WG60333-5	91	97
WG60333-6	86	113

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Feb 09 2002, 01:24 pm

Work Group: WG60299 (Herbicide data for Moss sediments.) for Department: 7 - Organics, Trace

Created: 09-FEB-02 Due: Operator: DM

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Duedate
L22953-1	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-10	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-2	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-3	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-4	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-5	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-6	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-7	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-8	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02
L22953-9	423457	North Outfall Siting Study	SED	S	HERB	SALTWTRSED	ANAL	U	18-DEC-01	02-FEB-02

Comments:

L22953-1	1 grab CHEM	
L22953-10	1 grab CHEM	[FREP]
L22953-2	1 grab CHEM	
L22953-3	1 grab CHEM	
L22953-4	1 grab CHEM	
L22953-5	1 grab CHEM	
L22953-6	1 grab CHEM	
L22953-7	1 grab CHEM	
L22953-8	1 grab CHEM	
L22953-9	1 grab CHEM	

STL Seattle

Lab ID:	Method Blank - HS0125
Date Received:	-
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	115		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.67	2.03	
4-Nitrophenol	ND	6.67	1.47	
Dicamba	ND	6.67	1.62	
Dichloroprop	ND	6.67	0.71	
2,4-D	ND	6.67	0.55	
Pentachlorophenol	ND	6.67	0.778	
Silvex (2,4,5-TP)	ND	6.67	2.13	
2,4,5-T	ND	6.67	1.45	
Dinoseb	ND	6.67	0.55	
2,4-DB	ND	6.67	0.935	
MCPP	ND	6.67	1.82	
MCPA	ND	6.67	1	

STL Seattle

Blank Spike Report

Lab ID:	HS0125
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
QC Batch ID:	HS0125

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	Flag
Dalapon	0	667	315	47.2	
Dicamba	0	667	711	107	
2,4-D	0	667	602	90.3	
Pentachlorophenol	0	667	711	107	
Silvex (2,4,5-TP)	0	667	653	98	
Dinoseb	0	667	737	111	
MCPP	0	667	680	102	

STL Seattle

Client Name	0
Client ID:	
Lab ID:	SHS0125
Date Received:	-
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2,4-Dichlorophenylacetic acid	111		63	137

Sample results are on an as received basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dalapon	315	6.67	2.03	
Dicamba	711	6.67	1.62	
2,4-D	602	6.67	0.55	
Pentachlorophenol	711	6.67	0.778	
Silvex (2,4,5-TP)	653	6.67	2.13	
Dinoseb	737	6.67	0.55	
MCPP	680	6.67	1.82	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	L22953-1
Lab ID:	103574-01
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
QC Batch ID:	HS0125

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Dalapon	0	631	251	39.7	258	40.8	2.7	
Dicamba	0	631	628	99.5	598	94.7	-4.9	
2,4-D	0	631	487	77.2	588	93	19	
Pentachlorophenol	0	631	547	86.7	561	88.7	2.3	
Silvex (2,4,5-TP)	0	631	556	88.1	563	89.1	1.1	
Dinoseb	0	631	455	72	443	70.1	-2.7	
MCPP	0	631	549	86.9	572	90.5	4.1	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-1 - ms
Lab ID:	103574S01
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2,4-Dichlorophenylacetic acid	102		63	137

Sample results are on an as received basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dalapon	251	6.31	1.93	
Dicamba	628	6.31	1.53	
2,4-D	487	6.31	0.521	
Pentachlorophenol	547	6.31	0.736	
Silvex (2,4,5-TP)	556	6.31	2.02	
Dinoseb	455	6.31	0.521	
MCPP	549	6.31	1.73	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-1 - msd
Lab ID:	103574D01
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2,4-Dichlorophenylacetic acid	102		63	137

Sample results are on an as received basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dalapon	258	6.32	1.93	
Dicamba	598	6.32	1.53	
2,4-D	588	6.32	0.521	
Pentachlorophenol	561	6.32	0.737	
Silvex (2,4,5-TP)	563	6.32	2.02	
Dinoseb	443	6.32	0.521	
MCPP	572	6.32	1.73	

STL Seattle

Duplicate Report

Client Sample ID:	L22953-1
Lab ID:	103574-01
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
QC Batch ID:	HS0125

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Parameter Name	Sample Result (ug/kg)	Duplicate Result (ug/kg)	RPD %	Flag
Dalapon	0	0	NC	
4-Nitrophenol	0	0	NC	
Dicamba	0	0	NC	
Dichloroprop	0	0	NC	
2,4-D	0	0	NC	
Pentachlorophenol	0	0	NC	
Silvex (2,4,5-TP)	0	0	NC	
2,4,5-T	0	0	NC	
Dinoseb	0	0	NC	
2,4-DB	0	0	NC	
MCPP	0	0	NC	
MCPA	0	0	NC	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-1 - dup
Lab ID:	103574R01
Date Received:	-
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	99		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.57	2	
4-Nitrophenol	ND	6.57	1.45	
Dicamba	ND	6.57	1.6	
Dichloroprop	ND	6.57	0.7	
2,4-D	ND	6.57	0.542	
Pentachlorophenol	ND	6.57	0.766	
Silvex (2,4,5-TP)	ND	6.57	2.1	
2,4,5-T	ND	6.57	1.43	
Dinoseb	ND	6.57	0.542	
2,4-DB	ND	6.57	0.921	
MCPP	ND	6.57	1.8	
MCPA	ND	6.57	0.989	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-1
Lab ID:	103574-01
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	94.5		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.31	1.93	
4-Nitrophenol	ND	6.31	1.4	
Dicamba	ND	6.31	1.53	
Dichloroprop	ND	6.31	0.672	
2,4-D	ND	6.31	0.521	
Pentachlorophenol	ND	6.31	0.737	
Silvex (2,4,5-TP)	ND	6.31	2.02	
2,4,5-T	ND	6.31	1.38	
Dinoseb	ND	6.31	0.521	
2,4-DB	ND	6.31	0.885	
MCPP	ND	6.31	1.73	
MCPA	ND	6.31	0.951	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-2
Lab ID:	103574-02
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2,4-Dichlorophenylacetic acid	94.5		63	137

Sample results are on an as received basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dalapon	ND	6.56	2	
4-Nitrophenol	ND	6.56	1.45	
Dicamba	ND	6.56	1.59	
Dichloroprop	ND	6.56	0.699	
2,4-D	ND	6.56	0.541	
Pentachlorophenol	ND	6.56	0.766	
Silvex (2,4,5-TP)	ND	6.56	2.1	
2,4,5-T	ND	6.56	1.43	
Dinoseb	ND	6.56	0.541	
2,4-DB	ND	6.56	0.92	
MCPP	ND	6.56	1.8	
MCPA	ND	6.56	0.988	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-3
Lab ID:	103574-03
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	94.2		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.35	1.94	
4-Nitrophenol	ND	6.35	1.4	
Dicamba	ND	6.35	1.54	
Dichloroprop	ND	6.35	0.676	
2,4-D	ND	6.35	0.523	
Pentachlorophenol	ND	6.35	0.74	
Silvex (2,4,5-TP)	ND	6.35	2.03	
2,4,5-T	ND	6.35	1.38	
Dinoseb	ND	6.35	0.523	
2,4-DB	ND	6.35	0.89	
MCPP	ND	6.35	1.74	
MCPA	ND	6.35	0.956	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-4
Lab ID:	103574-04
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	85.3		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.35	1.94	
4-Nitrophenol	ND	6.35	1.4	
Dicamba	ND	6.35	1.54	
Dichloroprop	ND	6.35	0.676	
2,4-D	ND	6.35	0.523	
Pentachlorophenol	ND	6.35	0.74	
Silvex (2,4,5-TP)	ND	6.35	2.03	
2,4,5-T	ND	6.35	1.38	
Dinoseb	ND	6.35	0.523	
2,4-DB	ND	6.35	0.89	
MCPP	ND	6.35	1.74	
MCPA	ND	6.35	0.956	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-5
Lab ID:	103574-05
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	105		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.61	2.02	
4-Nitrophenol	ND	6.61	1.46	
Dicamba	ND	6.61	1.61	
Dichloroprop	ND	6.61	0.704	
2,4-D	ND	6.61	0.545	
Pentachlorophenol	ND	6.61	0.771	
Silvex (2,4,5-TP)	ND	6.61	2.11	
2,4,5-T	ND	6.61	1.44	
Dinoseb	ND	6.61	0.545	
2,4-DB	ND	6.61	0.927	
MCPP	ND	6.61	1.81	
MCPA	ND	6.61	0.996	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-6
Lab ID:	103574-06
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2,4-Dichlorophenylacetic acid	82.1		63	137

Sample results are on an as received basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dalapon	ND	6.38	1.94	
4-Nitrophenol	ND	6.38	1.41	
Dicamba	ND	6.38	1.55	
Dichloroprop	ND	6.38	0.679	
2,4-D	ND	6.38	0.526	
Pentachlorophenol	ND	6.38	0.744	
Silvex (2,4,5-TP)	ND	6.38	2.04	
2,4,5-T	ND	6.38	1.39	
Dinoseb	ND	6.38	0.526	
2,4-DB	ND	6.38	0.894	
MCPP	ND	6.38	1.74	
MCPA	ND	6.38	0.961	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-7
Lab ID:	103574-07
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	89.7		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.64	2.02	
4-Nitrophenol	ND	6.64	1.47	
Dicamba	ND	6.64	1.61	
Dichloroprop	ND	6.64	0.707	
2,4-D	ND	6.64	0.548	
Pentachlorophenol	ND	6.64	0.775	
Silvex (2,4,5-TP)	ND	6.64	2.12	
2,4,5-T	ND	6.64	1.45	
Dinoseb	ND	6.64	0.548	
2,4-DB	ND	6.64	0.931	
MCPP	ND	6.64	1.82	
MCPA	ND	6.64	1	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-8
Lab ID:	103574-08
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2,4-Dichlorophenylacetic acid	84.1		63	137

Sample results are on an as received basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dalapon	ND	6.34	1.93	
4-Nitrophenol	ND	6.34	1.4	
Dicamba	ND	6.34	1.54	
Dichloroprop	ND	6.34	0.675	
2,4-D	ND	6.34	0.523	
Pentachlorophenol	ND	6.34	0.739	
Silvex (2,4,5-TP)	ND	6.34	2.02	
2,4,5-T	ND	6.34	1.38	
Dinoseb	ND	6.34	0.523	
2,4-DB	ND	6.34	0.889	
MCPP	ND	6.34	1.73	
MCPA	ND	6.34	0.955	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-9
Lab ID:	103574-09
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	92.1		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.27	1.91	
4-Nitrophenol	ND	6.27	1.39	
Dicamba	ND	6.27	1.52	
Dichloroprop	ND	6.27	0.668	
2,4-D	ND	6.27	0.518	
Pentachlorophenol	ND	6.27	0.732	
Silvex (2,4,5-TP)	ND	6.27	2	
2,4,5-T	ND	6.27	1.37	
Dinoseb	ND	6.27	0.518	
2,4-DB	ND	6.27	0.88	
MCPP	ND	6.27	1.72	
MCPA	ND	6.27	0.945	

STL Seattle

Client Name	King County DNR Environmental Laboratory
Client ID:	L22953-10
Lab ID:	103574-10
Date Received:	1/24/02
Date Prepared:	1/28/02
Date Analyzed:	2/2/02
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	84.3		63	137

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	6.58	2.01	
4-Nitrophenol	ND	6.58	1.45	
Dicamba	ND	6.58	1.6	
Dichloroprop	ND	6.58	0.7	
2,4-D	ND	6.58	0.543	
Pentachlorophenol	ND	6.58	0.767	
Silvex (2,4,5-TP)	ND	6.58	2.1	
2,4,5-T	ND	6.58	1.44	
Dinoseb	ND	6.58	0.543	
2,4-DB	ND	6.58	0.922	
MCPP	ND	6.58	1.8	
MCPA	ND	6.58	0.991	

LABORATORY WORK ORDER
Chain of Custody

King County Department of Natural Resources
Water and Land Resources Division
Environmental Laboratory
322 West Ewing Street
Seattle, Washington 98119-1507

Project Name: MOSS Subtidal Sediments
Project Number: 423457
Laboratory Project Manager: Katherine Bourbonais/John Blaine
Telephone Number: 684 2382/2384

Note: Use only one Login No. per sheet. Sample Number	Client Locator	Collect Date	Collect Time	TOC/TOTS/TVS	NH3	TOTSULFIDE *	PSD *	Al/Fe/Mn/Sn/PP ICP/HG-CVAA	BNALL/PESTLL/PCBLL/OILT	WTPH-DX	TRIBUTYLTIN							Number of Containers	Comments
L 22953 - 1	Z5-1	12/04/01	922	✓	✓	✓	✓	✓	✓	✓	✓							8	
L - 2	Z5-2		939	✓	✓	✓	✓	✓	✓	✓	✓							8	
L - 3	Z5-3		954	✓	✓	✓	✓	✓	✓	✓	✓							8	
L - 4	Z6-1		1018	✓	✓	✓	✓	✓	✓	✓	✓							8	
L - 5	Z6-2		1035	✓	✓	✓	✓	✓	✓	✓	✓							8	
L - 6	Z6-3		1053	✓	✓	✓	✓	✓	✓	✓	✓							8	AREP
L - 7	Z7-1		1159	✓	✓	✓	✓	✓	✓	✓	✓							8	
L - 8	Z7-2		1138	✓	✓	✓	✓	✓	✓	✓	✓							8	
L - 9	Z7-3		1120	✓	✓	✓	✓	✓	✓	✓	✓							8	
L - 10	Z6-3		1053	✓	✓	✓	✓	✓	✓	✓	✓							8	FREP 22953-6
L -																			

Additional Comments:

* Sub-contracted lab parameters.

