King County

Brightwater

TREATMENT SYSTEM

# Brightwater Marine Outfall

## Diffuser Baseline Sediment Characterization

## Final Report

Prepared for the

King County Department of Natural Resources and Parks
Wastewater Treatment Division

Washington State Department of Fish and Wildlife

Washington State Department of Natural Resources

by the

King County Department of Natural Resources and Parks
Marine and Sediment Assessment Group

November 2008

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# 1 Introduction

This report presents results of the 2006 and 2007 sediment monitoring events for the Brightwater Treatment System marine outfall. This two-year baseline sediment characterization at the outfall diffuser location was performed as part of the environmental monitoring required under King County's Aquatic Lands Outfall Easement and Hydraulic Project Approval (HPA) Permit.

## 1.1 Project Directives

The primary goal of all King County marine sediment monitoring programs is to produce scientific data of known quality that can be used to determine whether operations of its facilities and associated outfalls cause any impacts to the marine environment. King County undertook a baseline sediment characterization in 2006 at the planned diffuser location for the Brightwater Treatment System marine outfall. The study will assess sediment quality in the vicinity of the outfall diffuser location prior to construction activities and operation of the outfall.

This monitoring work was designed to partially fulfill requirements of the County's Aquatic Lands Outfall Easement No. 51-076776, issued by the Washington State Department of Natural Resources (WDNR) for the Brightwater Treatment System (WDNR 2005). The monitoring work also fulfilled one requirement of the County's HPA Permit No. 100180-1, issued by the Washington Department of Fish and Wildlife (WDFW) as part of the outfall construction permitting process (WDFW 2005).

The work conducted during the 2006 and 2007 monitoring events represented the first two years of a planned three-year sediment baseline characterization study. Due to construction schedules, the planned third year of sediment monitoring was not performed. The 2006 and 2007 monitoring events produced data of sufficient quantity and quality to provide a robust sediment quality baseline, against which to compare future monitoring data. It is anticipated that sediment monitoring at the outfall will be a requirement of King County's National Pollution Discharge Elimination System (NPDES) permit for the Brightwater Treatment System.

## 1.2 Project Background

King County's new Brightwater Treatment System includes a marine outfall that will discharge highly treated effluent to Puget Sound. The final treatment facility site, conveyance system route, and general outfall location were selected in December 2003, with the marine outfall located at Point Wells, along the King-Snohomish county line (Figure 1). The outfall consists of a single 84-inch diameter pipeline starting on land at the Point Wells portal. This single pipeline continues to a water depth of 0 feet, referenced to mean lower low water (MLLW), where it bifurcates into twin 63-inch diameter pipelines and continues underwater approximately one mile offshore to a depth of about –600 feet MLLW. Staggered 250-foot diffusers at the end of the pipes provide a total diffuser length of 500 feet with an available 62 diffuser ports that will disperse the effluent into Puget Sound. The outfall was sited and designed to provide efficient mixing and dilution of the effluent, to be protective of water quality standards and the health of Puget Sound, and to maintain proper hydraulic performance over the design life of the outfall.

The goal of the 2006 monitoring event was to begin establishing a sediment quality baseline at the location of the Brightwater Treatment System marine outfall diffuser, prior to construction and operation. The additional sediment data collected in 2007 provided sufficient information to allow a full spatial and temporal characterization of baseline sediment quality from the

standpoint of sediment chemistry. Temporal differences in the benthic community will warrant additional investigation.

The data quality objectives of the 2006 and 2007 monitoring events were to collect data of sufficient quantity and quality to be able to meet the following study objectives:

- characterize the spatial distribution of sediment chemical concentrations in the vicinity of the outfall diffuser;
- compare certain of these chemical concentrations to published sediment quality chemical criteria (Ecology 1995) and others to Puget Sound regional values;
- characterize the benthic community in the vicinity of the outfall diffuser and at a nearby reference station; and
- compare these benthic community metrics between stations and to Puget Sound region-wide benthic community data.

King County conducted its first sediment characterization near the outfall alignment in 2001 during the Marine Outfall Siting Study for the Brightwater Treatment System. Subtidal sediment samples were collected from three candidate marine outfall zones with "Zone 7" representing the area offshore of Point Wells. Sediment samples were collected from six stations in Zone 7 that were in the vicinity of the current outfall alignment. The six samples were analyzed for both sediment chemistry and benthic taxonomy. Results were reported as part of the environmental impact statement and permitting processes (King County 2002).

Sediments from the six Zone 7 stations were mainly a sandy-silt with a relatively large clay fraction, indicating areas of deposition. The organic carbon content in Zone 7 was consistent, ranging from 1.4 to 1.6%. Concentrations of metals and organic compounds were similar between the six stations and all well below their respective regulatory and guidance criteria. Based on the similarity of the 2001 monitoring results, ten sediment chemistry stations and one reference station were selected for the Brightwater Treatment System marine outfall diffuser baseline sediment characterization. The number of stations, as well as their positioning, was also based on guidance for sampling multi-port diffusers found in Section 4 of Ecology's Sediment Sampling and Analysis Plan Appendix (SAPA) (Ecology 2003). An complete explanation of the sampling design may be found in the project sampling and analysis plan (King County 2006). It should be noted that the original sampling design was based on the proposed outfall alignment at the time the baseline sediment characterization sampling and analysis plan was prepared. At that time, the outfall design consisted of a single outfall pipeline with a 500-foot diffuser.

The benthic community assemblages found at the six stations in Zone 7 were virtually identical, almost completely dominated by a single species of small clam, *Macoma carlottensis*. Sampling stations in this zone were all located at depths within a range of 570 to 700 feet MLLW and physical sediment properties such as particle size distribution and organic carbon content were consistent. Previous benthic studies performed in Puget Sound have documented