Total Number of Containers 80

Sampled By: JB, MF, KL, SM

Relinquished By:
Signature: [signature]
Printed Name: Scott Nickelson
Organization: King County ~~Environmental Laboratory~~ Marine Monitoring Group
Date: 12/04/01
Time: 1327

Received By:
Signature: [signature]
Printed Name: Kelly Nickell
Organization: King County Environmental Laboratory
Date: 12-04-01
Time: 1327

Appendix E
Benthic Infauna and Biomass Data

Benthic Taxonomy/Biomass Data
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Station	**Z5-1**	**Z5-1**	**Z5-1**	**Z5-2**	**Z5-2**	**Z5-2**	**Z5-3**	**Z5-3**	**Z5-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
ANNELIDA									
Ampharete acutifrons							3	4	
Ampharete cf crassiseta	3	1		8	2	6			
Ampharete sp				1					
Amphitrite robusta									
Anobothrus gracilis							1		1
Aphelochaeta sp N1									
Aphelochaeta sp								1	1
Apistobranchus ornatus									
Aricidea catherinae									
Aricidea lopezi				1	1	1			1
Aricidea ramosa									
Armandia brevis									
Artacama coniferi								1	
Asabellides lineatus									
Asclerocheilus beringianus									
Barantolla nr americana	4	1	2						4
Bispira sp									
Boccardia pugettensis									
Brada sachalina									
Brada villosa			1						
Capitella capitata									
Caulleriella pacifica									
Chaetopterus variopedatus									
Chaetozone nr setosa			1				3	1	2
Chaetozone sp									
Chone magna									
Chone sp									
Cirratulidae									
Cirratulus sp									
Cossura bansei									
Cossura pygodactylata		1				1	2	1	4
Decamastus gracilis									
Demonax sp									
Diopatra ornata									
Dipolydora cardalia									
Dipolydora caulleryi									
Dipolydora socialis									
Dorvillea annulata									
Drilonereis longa									
Enipo chuckchi									
Eranno bicirrata				1	1				
Eteone spilotus									
Eteone sp	1								
Euchone incolor						1		3	4
Euclymene cf zonalis							3	2	11
Euclymeninae	1				1	3			
Eulalia californiensis									
Eulalia sp N1					1				
Eulalia sp		1							
Eumida longicornuta									
Eumida sp									
Eunoe uniseriata					1				
Eusyllis habei									
Exogone lourei							1		
Exogone molesta									
Galathowenia oculata								1	2

Benthic Taxonomy/Biomass Data
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Station	**Z5-1**	**Z5-1**	**Z5-1**	**Z5-2**	**Z5-2**	**Z5-2**	**Z5-3**	**Z5-3**	**Z5-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Gattyana treadwelli									
Glycera americana						1			
Glycera nana	4	1	2	2	2	2	1	1	4
Glycinde armigera				1				1	
Glycinde polygnatha									
Goniada brunnea					1				1
Goniada maculata									
Harmothoe imbricata									
Harmothoe multisetosa									
Harmothoinae									
Heteromastus filobranchus						1			
Heteromastus sp				2	7	4			
Idanthyrsus saxicavus									
Isocirrus longiceps									
Lanassa nordenskioeldi									
Lanassa venusta									
Laonice cirrata									
Laonome kroyeri									
Leitoscoloplos pugettensis		1	2						
Lepidasthenia berkeleyae									
Lepidasthenia longicirrata									
Lepidonotus spiculus									
Levinsenia gracilis				1			4	6	1
Levinsenia oculata	1	3	1			4	1	2	2
Lumbrineris californiensis									
Lumbrineris sp									
Lumbrineris latreilli									
Lysilla loveni									
Magelona longicornis									
Maldanella harai									
Maldane sarsi					1		1	4	1
Maldanidae									
Malmgreniella bansei	1		1					1	
Malmgreniella berkeleyorum									
Malmgreniella macginitiei									
Malmgreniella scriptoria									
Mediomastus ambiseta									
Mediomastus californiensis									
Mediomastus sp							7	2	7
Megalomma splendida						1		1	1
Melinna cristata									
Melinna oculata									
Microclymene caudata		1	1	3	3	1	8	11	11
Micropodarke dubia									
Monticellina serratiseta	1								
Monticellina sp N1									
Monticellina tesselata									
Myriochele heeri									
Myriochele sp									
Myxicola infundibulum									
Neosabellaria cementarium									
Nephtys cornuta			1						
Nephtys ferruginea	2	1	3	6		3	1	1	7
Nephtys sp		1			1				
Nephtys punctata		1	1			1	5		
Nereididae									
Nereis procera									

Benthic Taxonomy/Biomass Data
Baseline Characterization Study
Candidate Marine Outfall Zones
Diffuser Zone Sediments

Station	**Z5-1**	**Z5-1**	**Z5-1**	**Z5-2**	**Z5-2**	**Z5-2**	**Z5-3**	**Z5-3**	**Z5-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Ninoe gemmea							1		
Notocirrus californiensis									
Notomastus hemipodus									
Notomastus latericeus									
Notomastus sp								3	
Notoproctus pacificus									
Odontosyllis phosphorea									
Oligochaeta					1				
Onuphidae juv									
Onuphis geophiliformis									
Onuphis iridescens	7	4	7	11	3	7	8	4	7
Onuphis sp juv				1					
Ophelina acuminata				3	2	1		1	1
Ophelina groenlandica					1				
Owenia fusiformis	1								
Parandalia fauveli									
Paraprionospio pinnata		1	2		1	1	2		
Pectinaria californiensis	6	8	7	2	8	12	5	6	5
Pectinaria sp			1						
Petaloproctus borealis									
Pholoe minuta									
Pholoe sp				2		1	1		
Pholoe sp N1	1	2	3						3
Pholoides asperus									
Phyllochaetopterus prolifica									
Phyllodoce cuspidata									1
Phyllodoce groenlandica									
Phyllodoce hartmanae									
Phyllodoce longipes		1							1
Phyllodoce sp									
Pista bansei								2	
Pista nr brevibranchiata	1		1	1	3	1			
Pista moorei									
Pista wui		1			1	1			
Pista sp									
Podarke pugettensis									
Podarkeopsis glabra									
Podarkeopsis perkinsi									
Polycirrus californicus				1					
Polycirrus sp									
Polycirrus sp I, sensu Banse 1980	1								
Polycirrus sp A, sensu Phillips 1995									
Polycirrus sp V, sensu Banse, 1980									
Polycirrus sp IV, sensu Banse 1980									
Polynoidae juv									
Praxillella pacifica	4	12	15	9	7	9	8	11	8
Praxillella sp									
Prionospio lighti	5		3	3	1	4	7	10	10
Prionospio steenstrupi	1	1	1		1			3	4
Proceraea cornuta									
Proclea graffi									1
Protodorvillea gracilis									
Pseudopotamilla intermedia									
Pseudopotamilla sp 1									
Pterocirrus mentereyensis			1						
Pygospio elegans									
Rhodine bitorquata						1			

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Station	**Z5-1**	**Z5-1**	**Z5-1**	**Z5-2**	**Z5-2**	**Z5-2**	**Z5-3**	**Z5-3**	**Z5-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Schistocomus hiltoni									
Scionella japonica									
Scolelepis sp									
Scoletoma luti	2			1	1		4	4	8
Scoloplos acmeceps							1		1
Sigambra nr bassi									
Sphaerodoropsis sphaerulifer		2		1	6			1	7
Sphaerosyllis ranunculus									
Spiochaetopterus costarum								1	
Spio cirrifera									
Spiophanes berkeleyorum		3	2		1	4	1	1	3
Spiophanes bombyx									
Sternaspis cf fossor					1				
Syllidae									
Tenonia priops									
Terebellidae									
Terebellides californica	1				3	1	3	2	5
Terebellides sp									
Tharyx sp N1									
Thelepus setosus									
Travisia brevis									
Travisia pupa		2					2		
Trichobranchus glacialis									
Trochochaeta multisetosa									
Typosyllis caeca (=hyperioni)									
Typosyllis cornuta (=harti)									
Typosyllis heterochaeta									
Annelida Biomass (grams)	**8.96**	**16.59**	**14.18**	**14.89**	**15.27**	**11.68**	**22.02**	**7.59**	**8.75**
CRUSTACEA									
Ostracoda Podocopida									
Bathyleberis sp.			1						4
Euphilomedes carcharodonta									
Euphilomedes producta	89	46	48	40	66	87	22	42	57
Rutiderma lomae									
Chauliopleona dentata									
Scoloura phillipsi									
Leptochelia dubia									
Diastylis sp.						1		1	
Diastylis paraspinulosa								1	1
Diastylis pellucida	2	4	1	2	2	3	1		
Diastylis santamariensis									
Leptostylis sp.							1	2	1
Lamprops sp.									
Eudorella pacifica	20	11	16	7	10	7	6	4	5
Eudorellopsis longirostris			1			1			2
Eudorellopsis integra	2		3		2	8	1		5
Leucon sp.									
Campylasps hartae									
Campylaspis rubromaculata									
Haliophasma geminatum								1	
Munnopsurus sp.							2		
Rocinela propodialis			1						
Ampelisca sp.									
Ampelisca lobata									
Ampelisca hancocki									
Ampelisca careyi							1	1	2

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Station	**Z5-1**	**Z5-1**	**Z5-1**	**Z5-2**	**Z5-2**	**Z5-2**	**Z5-3**	**Z5-3**	**Z5-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Byblis millsi									
Aoroides sp.									
Argissa hamatipes				1	1				2
Calliopiidae sp.							1		
Calliopius columbianus	1		2	1					
Corophium sp.									
Guernea reduncans									
Eusirus columbianus			1						
Rhacotropis barnardi								3	
Rhacotropis oculata					1				
Gammaropsis ellisi									
Photis sp.									
Photis bifurcata									
Photis brevipes	1								
Photis lacia			1						
Photis parvidons									
Protomedeia prudens		2						1	
Protomedeia sp.									
Microjassa sp.									
Lysianassidae sp.									
Anonyx lilljeborgi					2				
Aruga holmesi									
Cyphocaris challengeri			2		4	4	2	4	1
Hippomedon coecus									
Orchomene pacificus	5	3	4		1	3	2	2	5
Orchomene cf. pinguis	1			1				3	
Orchomene decipiens									
Opisa tridentata									
Pachynus barnardi									
Desdimelita desdichada	1	8		3		2			2
Melphidippidae sp.					1			1	
Americhelidium variabilum	1		1						
Americhelidium shoemakeri									
Bathymedon pumilis				1	1			1	
Deflexilodes sp.									
Westwoodilla caecula									
Pardalisca sp.									
Foxiphalus similis									
Harpiniopsis fulgens	5	12	6	2	5	5	5	1	10
Heterophoxus affinis	8	7	3	2	6	8	3	1	3
Metaphoxus frequens					2	2			5
Parametaphoxus quaylei									
Paraphoxus sp.	8			1		1			1
Rhepoxynius barnardi									
Parapleustinae				1			1	1	
Dyopedos sp.		2			1	2			
Paradulichia typica									
Stenothoidae sp.									
Hardametopa nasuta									
Bruzelia tuberculata	1			1	3	8		1	
Tiron biocellota									
Caprella sp.									
Caprella irregularis									
Caprella mendax									
Mayerella banksia									
Tritella pilimana									1
Themisto pacifica									

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Station	**Z5-1**	**Z5-1**	**Z5-1**	**Z5-2**	**Z5-2**	**Z5-2**	**Z5-3**	**Z5-3**	**Z5-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Holmesiella anomola									
Pseudomma sp.	1	1	4	3	3	3	5	2	2
Euphausiacea sp.									
Decapoda larvae						1			
Caridea sp.									
Mesocrangon munitella									
Crangonidae									
Hippolytidae									
Spirontocaris snyderi									
Eualus sp.	1						1		
Pasiphaea pacifica									
Cancer oregonensis									
Pugettia gracilis									
Lophopanopeus bellus									
Pinnixa schmitti/occidentalis	22	34	44	36	19	40	59	35	33
Pinnixa sp.			3	1					
Pinnotheridae sp.									
Pagurus sp.									
Infraorder Thallasinidea									
Collembolla		1							
Crustacea Biomass (grams)	**0.70**	**0.88**	**3.05**	**0.84**	**0.51**	**1.03**	**1.29**	**0.72**	**0.62**
MOLLUSCA									
Bivalvia									
Acila castrensis			1	1	1	3	1	1	2
Adontorhina cyclia	3		2	3	5	3	19	13	23
Astarte esquimalti									
Axinopsida serricata	34	25	31	89	86	91	151	104	160
Cardiidae sp. juv.									
Cardiomya pectinata									
Clinocardium sp. juv.						1			
Compsomyax subdiaphana			2		1	1	1		
Cyclocardia ventricosa									
Ennucula tenuis	2	4		1	4	2	1		1
Entodesma navicula									
Hiatella arctica									
Humilaria kennerleyi									
Lucinoma annulatum	1				1	1		1	
Lyonsia californica									
Macoma calcarea									
Macoma carlottensis	263	92	146	90	127	136	83	96	142
Macoma elimata	3				1		4	3	
Macoma golikovi									
Macoma moesta alaskana									
Macoma yoldiformis									
Macoma sp. juv.									
Mactridae sp. juv.									
Musculus discors									
Mya arenaria									
Mya sp. juv.									
Nemocardium centifilosum	1	1							1
Nuculana cellulita									
Nuculana hamata									
Nuculana minuta		1							1
Nutricola lordi									
Pandora filosa		1	1						
Parvilucina tenuisculpta		4	4	6	2	9	8	4	14

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Station	**Z5-1**	**Z5-1**	**Z5-1**	**Z5-2**	**Z5-2**	**Z5-2**	**Z5-3**	**Z5-3**	**Z5-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Pectinidae sp. juv.									
Rochefortia tumida	2	3	9	3		6	2		2
Saxidomus gigantea									
Scintillona bellerophon									
Solamen columbianum									
Solen sicarius									
Tellina modesta							1		
Thracia trapezoides									
Thracia sp. juv.									
Yoldia seminuda	1	1	1		1		1		
Gastropoda									
Alvania rosana									
Alvania compacta									
Astyris gausapata			2	1	1	1			1
Crepipatella dorsata									
Cryptonatica affinis									
Cylichna attonsa									
Cylichna sp. juv.									
Corambe pacifica		1		2					2
Euspira pallida									
Gastropteron pacificum									
Lirobittium eschrichtii	3	6	3	10	11	2	7	4	
Lirobittium sp. juv.									
Melanochlamys diomedea									
Odostomia spp.	3			1	2				
Ophiodermella cancellata									
Philine sp. indet.									
Turbonilla sp. indet.								2	2
Turridae sp. indet.		1							
Scaphopoda									
Pulsellum salishorum juv.	2	2	1		1	1	1	1	1
Aplacophora									
Chaetoderma sp. indet.		1							
Aplacophora sp. indet.									
Mollusca Biomass (grams)	**3.39**	**2.43**	**3.72**	**1.90**	**10.47**	**2.06**	**2.46**	**2.95**	**3.95**
MISCELLANEOUS									
Amphiodia sp.					1				1
Amphiodia urtica	1		1			1			
Amphipholis squamata								3	
Amphiporus spp.						1		1	1
Amphiuridae sp.									
Anoplodactylus erectus						1			
Anoplodactylus sp.									
Arhynchite pugettensis									
Brisaster latifrons									
Bryozoa spp.									
Buskia nitens									
Cerebratulus sp.									
Clavopora occidentalis									
Clytia sp.									
Dendrochirotida spp.									
Golfingiidae sp.									
Halcampa decemtentaculata									1
Hoplonemertea spp.									
Leptoplanidae spp.									
Leptosynapta sp.									

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Station	**Z5-1**	**Z5-1**	**Z5-1**	**Z5-2**	**Z5-2**	**Z5-2**	**Z5-3**	**Z5-3**	**Z5-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Leptosynapta transgressor									
Lineidae spp.									
Molpadia intermedia									
Nematoda unid.									
Nemertea spp.									
Notoplana sp.							1		1
Nymphon pixellae									
Nynantheae sp.									
Pachycerianthus fimbriatus									
Pachycerianthus sp.						1	1		
Pentamera populifera								1	
Pentamera spp.									
Polycladida spp.									
Psolidium bidiscum									
Ptilosarcus gurneyi									
Sertulariidae spp.									
Tetrastemma reticulatum									
Tetrastemma sp.									
Thysanocardia nigra			1						
Tubulanus capistratus									
Tubulanus pellucidus				1					
Tubulanus spp.									
Tubularia sp.									
Miscellaneous Biomass (grams)	**0.19**	**0**	**0.10**	**0.77**	**0.07**	**0.11**	**0.13**	**0.07**	**0.05**

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Station	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-3**	**Z6-SB-3**	**Z6-SB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
ANNELIDA									
Ampharete acutifrons								1	
Ampharete cf crassiseta									
Ampharete sp									
Amphitrite robusta									
Anobothrus gracilis									
Aphelochaeta sp N1									
Aphelochaeta sp									
Apistobranchus ornatus									
Aricidea catherinae									
Aricidea lopezi									
Aricidea ramosa									
Armandia brevis								1	
Artacama coniferi									
Asabellides lineatus									
Asclerocheilus beringianus									
Barantolla nr americana			3	1		1		4	
Bispira sp									
Boccardia pugettensis									
Brada sachalina									
Brada villosa									
Capitella capitata									
Caulleriella pacifica									
Chaetopterus variopedatus									
Chaetozone nr setosa									
Chaetozone sp									
Chone magna									
Chone sp									
Cirratulidae									
Cirratulus sp									
Cossura bansei							1		
Cossura pygodactylata		1		1	1				
Decamastus gracilis									
Demonax sp									
Diopatra ornata									
Dipolydora cardalia									
Dipolydora caulleryi									
Dipolydora socialis									
Dorvillea annulata									
Drilonereis longa									
Enipo chuckchi									
Eranno bicirrata									
Eteone spilotus									
Eteone sp									
Euchone incolor									
Euclymene cf zonalis		1				1			
Euclymeninae				2		1		1	
Eulalia californiensis									
Eulalia sp N1									
Eulalia sp									
Eumida longicornuta									
Eumida sp									
Eunoe uniseriata									
Eusyllis habei									
Exogone lourei									
Exogone molesta									
Galathowenia oculata				2			1	2	

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Station	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-3**	**Z6-SB-3**	**Z6-SB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Gattyana treadwelli									
Glycera americana									
Glycera nana	3	2	2	2	1	3	2	1	1
Glycinde armigera		2	1	1				1	
Glycinde polygnatha							1		
Goniada brunnea						1		1	
Goniada maculata									
Harmothoe imbricata									
Harmothoe multisetosa									
Harmothoinae									
Heteromastus filobranchus				1	1	2	2		1
Heteromastus sp									
Idanthyrsus saxicavus									
Isocirrus longiceps									
Lanassa nordenskioeldi									
Lanassa venusta									
Laonice cirrata				1					
Laonome kroyeri									
Leitoscoloplos pugettensis									
Lepidasthenia berkeleyae									
Lepidasthenia longicirrata									
Lepidonotus spiculus									
Levinsenia gracilis	1						1		
Levinsenia oculata	1	4	1					2	2
Lumbrineris californiensis									
Lumbrineris sp									
Lumbrineris latreilli									
Lysilla loveni									
Magelona longicornis									
Maldanella harai									
Maldane sarsi									
Maldanidae									
Malmgreniella bansei			2		1				1
Malmgreniella berkeleyorum									
Malmgreniella macginitiei									
Malmgreniella scriptoria		1							
Mediomastus ambiseta							1		
Mediomastus californiensis									
Mediomastus sp									
Megalomma splendida									
Melinna cristata									
Melinna oculata									
Microclymene caudata	5			2	1	2	2	1	2
Micropodarke dubia									
Monticellina serratiseta									
Monticellina sp N1									
Monticellina tesselata									
Myriochele heeri									
Myriochele sp	1								
Myxicola infundibulum									
Neosabellaria cementarium									
Nephtys cornuta	2		2		3	2	1		
Nephtys ferruginea	1	2	2	4	4	3	1		5
Nephtys sp					1	1	3	1	2
Nephtys punctata					1	1	1	1	1
Nereididae									
Nereis procera									

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Station	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-3**	**Z6-SB-3**	**Z6-SB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Ninoe gemmea									
Notocirrus californiensis									
Notomastus hemipodus									
Notomastus latericeus									
Notomastus sp									
Notoproctus pacificus									
Odontosyllis phosphorea									
Oligochaeta			1		2	1			1
Onuphidae juv									
Onuphis geophiliformis									
Onuphis iridescens	1	4	2	2	3	2	2	5	3
Onuphis sp juv									
Ophelina acuminata							1	2	1
Ophelina groenlandica				1					
Owenia fusiformis								1	
Parandalia fauveli									
Paraprionospio pinnata			1						
Pectinaria californiensis	7	4	5	5	4	8	9	5	7
Pectinaria sp									
Petaloproctus borealis									
Pholoe minuta									
Pholoe sp		1	2						
Pholoe sp N1	2	1		1		1	3	2	3
Pholoides asperus									
Phyllochaetopterus prolifica									
Phyllodoce cuspidata									1
Phyllodoce groenlandica									
Phyllodoce hartmanae									
Phyllodoce longipes									
Phyllodoce sp							1		
Pista bansei									
Pista nr brevibranchiata					2				
Pista moorei									
Pista wui									
Pista sp									
Podarke pugettensis									
Podarkeopsis glabra									
Podarkeopsis perkinsi	1	1							
Polycirrus californicus									
Polycirrus sp			2						1
Polycirrus sp I, sensu Banse 1980									
Polycirrus sp A, sensu Phillips 1995									
Polycirrus sp V, sensu Banse, 1980									
Polycirrus sp IV, sensu Banse 1980									
Polynoidae juv									
Praxillella pacifica				3	7	5	5	4	5
Praxillella sp									
Prionospio lighti	1	9	2	3	6	1	6	6	2
Prionospio steenstrupi				2		1	2		
Proceraea cornuta									
Proclea graffi									
Protodorvillea gracilis									
Pseudopotamilla intermedia									
Pseudopotamilla sp 1									
Pterocirrus mentereyensis									
Pygospio elegans									
Rhodine bitorquata									

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Station	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-3**	**Z6-SB-3**	**Z6-SB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Schistocomus hiltoni									
Scionella japonica									
Scolelepis sp									
Scoletoma luti				1		1			
Scoloplos acmeceps									
Sigambra nr bassi									
Sphaerodoropsis sphaerulifer					2		3	3	
Sphaerosyllis ranunculus									
Spiochaetopterus costarum									
Spio cirrifera									
Spiophanes berkeleyorum	1						1	1	
Spiophanes bombyx									
Sternaspis cf fossor									
Syllidae									
Tenonia priops		1			1				
Terebellidae									
Terebellides californica									
Terebellides sp									
Tharyx sp N1									
Thelepus setosus									
Travisia brevis									
Travisia pupa				3		1			1
Trichobranchus glacialis									
Trochochaeta multisetosa							1		
Typosyllis caeca (=hyperioni)									
Typosyllis cornuta (=harti)									
Typosyllis heterochaeta									
Annelida Biomass (grams)	**1.19**	**1.79**	**1.96**	**13.59**	**14.44**	**5.15**	**11.36**	**5.10**	**15.07**
CRUSTACEA									
Ostracoda Podocopida									
Bathyleberis sp.						1	1		
Euphilomedes carcharodonta									
Euphilomedes producta	88	76	72	62	58	77	103	73	81
Rutiderma lomae							1		
Chauliopleona dentata									
Scoloura phillipsi									
Leptochelia dubia									
Diastylis sp.									
Diastylis paraspinulosa									
Diastylis pellucida	3		2	10	3	1	6	2	2
Diastylis santamariensis									
Leptostylis sp.	1				1			1	1
Lamprops sp.									
Eudorella pacifica	17	22	11	7	8	5	10	4	7
Eudorellopsis longirostris					1	1			
Eudorellopsis integra		3	3	2	2	6	1	1	2
Leucon sp.									
Campylasps hartae									
Campylaspis rubromaculata									
Haliophasma geminatum									
Munnopsurus sp.									
Rocinela propodialis									
Ampelisca sp.									
Ampelisca lobata									
Ampelisca hancocki									
Ampelisca careyi									

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Station	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-3**	**Z6-SB-3**	**Z6-SB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Byblis millsi									
Aoroides sp.									
Argissa hamatipes									
Calliopiidae sp.		5	2						
Calliopius columbianus									
Corophium sp.									
Guernea reduncans			1			1			
Eusirus columbianus				5			1		
Rhacotropis barnardi									
Rhacotropis oculata									
Gammaropsis ellisi									
Photis sp.									
Photis bifurcata									
Photis brevipes									
Photis lacia		5				3	3	1	1
Photis parvidons									
Protomedeia prudens									
Protomedeia sp.									
Microjassa sp.									
Lysianassidae sp.									
Anonyx lilljeborgi									
Aruga holmesi									
Cyphocaris challengeri	2		1	1			4		
Hippomedon coecus									
Orchomene pacificus	3	8	7	3	3	11	10	2	2
Orchomene cf. pinguis									
Orchomene decipiens									
Opisa tridentata									
Pachynus barnardi									
Desdimelita desdichada			4	1	3	1			
Melphidippidae sp.		1					2		
Americhelidium variabilum					1				
Americhelidium shoemakeri									
Bathymedon pumilis									
Deflexilodes sp.									
Westwoodilla caecula							1		
Pardalisca sp.									
Foxiphalus similis									
Harpiniopsis fulgens	3	5	3	1	1	2	5	3	2
Heterophoxus affinis	1	2	2	2	3	5	5		5
Metaphoxus frequens						1			
Parametaphoxus quaylei									
Paraphoxus sp.				2					
Rhepoxynius barnardi		1							
Parapleustinae	1								
Dyopedos sp.						1	1		
Paradulichia typica									
Stenothoidae sp.									
Hardametopa nasuta									
Bruzelia tuberculata			1						
Tiron biocellota									
Caprella sp.									
Caprella irregularis									
Caprella mendax									
Mayerella banksia									
Tritella pilimana	1								
Themisto pacifica									

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Station	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-3**	**Z6-SB-3**	**Z6-SB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Holmesiella anomola									
Pseudomma sp.						2			
Euphausiacea sp.	1								
Decapoda larvae									
Caridea sp.			1						
Mesocrangon munitella									
Crangonidae									
Hippolytidae									
Spirontocaris snyderi									
Eualus sp.									
Pasiphaea pacifica					1				
Cancer oregonensis									
Pugettia gracilis									
Lophopanopeus bellus									
Pinnixa schmitti/occidentalis		2	7	22	19	8	22	18	12
Pinnixa sp.									
Pinnotheridae sp.									
Pagurus sp.									
Infraorder Thallasinidea									
Collembolla									
Crustacea Biomass (grams)	**0.09**	**0.10**	**0.20**	**0.52**	**0.62**	**0.19**	**0.67**	**0.51**	**0.46**
MOLLUSCA									
Bivalvia									
Acila castrensis	8	8	13	9	11	5	15	10	15
Adontorhina cyclia						2			
Astarte esquimalti									
Axinopsida serricata	4	8	8	35	34	43	43	46	50
Cardiidae sp. juv.									
Cardiomya pectinata									
Clinocardium sp. juv.							1	1	
Compsomyax subdiaphana				1				1	
Cyclocardia ventricosa									
Ennucula tenuis	3	1	1	2		1	2	3	1
Entodesma navicula									
Hiatella arctica									
Humilaria kennerleyi									
Lucinoma annulatum				4		1	3	3	
Lyonsia californica				1				1	
Macoma calcarea									
Macoma carlottensis	973	849	722	586	526	513	602	437	576
Macoma elimata		2		1			4	3	2
Macoma golikovi									
Macoma moesta alaskana									
Macoma yoldiformis									
Macoma sp. juv.									
Mactridae sp. juv.									
Musculus discors									
Mya arenaria									
Mya sp. juv.									
Nemocardium centifilosum									
Nuculana cellulita									
Nuculana hamata									
Nuculana minuta									
Nutricola lordi									
Pandora filosa									
Parvilucina tenuisculpta	1		1	8	10	12	15	17	11

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Station	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-3**	**Z6-SB-3**	**Z6-SB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Pectinidae sp. juv.									
Rochefortia tumida	2		1	3		4	2	1	3
Saxidomus gigantea									
Scintillona bellerophon									
Solamen columbianum									
Solen sicarius									
Tellina modesta									
Thracia trapezoides									
Thracia sp. juv.									
Yoldia seminuda	1			1					1
Gastropoda									
Alvania rosana									
Alvania compacta									
Astyris gausapata			1		1		1	1	
Crepipatella dorsata									
Cryptonatica affinis	1								
Cylichna attonsa									
Cylichna sp. juv.									
Corambe pacifica						1		1	
Euspira pallida									
Gastropteron pacificum									
Lirobittium eschrichtii	3	1	4	3	3	7	3	1	2
Lirobittium sp. juv.									
Melanochlamys diomedea		1		1					1
Odostomia spp.	1					1			
Ophiodermella cancellata									
Philine sp. indet.									
Turbonilla sp. indet.									
Turridae sp. indet.									
Scaphopoda									
Pulsellum salishorum juv.		1	1	2		1	1		1
Aplacophora									
Chaetoderma sp. indet.				1		1			
Aplacophora sp. indet.									
Mollusca Biomass (grams)	**8.07**	**8.57**	**10.52**	**4.06**	**4.16**	**3.75**	**4.26**	**23.91**	**5.41**
MISCELLANEOUS									
Amphiodia sp.					1	1			
Amphiodia urtica									
Amphipholis squamata									
Amphiporus spp.		1	1		2		4		2
Amphiuridae sp.									
Anoplodactylus erectus									
Anoplodactylus sp.									
Arhynchite pugettensis									
Brisaster latifrons									
Bryozoa spp.									
Buskia nitens									
Cerebratulus sp.			1					1	1
Clavopora occidentalis									
Clytia sp.									
Dendrochirotida spp.									
Golfingiidae sp.	1								
Halcampa decemtentaculata									
Hoplonemertea spp.									
Leptoplanidae spp.									
Leptosynapta sp.									

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Station	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-1**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-2**	**Z6-SB-3**	**Z6-SB-3**	**Z6-SB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Leptosynapta transgressor									
Lineidae spp.								1	
Molpadia intermedia	1		2						
Nematoda unid.									
Nemertea spp.		1							
Notoplana sp.									1
Nymphon pixellae									
Nynantheae sp.									1
Pachycerianthus fimbriatus									
Pachycerianthus sp.									
Pentamera populifera									
Pentamera spp.									
Polycladida spp.									
Psolidium bidiscum									
Ptilosarcus gurneyi									
Sertulariidae spp.									
Tetrastemma reticulatum									
Tetrastemma sp.									
Thysanocardia nigra									
Tubulanus capistratus									
Tubulanus pellucidus									
Tubulanus spp.		1							
Tubularia sp.									
Miscellaneous Biomass (grams)	**78.89**	**0.45**	**109.49**	**0**	**<0.01**	**<0.01**	**<0.01**	**3.06**	**1.57**

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Station	Z7-SNB-1	Z7-SNB-1	Z7-SNB-1	Z7-SNB-2	Z7-SNB-2	Z7-SNB-2	Z7-SNB-3	Z7-SNB-3	Z7-SNB-3
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
ANNELIDA									
Ampharete acutifrons									
Ampharete cf crassiseta									
Ampharete sp									
Amphitrite robusta									
Anobothrus gracilis									
Aphelochaeta sp N1									
Aphelochaeta sp									
Apistobranchus ornatus									
Aricidea catherinae									
Aricidea lopezi									
Aricidea ramosa									
Armandia brevis									
Artacama coniferi				1					
Asabellides lineatus									
Asclerocheilus beringianus									
Barantolla nr americana	4			1	1	2		1	3
Bispira sp									
Boccardia pugettensis									
Brada sachalina									1
Brada villosa									
Capitella capitata									
Caulleriella pacifica									
Chaetopterus variopedatus									
Chaetozone nr setosa									
Chaetozone sp									
Chone magna									
Chone sp									
Cirratulidae									
Cirratulus sp									
Cossura bansei									
Cossura pygodactylata	2			1	1	2	2	1	
Decamastus gracilis									
Demonax sp									
Diopatra ornata									
Dipolydora cardalia									
Dipolydora caulleryi						18			
Dipolydora socialis									
Dorvillea annulata									
Drilonereis longa									
Enipo chuckchi									
Eranno bicirrata									1
Eteone spilotus									
Eteone sp									
Euchone incolor									
Euclymene cf zonalis							1		
Euclymeninae									
Eulalia californiensis									
Eulalia sp N1									
Eulalia sp									
Eumida longicornuta									
Eumida sp									
Eunoe uniseriata									
Eusyllis habei									
Exogone lourei									
Exogone molesta									
Galathowenia oculata					1		1		1

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Station	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-3**	**Z7-SNB-3**	**Z7-SNB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Gattyana treadwelli									2
Glycera americana									
Glycera nana	4	2	2	2	2	7	1	3	2
Glycinde armigera		1	3		1		1	1	
Glycinde polygnatha									
Goniada brunnea		1			1				
Goniada maculata									
Harmothoe imbricata									
Harmothoe multisetosa									
Harmothoinae									
Heteromastus filobranchus			1	1					
Heteromastus sp									
Idanthyrsus saxicavus									
Isocirrus longiceps									
Lanassa nordenskioeldi									
Lanassa venusta									
Laonice cirrata									
Laonome kroyeri									
Leitoscoloplos pugettensis									
Lepidasthenia berkeleyae	1								
Lepidasthenia longicirrata									
Lepidonotus spiculus									
Levinsenia gracilis									
Levinsenia oculata		2		4		5	1		2
Lumbrineris californiensis									
Lumbrineris sp									
Lumbrineris latreilli									
Lysilla loveni									
Magelona longicornis									
Maldanella harai									
Maldane sarsi				1			1		
Maldanidae									
Malmgreniella bansei					1	1			
Malmgreniella berkeleyorum									
Malmgreniella macginitiei			1						
Malmgreniella scriptoria									
Mediomastus ambiseta									
Mediomastus californiensis									
Mediomastus sp						4	1	1	
Megalomma splendida									
Melinna cristata									
Melinna oculata									
Microclymene caudata				1				1	1
Micropodarke dubia									
Monticellina serratiseta									
Monticellina sp N1									
Monticellina tesselata									
Myriochele heeri									
Myriochele sp									
Myxicola infundibulum									
Neosabellaria cementarium									
Nephtys cornuta		2	2						2
Nephtys ferruginea	2	3	1	2	2	2	6	3	2
Nephtys sp									
Nephtys punctata							1		
Nereididae									
Nereis procera									

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Station	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-3**	**Z7-SNB-3**	**Z7-SNB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Ninoe gemmea									
Notocirrus californiensis									
Notomastus hemipodus									
Notomastus latericeus									
Notomastus sp									
Notoproctus pacificus									
Odontosyllis phosphorea									
Oligochaeta									1
Onuphidae juv									
Onuphis geophiliformis	1								
Onuphis iridescens	2	2	5	3	2	1	2	1	1
Onuphis sp juv									
Ophelina acuminata				1			2	1	1
Ophelina groenlandica									
Owenia fusiformis						3			
Parandalia fauveli									
Paraprionospio pinnata					1			1	1
Pectinaria californiensis	3		1	6	2	3	1	1	5
Pectinaria sp									
Petaloproctus borealis									
Pholoe minuta	1	1	1						
Pholoe sp				2	1	1		1	4
Pholoe sp N1							1		
Pholoides asperus									
Phyllochaetopterus prolifica									
Phyllodoce cuspidata								1	
Phyllodoce groenlandica			1						
Phyllodoce hartmanae									
Phyllodoce longipes									
Phyllodoce sp									
Pista bansei									
Pista nr brevibranchiata									
Pista moorei									
Pista wui									
Pista sp									
Podarke pugettensis									
Podarkeopsis glabra									
Podarkeopsis perkinsi			1				1	1	
Polycirrus californicus									
Polycirrus sp								1	
Polycirrus sp I, sensu Banse 1980									
Polycirrus sp A, sensu Phillips 1995									
Polycirrus sp V, sensu Banse, 1980									
Polycirrus sp IV, sensu Banse 1980						1			
Polynoidae juv									
Praxillella pacifica	3		3		1	1			
Praxillella sp									
Prionospio lighti	4		1	2	3	13		3	1
Prionospio steenstrupi	1		2		2		2	2	1
Proceraea cornuta									
Proclea graffi									
Protodorvillea gracilis									
Pseudopotamilla intermedia									
Pseudopotamilla sp 1									
Pterocirrus mentereyensis									
Pygospio elegans									
Rhodine bitorquata	1								

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Station	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-3**	**Z7-SNB-3**	**Z7-SNB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Schistocomus hiltoni									
Scionella japonica									
Scolelepis sp									
Scoletoma luti					1	1			
Scoloplos acmeceps									
Sigambra nr bassi		1							
Sphaerodoropsis sphaerulifer			1				1		1
Sphaerosyllis ranunculus									
Spiochaetopterus costarum									
Spio cirrifera									
Spiophanes berkeleyorum					2	3	1	1	
Spiophanes bombyx									
Sternaspis cf fossor									
Syllidae									
Tenonia priops									
Terebellidae									
Terebellides californica									
Terebellides sp									
Tharyx sp N1									
Thelepus setosus									
Travisia brevis									
Travisia pupa				1		1		1	
Trichobranchus glacialis									
Trochochaeta multisetosa									
Typosyllis caeca (=hyperioni)									
Typosyllis cornuta (=harti)									
Typosyllis heterochaeta									
Annelida Biomass (grams)	**4.01**	**2.80**	**4.22**	**16.17**	**1.19**	**18.21**	**1.64**	**11.22**	**3.64**
CRUSTACEA									
Ostracoda Podocopida									
Bathyleberis sp.	1					1			2
Euphilomedes carcharodonta									
Euphilomedes producta	89	91	88	91	87	64	72	54	105
Rutiderma lomae									
Chauliopleona dentata									
Scoloura phillipsi									
Leptochelia dubia									
Diastylis sp.									
Diastylis paraspinulosa									
Diastylis pellucida	3	6	3	5	3	3	5	6	2
Diastylis santamariensis									
Leptostylis sp.		2		2	1			1	
Lamprops sp.									
Eudorella pacifica	14	7	9	18	8	7	6	6	
Eudorellopsis longirostris									
Eudorellopsis integra				1	1	1	2		2
Leucon sp.	2								1
Campylasps hartae									
Campylaspis rubromaculata									
Haliophasma geminatum									
Munnopsurus sp.									
Rocinela propodialis									
Ampelisca sp.									
Ampelisca lobata									
Ampelisca hancocki									
Ampelisca careyi									

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Station	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-3**	**Z7-SNB-3**	**Z7-SNB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Byblis millsi									
Aoroides sp.									
Argissa hamatipes		1							
Calliopiidae sp.									
Calliopius columbianus						1			1
Corophium sp.									
Guernea reduncans			1						
Eusirus columbianus		2							
Rhacotropis barnardi									
Rhacotropis oculata									
Gammaropsis ellisi									
Photis sp.	1								
Photis bifurcata									
Photis brevipes									
Photis lacia		3					2		2
Photis parvidons									
Protomedeia prudens						1			
Protomedeia sp.						3			
Microjassa sp.									
Lysianassidae sp.									
Anonyx lilljeborgi			1						
Aruga holmesi									
Cyphocaris challengeri	1		1	8	3	12			
Hippomedon coecus									
Orchomene pacificus	20	16	20	10	9	8	7	6	22
Orchomene cf. pinguis									
Orchomene decipiens				1					
Opisa tridentata									
Pachynus barnardi									
Desdimelita desdichada			2						
Melphidippidae sp.	5	6	3	1	1	3	1		2
Americhelidium variabilum	3	3		1				2	
Americhelidium shoemakeri							1		
Bathymedon pumilis									
Deflexilodes sp.									
Westwoodilla caecula	2						2		
Pardalisca sp.									
Foxiphalus similis									
Harpiniopsis fulgens	1	5	7	6	10	12	7	6	15
Heterophoxus affinis	4	6	7	1	3	3	2		3
Metaphoxus frequens									
Parametaphoxus quaylei									
Paraphoxus sp.	2		1						
Rhepoxynius barnardi									
Parapleustinae	1	1	1	2			1	2	1
Dyopedos sp.		1		1					
Paradulichia typica									
Stenothoidae sp.								1	
Hardametopa nasuta									
Bruzelia tuberculata	6	3	2	1					
Tiron biocellota									
Caprella sp.									
Caprella irregularis									
Caprella mendax									
Mayerella banksia									
Tritella pilimana									
Themisto pacifica						2			

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Station	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-3**	**Z7-SNB-3**	**Z7-SNB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Holmesiella anomola									
Pseudomma sp.		1	1	2					
Euphausiacea sp.									
Decapoda larvae									
Caridea sp.									
Mesocrangon munitella									
Crangonidae				1	1				1
Hippolytidae									
Spirontocaris snyderi									
Eualus sp.									
Pasiphaea pacifica									
Cancer oregonensis									
Pugettia gracilis									
Lophopanopeus bellus									
Pinnixa schmitti/occidentalis	2		8	5	2	14	1	2	2
Pinnixa sp.									
Pinnotheridae sp.									
Pagurus sp.									
Infraorder Thallasinidea									
Collembolla									
Crustacea Biomass (grams)	**0.24**	**0.13**	**0.36**	**0.26**	**0.17**	**0.46**	**0.11**	**0.09**	**0.14**
MOLLUSCA									
Bivalvia									
Acila castrensis	8	2	7	2	4	4	3	2	5
Adontorhina cyclia		1							
Astarte esquimalti									
Axinopsida serricata	12	11	19	20	17	18	17	10	13
Cardiidae sp. juv.			1						
Cardiomya pectinata									
Clinocardium sp. juv.									
Compsomyax subdiaphana									
Cyclocardia ventricosa									
Ennucula tenuis	1		2	3	1		1	1	
Entodesma navicula									
Hiatella arctica									
Humilaria kennerleyi									
Lucinoma annulatum	5	2	1	3	2	3	1	2	1
Lyonsia californica	1								
Macoma calcarea									
Macoma carlottensis	1204	921	948	1046	892	773	762	645	803
Macoma elimata	2			6	3		4	2	2
Macoma golikovi									
Macoma moesta alaskana									
Macoma yoldiformis									
Macoma sp. juv.									
Mactridae sp. juv.									
Musculus discors									
Mya arenaria									
Mya sp. juv.									
Nemocardium centifilosum		1							
Nuculana cellulita									
Nuculana hamata			1						
Nuculana minuta									
Nutricola lordi									
Pandora filosa									
Parvilucina tenuisculpta	16	16	15	11	12	6	10	5	9

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Station	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-3**	**Z7-SNB-3**	**Z7-SNB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Pectinidae sp. juv.									
Rochefortia tumida	6	3	4	3		3		2	4
Saxidomus gigantea									
Scintillona bellerophon				1					
Solamen columbianum									
Solen sicarius				1					
Tellina modesta							1		
Thracia trapezoides									
Thracia sp. juv.									1
Yoldia seminuda	1	1			2	3			
Gastropoda									
Alvania rosana									
Alvania compacta						2			
Astyris gausapata			1						1
Crepipatella dorsata									
Cryptonatica affinis									
Cylichna attonsa						1			
Cylichna sp. juv.	2								
Corambe pacifica									
Euspira pallida									1
Gastropteron pacificum									
Lirobittium eschrichtii	10	1	10	6	6	6	5	7	9
Lirobittium sp. juv.									
Melanochlamys diomedea									1
Odostomia spp.				1	1	1			
Ophiodermella cancellata									
Philine sp. indet.									
Turbonilla sp. indet.									
Turridae sp. indet.									
Scaphopoda									
Pulsellum salishorum juv.	2		4	4	1	5		1	7
Aplacophora									
Chaetoderma sp. indet.									
Aplacophora sp. indet.									
Mollusca Biomass (grams)	**7.26**	**8.45**	**6.54**	**9.32**	**8.30**	**6.77**	**6.68**	**5.99**	**6.18**
MISCELLANEOUS									
Amphiodia sp.									
Amphiodia urtica									
Amphipholis squamata									
Amphiporus spp.			3	2		1	2		2
Amphiuridae sp.		1				2			
Anoplodactylus erectus									
Anoplodactylus sp.									
Arhynchite pugettensis									
Brisaster latifrons									
Bryozoa spp.									
Buskia nitens									
Cerebratulus sp.									
Clavopora occidentalis									
Clytia sp.									
Dendrochirotida spp.									
Golfingiidae sp.									
Halcampa decemtentaculata							1		
Hoplonemertea spp.									
Leptoplanidae spp.									
Leptosynapta sp.									

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Station	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-1**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-2**	**Z7-SNB-3**	**Z7-SNB-3**	**Z7-SNB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Leptosynapta transgressor									
Lineidae spp.									
Molpadia intermedia							2	1	2
Nematoda unid.			3						
Nemertea spp.									
Notoplana sp.									
Nymphon pixellae									
Nynantheae sp.									
Pachycerianthus fimbriatus									
Pachycerianthus sp.									
Pentamera populifera		1							
Pentamera spp.									
Polycladida spp.									
Psolidium bidiscum									
Ptilosarcus gurneyi									
Sertulariidae spp.									
Tetrastemma reticulatum									
Tetrastemma sp.	1								
Thysanocardia nigra									
Tubulanus capistratus									
Tubulanus pellucidus									
Tubulanus spp.									
Tubularia sp.									
Miscellaneous Biomass (grams)	**0.01**	**<0.01**	**0.01**	**<0.01**	**0**	**<0.01**	**151.47**	**38.89**	**45.07**

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Station	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-3**	**Z7-SSA-3**	**Z7-SSA-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
ANNELIDA									
Ampharete acutifrons									
Ampharete cf crassiseta			2	1					
Ampharete sp	54	34	44	46	32	43	15	23	15
Amphitrite robusta					1				
Anobothrus gracilis						1	2	1	
Aphelochaeta sp N1							2		
Aphelochaeta sp									
Apistobranchus ornatus	2		1	1	1		2	5	3
Aricidea catherinae	1					3			
Aricidea lopezi	2			1	1		1	1	1
Aricidea ramosa	1		3		1		2	1	2
Armandia brevis					2	1	1		
Artacama coniferi			1						
Asabellides lineatus				1	2	1	6	5	11
Asclerocheilus beringianus		1		3	1	4	7	2	5
Barantolla nr americana									
Bispira sp				1					
Boccardia pugettensis				3		1	2	2	2
Brada sachalina									
Brada villosa									
Capitella capitata									
Caulleriella pacifica	1					1		1	
Chaetopterus variopedatus	1			1					
Chaetozone nr setosa									
Chaetozone sp									1
Chone magna	1		2	3	1		5	2	4
Chone sp		2		1					
Cirratulidae						3			
Cirratulus sp					5			3	
Cossura bansei									
Cossura pygodactylata				2		2			
Decamastus gracilis								1	
Demonax sp				1					
Diopatra ornata							1		1
Dipolydora cardalia									3
Dipolydora caulleryi	6	1	16		4	1	3	3	
Dipolydora socialis	3	1	3	1	2	5	3	1	9
Dorvillea annulata	1	1		1					1
Drilonereis longa	1		2	1	2	1	1	1	
Enipo chuckchi			1	1	1				1
Eranno bicirrata									
Eteone spilotus									
Eteone sp	1						1	3	2
Euchone incolor	1		1		1			1	
Euclymene cf zonalis									
Euclymeninae	1	1			2	3			
Eulalia californiensis				1	1	3		1	1
Eulalia sp N1	1								
Eulalia sp									
Eumida longicornuta	2			4	2	1		2	1
Eumida sp									
Eunoe uniseriata									
Eusyllis habei								1	1
Exogone lourei	70	61	65	46	77	78	58	49	62
Exogone molesta			2			1	1	4	
Galathowenia oculata	2	2	3	6	3	4	4	12	8

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Station	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-3**	**Z7-SSA-3**	**Z7-SSA-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Gattyana treadwelli									
Glycera americana							1		
Glycera nana	5	5	2	5		8	7	5	6
Glycinde armigera									
Glycinde polygnatha									
Goniada brunnea									
Goniada maculata	1	1							
Harmothoe imbricata								1	2
Harmothoe multisetosa					1		1		
Harmothoinae									
Heteromastus filobranchus									
Heteromastus sp									
Idanthyrsus saxicavus				2	1	1	5	10	7
Isocirrus longiceps		1							
Lanassa nordenskioeldi							2	2	10
Lanassa venusta		2			2		5	2	6
Laonice cirrata	1			2		1			2
Laonome kroyeri	6		4				1	3	
Leitoscoloplos pugettensis									
Lepidasthenia berkeleyae		1							1
Lepidasthenia longicirrata							1		
Lepidonotus spiculus					1				
Levinsenia gracilis	2		2	1	3	2	3		
Levinsenia oculata			1			1			
Lumbrineris californiensis	3	6		16	6	23	7	12	10
Lumbrineris sp							1		
Lumbrineris latreilli	1	1		1	1				
Lysilla loveni		2	2	1	2	4	1		5
Magelona longicornis	3	1	2	3	3	4	6	3	4
Maldanella harai				1				1	
Maldane sarsi	6	9	2	18	3	15	11	19	17
Maldanidae	9						32	22	15
Malmgreniella bansei									
Malmgreniella berkeleyorum							1		
Malmgreniella macginitiei									
Malmgreniella scriptoria									
Mediomastus ambiseta		1							
Mediomastus californiensis	1					2			1
Mediomastus sp		6	7	2	6	5	2	2	6
Megalomma splendida	4	11	3		3	7	14	11	17
Melinna cristata						1			
Melinna oculata				1	5				
Microclymene caudata					2		1		
Micropodarke dubia						3			
Monticellina serratiseta		2				2	1	1	
Monticellina sp N1					2	14	7	15	8
Monticellina tesselata			3						
Myriochele heeri	41	38	17	10	7	2	1	4	
Myriochele sp									
Myxicola infundibulum	1		1	1		1	2		4
Neosabellaria cementarium				5	7	5	33	19	21
Nephtys cornuta	2		3					1	
Nephtys ferruginea	4	2	4	7	11	5	2	2	3
Nephtys sp	1		1			4	1	1	1
Nephtys punctata						1	1		
Nereididae							1		
Nereis procera			1						

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Station	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-3**	**Z7-SSA-3**	**Z7-SSA-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Ninoe gemmea									
Notocirrus californiensis		1			1				
Notomastus hemipodus	13	7	9	17	8	28	16	4	17
Notomastus latericeus		1	1		1			1	
Notomastus sp									
Notoproctus pacificus				2		26	37	5	72
Odontosyllis phosphorea						2	1		1
Oligochaeta	1			1		2	2		
Onuphidae juv			2	1	2	1			
Onuphis geophiliformis									
Onuphis iridescens	2		1	1	1	3	4	5	6
Onuphis sp juv	4		2		2				
Ophelina acuminata			3	1		1	1	1	3
Ophelina groenlandica									
Owenia fusiformis	6	11	6		2		2		
Parandalia fauveli	1								
Paraprionospio pinnata	3	2	2	1		1	2	1	2
Pectinaria californiensis	1								
Pectinaria sp									
Petaloproctus borealis				2			7	4	17
Pholoe minuta				1			2	1	1
Pholoe sp	1	1	3			3			1
Pholoe sp N1									
Pholoides asperus				1	1		14	26	24
Phyllochaetopterus prolifica								1	
Phyllodoce cuspidata									
Phyllodoce groenlandica	2			1		1	4	4	2
Phyllodoce hartmanae	2		2			1			
Phyllodoce longipes			1		1	1		1	1
Phyllodoce sp			1						
Pista bansei	3	1	1		1	2		1	4
Pista nr brevibranchiata	1	1		1	2	1	1	2	2
Pista moorei				1					
Pista wui			1						2
Pista sp	1								
Podarke pugettensis							1	2	2
Podarkeopsis glabra							1		
Podarkeopsis perkinsi									
Polycirrus californicus		2							
Polycirrus sp	1		2	8	4	4	9	15	12
Polycirrus sp I, sensu Banse 1980									
Polycirrus sp A, sensu Phillips 1995	3	7	3			4			
Polycirrus sp V, sensu Banse, 1980	1	4	4		5	4		2	3
Polycirrus sp IV, sensu Banse 1980									
Polynoidae juv					1				
Praxillella pacifica							1		
Praxillella sp	2		1						
Prionospio lighti	5		4	2		5		1	
Prionospio steenstrupi		12	9	4	5	18	3	3	3
Proceraea cornuta	1	1					1	1	
Proclea graffi	34	22	15	7	7	12	8	5	11
Protodorvillea gracilis						1			
Pseudopotamilla intermedia							2	4	2
Pseudopotamilla sp 1						6			
Pterocirrus mentereyensis									
Pygospio elegans	2		3						1
Rhodine bitorquata	1	6	7	3	12	11	8	18	12

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Station	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-3**	**Z7-SSA-3**	**Z7-SSA-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Schistocomus hiltoni								1	
Scionella japonica				1	2		1	1	
Scolelepis sp	3	2	2	2			1		2
Scoletoma luti	3	1	2	5	2	1		3	7
Scoloplos acmeceps	2	2	3	1	5				
Sigambra nr bassi									
Sphaerodoropsis sphaerulifer	1								1
Sphaerosyllis ranunculus								1	
Spiochaetopterus costarum				2			2	1	
Spio cirrifera	6	2	1	9	11	7	7	2	2
Spiophanes berkeleyorum			1						1
Spiophanes bombyx	23	14	22	7	11	16	3	5	7
Sternaspis cf fossor									
Syllidae									1
Tenonia priops									
Terebellidae									1
Terebellides californica	1	3	4		3	2	1	4	2
Terebellides sp	7		1	1	2		2	2	1
Tharyx sp N1	2	1	5	5	13	2	4	3	1
Thelepus setosus							1		1
Travisia brevis	1		1	2			2		
Travisia pupa									
Trichobranchus glacialis	14	12	13	10	13	13	7	9	10
Trochochaeta multisetosa				3	1			1	1
Typosyllis caeca (=hyperioni)	3	6	8	12	3	3	8	1	5
Typosyllis cornuta (=harti)			4	3	1	1	1	1	
Typosyllis heterochaeta	1		1	7	5	4	7	7	10
Annelida Biomass (grams)	**3.81**	**5.01**	**2.91**	**6.26**	**4.06**	**2.98**	**6.84**	**5.65**	**8.92**
CRUSTACEA									
Ostracoda Podocopida							1		
Bathyleberis sp.								1	
Euphilomedes carcharodonta			1		1			1	
Euphilomedes producta	3	4	2	1		2	1		2
Rutiderma lomae	3		5	13	7	31	17	7	9
Chauliopleona dentata					1				
Scoloura phillipsi	2		3	2		3	1		1
Leptochelia dubia									
Diastylis sp.									
Diastylis paraspinulosa									
Diastylis pellucida									
Diastylis santamariensis	1			2		1			
Leptostylis sp.	1				1	2	2		3
Lamprops sp.									
Eudorella pacifica	3	1	3		1	1	2	1	
Eudorellopsis longirostris	1				1	1	2	1	1
Eudorellopsis integra									
Leucon sp.									
Campylasps hartae	2			1	2	5	6	1	1
Campylaspis rubromaculata							1	1	
Haliophasma geminatum									
Munnopsurus sp.	2					1			
Rocinela propodialis									
Ampelisca sp.							1		
Ampelisca lobata								1	
Ampelisca hancocki				2					
Ampelisca careyi	9	6	7		5	6		10	4

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Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Byblis millsi	2		3	2	5	2	11	3	9
Aoroides sp.			1	1		1		1	
Argissa hamatipes									
Calliopiidae sp.						1		2	
Calliopius columbianus									
Corophium sp.	1			1	1	5	3	6	2
Guernea reduncans									1
Eusirus columbianus							1		
Rhacotropis barnardi									
Rhacotropis oculata				1		1			
Gammaropsis ellisi									2
Photis sp.	10	2	5					2	2
Photis bifurcata									
Photis brevipes									
Photis lacia						2			
Photis parvidons				1	1	1			
Protomedeia prudens									
Protomedeia sp.									
Microjassa sp.	1				1			1	
Lysianassidae sp.						1		1	
Anonyx lilljeborgi								1	
Aruga holmesi									1
Cyphocaris challengeri									1
Hippomedon coecus	4	1	2	3			1	1	2
Orchomene pacificus		1	1	1		2			
Orchomene cf. pinguis									
Orchomene decipiens				1		1			1
Opisa tridentata	2	1	2	1	1				1
Pachynus barnardi									
Desdimelita desdichada									1
Melphidippidae sp.	1								
Americhelidium variabilum									
Americhelidium shoemakeri									
Bathymedon pumilis									
Deflexilodes sp.		1							
Westwoodilla caecula	1		3	2		1	1	1	
Pardalisca sp.							1	1	2
Foxiphalus similis			1						
Harpiniopsis fulgens									
Heterophoxus affinis									
Metaphoxus frequens	1	1	4	4	1	4	1		1
Parametaphoxus quaylei							1	1	
Paraphoxus sp.									
Rhepoxynius barnardi									
Parapleustinae				3	1			3	6
Dyopedos sp.								1	
Paradulichia typica							1		
Stenothoidae sp.								2	
Hardametopa nasuta							1		
Bruzelia tuberculata									
Tiron biocellota									1
Caprella sp.					7		3	2	2
Caprella irregularis					2			6	6
Caprella mendax			1		1			10	3
Mayerella banksia	1	1	1		1	2	10		5
Tritella pilimana	3	3	3	3	2	7	10	8	12
Themisto pacifica	1								

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Station	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-3**	**Z7-SSA-3**	**Z7-SSA-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Holmesiella anomola									
Pseudomma sp.	1		1	1		2			1
Euphausiacea sp.									
Decapoda larvae									
Caridea sp.									
Mesocrangon munitella					1		1		
Crangonidae									
Hippolytidae									
Spirontocaris snyderi									2
Eualus sp.								1	
Pasiphaea pacifica									
Cancer oregonensis								1	1
Pugettia gracilis									1
Lophopanopeus bellus							1	1	
Pinnixa schmitti/occidentalis	7	2	7	9		3			9
Pinnixa sp.					4	6	3	8	3
Pinnotheridae sp.					1				
Pagurus sp.			1	1	2	1	1	2	3
Infraorder Thallasinidea		2	1		1				
Collembolla									
Crustacea Biomass (grams)	**0.79**	**0.05**	**0.16**	**0.27**	**0.27**	**0.22**	**0.28**	**0.38**	**0.52**
MOLLUSCA									
Bivalvia									
Acila castrensis	1	2		1				1	
Adontorhina cyclia	35	35	43	52	29	35	44	39	43
Astarte esquimalti		1							
Axinopsida serricata	9	6	7	6		2	1	6	1
Cardiidae sp. juv.									
Cardiomya pectinata		1	1	1				1	
Clinocardium sp. juv.				1	2	2		1	
Compsomyax subdiaphana	2	1	2		2	2			
Cyclocardia ventricosa		1	1	21	12	5	15	18	23
Ennucula tenuis									
Entodesma navicula						1			
Hiatella arctica					4	1	11	8	24
Humilaria kennerleyi									
Lucinoma annulatum	2	3	1	1		3		2	2
Lyonsia californica	8	10	10	10	8	14	6	4	5
Macoma calcarea				4	3				
Macoma carlottensis	4	1	7	4	3	12	7	13	3
Macoma elimata	19	23	16	27	3	21	9	25	9
Macoma golikovi			2	1					
Macoma moesta alaskana			2						
Macoma yoldiformis	1		1						1
Macoma sp. juv.				6	13			6	12
Mactridae sp. juv.									
Musculus discors					3	1	2	1	1
Mya arenaria					1				
Mya sp. juv.									
Nemocardium centifilosum	5	17	10	3	12	10	10	11	5
Nuculana cellulita								1	
Nuculana hamata						8			
Nuculana minuta	5	7	3	2	6		8	7	7
Nutricola lordi		1	1		2				
Pandora filosa	2	4	1	3	3	1	2		
Parvilucina tenuisculpta	5	6	7	13	7	3	1	3	3

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Station	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-3**	**Z7-SSA-3**	**Z7-SSA-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Pectinidae sp. juv.								1	
Rochefortia tumida		2		2	2	9			1
Saxidomus gigantea									
Scintillona bellerophon									
Solamen columbianum	1	5	2	1	6	3	2		3
Solen sicarius									
Tellina modesta								1	
Thracia trapezoides					1				
Thracia sp. juv.									
Yoldia seminuda									
Gastropoda									
Alvania rosana	1				3	2	3		
Alvania compacta									
Astyris gausapata	4	1	1	3	1	5	2	1	1
Crepipatella dorsata								1	1
Cryptonatica affinis									
Cylichna attonsa									
Cylichna sp. juv.									
Corambe pacifica		1							
Euspira pallida									
Gastropteron pacificum	1	1							
Lirobittium eschrichtii	23	20	20	12	18	18	1	4	
Lirobittium sp. juv.									2
Melanochlamys diomedea		1				1			
Odostomia spp.	3	6	3		2	3	1	3	3
Ophiodermella cancellata	1								
Philine sp. indet.					1				
Turbonilla sp. indet.	1				1				
Turridae sp. indet.				1					
Scaphopoda									
Pulsellum salishorum juv.			1						
Aplacophora									
Chaetoderma sp. indet.				1	3			5	1
Aplacophora sp. indet.					1				
Mollusca Biomass (grams)	**3.28**	**4.27**	**2.57**	**3.65**	**2.05**	**3.96**	**2.19**	**2.02**	**2.61**
MISCELLANEOUS									
Amphiodia sp.									
Amphiodia urtica									
Amphipholis squamata	2	5	4		3	2	10	5	5
Amphiporus spp.				3		2	3	2	
Amphiuridae sp.								1	
Anoplodactylus erectus			1					1	
Anoplodactylus sp.						1			
Arhynchite pugettensis				1					
Brisaster latifrons									
Bryozoa spp.				P					
Buskia nitens								P	
Cerebratulus sp.					1				
Clavopora occidentalis						1	2	1	7
Clytia sp.								P	
Dendrochirotida spp.			1					2	
Golfingiidae sp.	3	1	4	15	13	12	36	27	22
Halcampa decemtentaculata			1						
Hoplonemertea spp.									
Leptoplanidae spp.						1	1		2
Leptosynapta sp.						1			

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Station	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-1**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-2**	**Z7-SSA-3**	**Z7-SSA-3**	**Z7-SSA-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Leptosynapta transgressor							1		
Lineidae spp.				2		2	6	3	5
Molpadia intermedia									
Nematoda unid.				8	5	9	24	11	12
Nemertea spp.	3	1	3	2	1	1	3	1	1
Notoplana sp.									
Nymphon pixellae					1			1	
Nynantheae sp.					1				
Pachycerianthus fimbriatus	2				1		1		1
Pachycerianthus sp.							1	3	
Pentamera populifera									
Pentamera spp.		1	2						1
Polycladida spp.									
Psolidium bidiscum								1	
Ptilosarcus gurneyi			1	1		1			
Sertulariidae spp.								P	P
Tetrastemma reticulatum		1							
Tetrastemma sp.									
Thysanocardia nigra				1				5	2
Tubulanus capistratus			1						
Tubulanus pellucidus		2							1
Tubulanus spp.	3		3	1	2	4	4	3	1
Tubularia sp.									3
Miscellaneous Biomass (grams)	**0.01**	**0.05**	**0.21**	**0.71**	**0.41**	**0.08**	**0.51**	**0.64**	**0.12**

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Station	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-3**	**Z7-SSB-3**	**Z7-SSB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
ANNELIDA									
Ampharete acutifrons									
Ampharete cf crassiseta									
Ampharete sp									
Amphitrite robusta									
Anobothrus gracilis									
Aphelochaeta sp N1									
Aphelochaeta sp									
Apistobranchus ornatus									
Aricidea catherinae									
Aricidea lopezi									
Aricidea ramosa									
Armandia brevis									
Artacama coniferi									
Asabellides lineatus									
Asclerocheilus beringianus									
Barantolla nr americana	1	2	4				13	3	6
Bispira sp									
Boccardia pugettensis									
Brada sachalina	1		1					1	
Brada villosa					1				2
Capitella capitata									
Caulleriella pacifica									
Chaetopterus variopedatus									
Chaetozone nr setosa									
Chaetozone sp								1	
Chone magna									
Chone sp									
Cirratulidae									
Cirratulus sp									
Cossura bansei									
Cossura pygodactylata	1		2	1		6	1		1
Decamastus gracilis									
Demonax sp									
Diopatra ornata									
Dipolydora cardalia									
Dipolydora caulleryi			5						
Dipolydora socialis									
Dorvillea annulata									
Drilonereis longa									
Enipo chuckchi									
Eranno bicirrata									
Eteone spilotus									
Eteone sp									
Euchone incolor									
Euclymene cf zonalis									
Euclymeninae						3			
Eulalia californiensis									
Eulalia sp N1									
Eulalia sp									
Eumida longicornuta									
Eumida sp									
Eunoe uniseriata									
Eusyllis habei									
Exogone lourei									
Exogone molesta									
Galathowenia oculata			1						

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Station	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-3**	**Z7-SSB-3**	**Z7-SSB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Gattyana treadwelli									
Glycera americana									
Glycera nana	5	3	2	4	6	3	6	7	7
Glycinde armigera			1			1	1		1
Glycinde polygnatha									
Goniada brunnea							1		
Goniada maculata									
Harmothoe imbricata									
Harmothoe multisetosa									
Harmothoinae									
Heteromastus filobranchus				8	1	2		1	
Heteromastus sp									
Idanthyrsus saxicavus									
Isocirrus longiceps									
Lanassa nordenskioeldi									
Lanassa venusta									
Laonice cirrata		1							
Laonome kroyeri									
Leitoscoloplos pugettensis									
Lepidasthenia berkeleyae									
Lepidasthenia longicirrata									
Lepidonotus spiculus									
Levinsenia gracilis				1	1	2			
Levinsenia oculata		2				1	2		4
Lumbrineris californiensis									
Lumbrineris sp									
Lumbrineris latreilli									
Lysilla loveni									
Magelona longicornis									
Maldanella harai									
Maldane sarsi									
Maldanidae									
Malmgreniella bansei			1						
Malmgreniella berkeleyorum									
Malmgreniella macginitiei				1				1	1
Malmgreniella scriptoria									
Mediomastus ambiseta									
Mediomastus californiensis						1			
Mediomastus sp	1					2			2
Megalomma splendida									
Melinna cristata									
Melinna oculata									
Microclymene caudata		1							
Micropodarke dubia									
Monticellina serratiseta									
Monticellina sp N1									
Monticellina tesselata									
Myriochele heeri									
Myriochele sp									
Myxicola infundibulum									
Neosabellaria cementarium									
Nephtys cornuta				2		1		1	1
Nephtys ferruginea	1	1	3	8	4	4	6		5
Nephtys sp					1				
Nephtys punctata				1		2			
Nereididae									
Nereis procera									

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Station	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-3**	**Z7-SSB-3**	**Z7-SSB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Ninoe gemmea									
Notocirrus californiensis									
Notomastus hemipodus									
Notomastus latericeus									
Notomastus sp			1						
Notoproctus pacificus									
Odontosyllis phosphorea									
Oligochaeta		1				1			
Onuphidae juv									
Onuphis geophiliformis									
Onuphis iridescens	2	1	2		2	3			
Onuphis sp juv	1								
Ophelina acuminata		1	1				1		
Ophelina groenlandica									
Owenia fusiformis		1				1			
Parandalia fauveli									
Paraprionospio pinnata									
Pectinaria californiensis	9	4	5	4	4	1	2		2
Pectinaria sp									
Petaloproctus borealis									
Pholoe minuta				1	2	1		2	1
Pholoe sp	3				2	2	1	1	1
Pholoe sp N1	1				1				
Pholoides asperus									
Phyllochaetopterus prolifica									
Phyllodoce cuspidata			1	2					2
Phyllodoce groenlandica									
Phyllodoce hartmanae				1					
Phyllodoce longipes							4		1
Phyllodoce sp							2		
Pista bansei									
Pista nr brevibranchiata			1						
Pista moorei									
Pista wui									
Pista sp									
Podarke pugettensis									
Podarkeopsis glabra									
Podarkeopsis perkinsi		2	1	1		1			1
Polycirrus californicus									
Polycirrus sp		1		1					
Polycirrus sp I, sensu Banse 1980									
Polycirrus sp A, sensu Phillips 1995									
Polycirrus sp V, sensu Banse, 1980									
Polycirrus sp IV, sensu Banse 1980									
Polynoidae juv									
Praxillella pacifica			3	1	2		1		2
Praxillella sp									
Prionospio lighti		4	5	10	10		3	10	14
Prionospio steenstrupi	1	1	1	1	1	2	1		3
Proceraea cornuta									
Proclea graffi									
Protodorvillea gracilis									
Pseudopotamilla intermedia									
Pseudopotamilla sp 1									
Pterocirrus mentereyensis									
Pygospio elegans									
Rhodine bitorquata									

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Station	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-3**	**Z7-SSB-3**	**Z7-SSB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Schistocomus hiltoni									
Scionella japonica									
Scolelepis sp									
Scoletoma luti									
Scoloplos acmeceps									
Sigambra nr bassi									1
Sphaerodoropsis sphaerulifer	1			1				1	3
Sphaerosyllis ranunculus									
Spiochaetopterus costarum									
Spio cirrifera									
Spiophanes berkeleyorum	1		1	2		1		1	1
Spiophanes bombyx									
Sternaspis cf fossor									
Syllidae									
Tenonia priops	1						1	1	
Terebellidae									
Terebellides californica									
Terebellides sp									
Tharyx sp N1									
Thelepus setosus									
Travisia brevis									
Travisia pupa						1	1	1	
Trichobranchus glacialis									
Trochochaeta multisetosa					1		1	1	2
Typosyllis caeca (=hyperioni)									
Typosyllis cornuta (=harti)									
Typosyllis heterochaeta									
Annelida Biomass (grams)	**2.46**	**3.07**	**10.68**	**2.35**	**6.71**	**1.11**	**2.09**	**5.40**	**3.86**
CRUSTACEA									
Ostracoda Podocopida									
Bathyleberis sp.						1		1	6
Euphilomedes carcharodonta									
Euphilomedes producta	90	61	78	93	83	86	51	93	108
Rutiderma lomae									
Chauliopleona dentata									
Scoloura phillipsi									
Leptochelia dubia									
Diastylis sp.									
Diastylis paraspinulosa									
Diastylis pellucida	5	4	1	2	5	4	4	1	7
Diastylis santamariensis									
Leptostylis sp.	1					1			
Lamprops sp.					1				
Eudorella pacifica	7	8	5	12	12	9	5	4	42
Eudorellopsis longirostris									
Eudorellopsis integra						1			
Leucon sp.									1
Campylasps hartae									
Campylaspis rubromaculata									
Haliophasma geminatum									
Munnopsurus sp.			1						
Rocinela propodialis									
Ampelisca sp.									
Ampelisca lobata									
Ampelisca hancocki									
Ampelisca careyi									

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Station	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-3**	**Z7-SSB-3**	**Z7-SSB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Byblis millsi									
Aoroides sp.									
Argissa hamatipes	1								
Calliopiidae sp.									
Calliopius columbianus									1
Corophium sp.									
Guernea reduncans									
Eusirus columbianus				1					
Rhacotropis barnardi									
Rhacotropis oculata									
Gammaropsis ellisi									
Photis sp.		1							
Photis bifurcata									
Photis brevipes									
Photis lacia				1		1		1	1
Photis parvidons									
Protomedeia prudens									
Protomedeia sp.									
Microjassa sp.									
Lysianassidae sp.									
Anonyx lilljeborgi									
Aruga holmesi									
Cyphocaris challengeri	2	1				6		3	3
Hippomedon coecus									
Orchomene pacificus	8	2	7	4	8	6	4	12	20
Orchomene cf. pinguis									
Orchomene decipiens									
Opisa tridentata	1								
Pachynus barnardi					1	1			
Desdimelita desdichada			1						
Melphidippidae sp.	4	2		1	1	1	2	3	2
Americhelidium variabilum			1			1			2
Americhelidium shoemakeri									
Bathymedon pumilis						1			
Deflexilodes sp.									
Westwoodilla caecula	1								1
Pardalisca sp.									
Foxiphalus similis				1					
Harpiniopsis fulgens	10	5	6	14	7	10		9	18
Heterophoxus affinis	2		2	2		6	9		4
Metaphoxus frequens									
Parametaphoxus quaylei									
Paraphoxus sp.	1				2		6		1
Rhepoxynius barnardi									
Parapleustinae	1	1		1					
Dyopedos sp.		1				1			1
Paradulichia typica									
Stenothoidae sp.									
Hardametopa nasuta									
Bruzelia tuberculata									
Tiron biocellota									
Caprella sp.									
Caprella irregularis									
Caprella mendax									
Mayerella banksia									
Tritella pilimana									
Themisto pacifica								2	

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Station	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-3**	**Z7-SSB-3**	**Z7-SSB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Holmesiella anomola								1	
Pseudomma sp.	3			1		1	1	3	1
Euphausiacea sp.									
Decapoda larvae									
Caridea sp.									
Mesocrangon munitella									
Crangonidae									
Hippolytidae									1
Spirontocaris snyderi									
Eualus sp.									
Pasiphaea pacifica									
Cancer oregonensis									
Pugettia gracilis									
Lophopanopeus bellus									
Pinnixa schmitti/occidentalis	5	2	3	5	2	1	6	8	8
Pinnixa sp.							2	1	
Pinnotheridae sp.									
Pagurus sp.									
Infraorder Thallasinidea									
Collembolla									
Crustacea Biomass (grams)	**0.30**	**0.11**	**0.14**	**0.23**	**0.16**	**0.18**	**0.21**	**0.30**	**0.37**
MOLLUSCA									
Bivalvia									
Acila castrensis	5	4	2	8	5	5	7	3	6
Adontorhina cyclia	1								1
Astarte esquimalti									
Axinopsida serricata	30	42	35	23	24	26	16	26	33
Cardiidae sp. juv.									
Cardiomya pectinata									
Clinocardium sp. juv.		1							3
Compsomyax subdiaphana									
Cyclocardia ventricosa									
Ennucula tenuis		1		1	1	1	1	2	1
Entodesma navicula									
Hiatella arctica									
Humilaria kennerleyi									
Lucinoma annulatum	3	4	2		2	3	2	9	1
Lyonsia californica									1
Macoma calcarea									
Macoma carlottensis	815	722	811	958	896	839	822	1081	1232
Macoma elimata	1				1		1	2	4
Macoma golikovi									
Macoma moesta alaskana									
Macoma yoldiformis		1				1			
Macoma sp. juv.					2				
Mactridae sp. juv.							1		
Musculus discors									
Mya arenaria									
Mya sp. juv.								1	
Nemocardium centifilosum	1								
Nuculana cellulita									
Nuculana hamata									
Nuculana minuta									
Nutricola lordi									
Pandora filosa									
Parvilucina tenuisculpta	21	14	18	12	12	6	36	28	28

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Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Pectinidae sp. juv.									
Rochefortia tumida	4	2	6	4	1			14	5
Saxidomus gigantea									
Scintillona bellerophon					9		1		
Solamen columbianum									
Solen sicarius	1	2	1	1	1				1
Tellina modesta									
Thracia trapezoides									
Thracia sp. juv.									
Yoldia seminuda		1	1	1	1	3			1
Gastropoda									
Alvania rosana									
Alvania compacta									
Astyris gausapata			3						1
Crepipatella dorsata									
Cryptonatica affinis									
Cylichna attonsa									
Cylichna sp. juv.									
Corambe pacifica					1				
Euspira pallida									
Gastropteron pacificum									
Lirobittium eschrichtii	8	2	6	5	7	4	7	6	10
Lirobittium sp. juv.									
Melanochlamys diomedea	1		1						
Odostomia spp.	1								1
Ophiodermella cancellata									
Philine sp. indet.									
Turbonilla sp. indet.									
Turridae sp. indet.									
Scaphopoda									
Pulsellum salishorum juv.	1	3	2	2	4	1	5	3	4
Aplacophora									
Chaetoderma sp. indet.					1				
Aplacophora sp. indet.									
Mollusca Biomass (grams)	**6.64**	**6.30**	**5.69**	**6.85**	**7.68**	**8.49**	**9.35**	**8.09**	**10.49**
MISCELLANEOUS									
Amphiodia sp.							1		
Amphiodia urtica									
Amphipholis squamata									
Amphiporus spp.			2	1	1	3		2	
Amphiuridae sp.	1				1				1
Anoplodactylus erectus									
Anoplodactylus sp.									
Arhynchite pugettensis									
Brisaster latifrons									
Bryozoa spp.									
Buskia nitens									
Cerebratulus sp.		1						2	
Clavopora occidentalis									
Clytia sp.									
Dendrochirotida spp.									
Golfingiidae sp.									
Halcampa decemtentaculata							1	2	5
Hoplonemertea spp.									
Leptoplanidae spp.									
Leptosynapta sp.									

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Station	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-1**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-2**	**Z7-SSB-3**	**Z7-SSB-3**	**Z7-SSB-3**
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Leptosynapta transgressor									
Lineidae spp.									
Molpadia intermedia				1					
Nematoda unid.									2
Nemertea spp.									
Notoplana sp.									
Nymphon pixellae									
Nynantheae sp.									
Pachycerianthus fimbriatus									
Pachycerianthus sp.									
Pentamera populifera									
Pentamera spp.									
Polycladida spp.									
Psolidium bidiscum									
Ptilosarcus gurneyi									
Sertulariidae spp.									
Tetrastemma reticulatum									
Tetrastemma sp.								1	
Thysanocardia nigra									
Tubulanus capistratus									
Tubulanus pellucidus									
Tubulanus spp.									
Tubularia sp.									
Miscellaneous Biomass (grams)	**<0.01**	**6.85**	**<0.01**	**84.01**	**0.20**	**<0.01**	**0.03**	**7.51**	**<0.01**

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Station	**OSZ-1**	**OSZ-1**	**OSZ-1**
Replicate	**1**	**2**	**3**
ANNELIDA			
Ampharete acutifrons			1
Ampharete cf crassiseta			
Ampharete sp		1	
Amphitrite robusta			
Anobothrus gracilis			
Aphelochaeta sp N1			
Aphelochaeta sp			
Apistobranchus ornatus			
Aricidea catherinae			
Aricidea lopezi	3		1
Aricidea ramosa			
Armandia brevis		1	
Artacama coniferi			
Asabellides lineatus			
Asclerocheilus beringianus			
Barantolla nr americana		1	
Bispira sp			
Boccardia pugettensis	1		
Brada sachalina			
Brada villosa			
Capitella capitata		1	
Caulleriella pacifica			
Chaetopterus variopedatus			
Chaetozone nr setosa			
Chaetozone sp			1
Chone magna			
Chone sp			
Cirratulidae			
Cirratulus sp			
Cossura bansei			
Cossura pygodactylata	1	5	6
Decamastus gracilis			
Demonax sp			
Diopatra ornata			
Dipolydora cardalia			
Dipolydora caulleryi			
Dipolydora socialis			
Dorvillea annulata			
Drilonereis longa			
Enipo chuckchi			
Eranno bicirrata			
Eteone spilotus			1
Eteone sp		1	2
Euchone incolor		1	
Euclymene cf zonalis			
Euclymeninae	1	1	
Eulalia californiensis			
Eulalia sp N1			
Eulalia sp			
Eumida longicornuta	2		3
Eumida sp		1	
Eunoe uniseriata			
Eusyllis habei			
Exogone lourei			
Exogone molesta			
Galathowenia oculata			

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Station	**OSZ-1**	**OSZ-1**	**OSZ-1**
Replicate	**1**	**2**	**3**
Gattyana treadwelli	1		
Glycera americana			
Glycera nana	4	3	2
Glycinde armigera			
Glycinde polygnatha			
Goniada brunnea	2		
Goniada maculata			
Harmothoe imbricata			
Harmothoe multisetosa			
Harmothoinae	1	1	2
Heteromastus filobranchus	7		
Heteromastus sp			
Idanthyrsus saxicavus			
Isocirrus longiceps			
Lanassa nordenskioeldi			
Lanassa venusta			
Laonice cirrata			
Laonome kroyeri			
Leitoscoloplos pugettensis			
Lepidasthenia berkeleyae			
Lepidasthenia longicirrata			
Lepidonotus spiculus			
Levinsenia gracilis	1	3	3
Levinsenia oculata			
Lumbrineris californiensis			
Lumbrineris sp			
Lumbrineris latreilli			
Lysilla loveni			
Magelona longicornis			
Maldanella harai			
Maldane sarsi	4		1
Maldanidae			
Malmgreniella bansei		2	2
Malmgreniella berkeleyorum			
Malmgreniella macginitiei			
Malmgreniella scriptoria			
Mediomastus ambiseta			
Mediomastus californiensis			
Mediomastus sp	2		2
Megalomma splendida			
Melinna cristata			
Melinna oculata			
Microclymene caudata			
Micropodarke dubia			
Monticellina serratiseta			
Monticellina sp N1			
Monticellina tesselata			
Myriochele heeri			
Myriochele sp			
Myxicola infundibulum			
Neosabellaria cementarium			
Nephtys cornuta	3		4
Nephtys ferruginea	3	7	10
Nephtys sp		3	1
Nephtys punctata	2	1	2
Nereididae			
Nereis procera			

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Station	**OSZ-1**	**OSZ-1**	**OSZ-1**
Replicate	**1**	**2**	**3**
Ninoe gemmea			
Notocirrus californiensis			
Notomastus hemipodus			
Notomastus latericeus			
Notomastus sp			
Notoproctus pacificus			
Odontosyllis phosphorea			
Oligochaeta	1		
Onuphidae juv			
Onuphis geophiliformis			
Onuphis iridescens	3		
Onuphis sp juv			
Ophelina acuminata			1
Ophelina groenlandica			
Owenia fusiformis	4	2	2
Parandalia fauveli			
Paraprionospio pinnata			
Pectinaria californiensis	14	13	19
Pectinaria sp			
Petaloproctus borealis			
Pholoe minuta			
Pholoe sp			
Pholoe sp N1		1	1
Pholoides asperus			
Phyllochaetopterus prolifica			
Phyllodoce cuspidata			
Phyllodoce groenlandica			
Phyllodoce hartmanae			
Phyllodoce longipes	2	2	
Phyllodoce sp			
Pista bansei			
Pista nr brevibranchiata	3	1	2
Pista moorei			
Pista wui			2
Pista sp			1
Podarke pugettensis			
Podarkeopsis glabra		2	1
Podarkeopsis perkinsi			
Polycirrus californicus			2
Polycirrus sp	1		1
Polycirrus sp I, sensu Banse 1980			
Polycirrus sp A, sensu Phillips 1995			
Polycirrus sp V, sensu Banse, 1980			
Polycirrus sp IV, sensu Banse 1980			
Polynoidae juv			
Praxillella pacifica	13	11	6
Praxillella sp			
Prionospio lighti	13	25	16
Prionospio steenstrupi	9	6	5
Proceraea cornuta			
Proclea graffi			
Protodorvillea gracilis			
Pseudopotamilla intermedia			
Pseudopotamilla sp 1			
Pterocirrus mentereyensis			
Pygospio elegans			
Rhodine bitorquata			

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Station	**OSZ-1**	**OSZ-1**	**OSZ-1**
Replicate	**1**	**2**	**3**
Schistocomus hiltoni			
Scionella japonica			
Scolelepis sp			
Scoletoma luti	5	7	4
Scoloplos acmeceps			
Sigambra nr bassi			
Sphaerodoropsis sphaerulifer			
Sphaerosyllis ranunculus			
Spiochaetopterus costarum			
Spio cirrifera			
Spiophanes berkeleyorum			1
Spiophanes bombyx			
Sternaspis cf fossor			
Syllidae			
Tenonia priops			
Terebellidae			
Terebellides californica			
Terebellides sp			
Tharyx sp N1			
Thelepus setosus			
Travisia brevis			
Travisia pupa		1	
Trichobranchus glacialis			
Trochochaeta multisetosa			
Typosyllis caeca (=hyperioni)			
Typosyllis cornuta (=harti)			
Typosyllis heterochaeta			
Annelida Biomass (grams)	**16.14**	**20.63**	**12.98**
CRUSTACEA			
Ostracoda Podocopida			
Bathyleberis sp.	2	1	7
Euphilomedes carcharodonta			1
Euphilomedes producta	61	58	99
Rutiderma lomae			
Chauliopleona dentata	1	2	
Scoloura phillipsi			
Leptochelia dubia			
Diastylis sp.			
Diastylis paraspinulosa			
Diastylis pellucida		3	5
Diastylis santamariensis			
Leptostylis sp.			1
Lamprops sp.			
Eudorella pacifica	14	15	45
Eudorellopsis longirostris	2	1	2
Eudorellopsis integra			1
Leucon sp.			
Campylasps hartae			
Campylaspis rubromaculata			
Haliophasma geminatum			
Munnopsurus sp.			
Rocinela propodialis			
Ampelisca sp.			
Ampelisca lobata			
Ampelisca hancocki			
Ampelisca careyi			

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Station	**OSZ-1**	**OSZ-1**	**OSZ-1**
Replicate	**1**	**2**	**3**
Byblis millsi			
Aoroides sp.			
Argissa hamatipes			1
Calliopiidae sp.			
Calliopius columbianus	1	1	1
Corophium sp.			
Guernea reduncans	1		6
Eusirus columbianus		1	1
Rhacotropis barnardi			
Rhacotropis oculata			
Gammaropsis ellisi			
Photis sp.	7	20	8
Photis bifurcata		1	2
Photis brevipes			
Photis lacia	17	32	24
Photis parvidons	4	8	9
Protomedeia prudens	4	2	7
Protomedeia sp.			
Microjassa sp.			
Lysianassidae sp.			
Anonyx lilljeborgi			
Aruga holmesi			
Cyphocaris challengeri	1	4	
Hippomedon coecus			
Orchomene pacificus	11	18	48
Orchomene cf. pinguis			
Orchomene decipiens			
Opisa tridentata			
Pachynus barnardi			
Desdimelita desdichada	7	8	20
Melphidippidae sp.		1	11
Americhelidium variabilum	1		3
Americhelidium shoemakeri			
Bathymedon pumilis			
Deflexilodes sp.			
Westwoodilla caecula	1	1	2
Pardalisca sp.			
Foxiphalus similis			
Harpiniopsis fulgens		1	1
Heterophoxus affinis	5	2	4
Metaphoxus frequens			1
Parametaphoxus quaylei		1	
Paraphoxus sp.			
Rhepoxynius barnardi	11		7
Parapleustinae			
Dyopedos sp.		1	3
Paradulichia typica			
Stenothoidae sp.			1
Hardametopa nasuta			
Bruzelia tuberculata	1		
Tiron biocellota			
Caprella sp.			
Caprella irregularis			
Caprella mendax			
Mayerella banksia			1
Tritella pilimana			
Themisto pacifica			1

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Station	**OSZ-1**	**OSZ-1**	**OSZ-1**
Replicate	**1**	**2**	**3**
Holmesiella anomola			
Pseudomma sp.			2
Euphausiacea sp.			
Decapoda larvae			
Caridea sp.			
Mesocrangon munitella			
Crangonidae			
Hippolytidae			
Spirontocaris snyderi			
Eualus sp.			
Pasiphaea pacifica			
Cancer oregonensis			
Pugettia gracilis			
Lophopanopeus bellus			
Pinnixa schmitti/occidentalis	32	37	36
Pinnixa sp.			
Pinnotheridae sp.			
Pagurus sp.			
Infraorder Thallasinidea			
Collembolla			
Crustacea Biomass (grams)	**1.05**	**1.06**	**1.19**
MOLLUSCA			
Bivalvia			
Acila castrensis			
Adontorhina cyclia			
Astarte esquimalti			
Axinopsida serricata	2	3	2
Cardiidae sp. juv.			
Cardiomya pectinata			
Clinocardium sp. juv.	3	4	1
Compsomyax subdiaphana			1
Cyclocardia ventricosa			
Ennucula tenuis			
Entodesma navicula			
Hiatella arctica			
Humilaria kennerleyi		1	
Lucinoma annulatum	1		1
Lyonsia californica			1
Macoma calcarea			
Macoma carlottensis	275	337	470
Macoma elimata	7	22	25
Macoma golikovi			1
Macoma moesta alaskana			
Macoma yoldiformis			
Macoma sp. juv.			
Mactridae sp. juv.			
Musculus discors			
Mya arenaria			
Mya sp. juv.			
Nemocardium centifilosum			1
Nuculana cellulita			
Nuculana hamata			
Nuculana minuta			
Nutricola lordi			
Pandora filosa			
Parvilucina tenuisculpta	5	5	3

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Station	**OSZ-1**	**OSZ-1**	**OSZ-1**
Replicate	**1**	**2**	**3**
Pectinidae sp. juv.			
Rochefortia tumida	2	4	3
Saxidomus gigantea		1	2
Scintillona bellerophon			
Solamen columbianum			
Solen sicarius			
Tellina modesta	1		1
Thracia trapezoides			
Thracia sp. juv.			
Yoldia seminuda	1		
Gastropoda			
Alvania rosana			
Alvania compacta			
Astyris gausapata		2	1
Crepipatella dorsata			
Cryptonatica affinis	3	2	4
Cylichna attonsa			1
Cylichna sp. juv.			
Corambe pacifica			
Euspira pallida			
Gastropteron pacificum			
Lirobittium eschrichtii	1	2	2
Lirobittium sp. juv.			
Melanochlamys diomedea			
Odostomia spp.	4	1	5
Ophiodermella cancellata			
Philine sp. indet.		2	
Turbonilla sp. indet.			
Turridae sp. indet.			
Scaphopoda			
Pulsellum salishorum juv.	1		1
Aplacophora			
Chaetoderma sp. indet.			
Aplacophora sp. indet.			
Mollusca Biomass (grams)	**2.73**	**41.19**	**6.67**
MISCELLANEOUS			
Amphiodia sp.		1	1
Amphiodia urtica	1		
Amphipholis squamata			
Amphiporus spp.	1	2	
Amphiuridae sp.	1		
Anoplodactylus erectus			
Anoplodactylus sp.			
Arhynchite pugettensis			
Brisaster latifrons		1	2
Bryozoa spp.			
Buskia nitens			
Cerebratulus sp.			
Clavopora occidentalis			
Clytia sp.			
Dendrochirotida spp.			
Golfingiidae sp.			
Halcampa decemtentaculata			
Hoplonemertea spp.	2		
Leptoplanidae spp.			
Leptosynapta sp.			

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Station	**OSZ-1**	**OSZ-1**	**OSZ-1**
Replicate	**1**	**2**	**3**
Leptosynapta transgressor			
Lineidae spp.	3	1	1
Molpadia intermedia		1	2
Nematoda unid.			
Nemertea spp.	1		
Notoplana sp.			
Nymphon pixellae			
Nynantheae sp.			
Pachycerianthus fimbriatus			
Pachycerianthus sp.			
Pentamera populifera			
Pentamera spp.			
Polycladida spp.	1		
Psolidium bidiscum			
Ptilosarcus gurneyi			
Sertulariidae spp.			
Tetrastemma reticulatum			
Tetrastemma sp.			
Thysanocardia nigra			
Tubulanus capistratus			
Tubulanus pellucidus	1	1	
Tubulanus spp.			
Tubularia sp.			
Miscellaneous Biomass (grams)	**0.11**	**138.64**	**106.06**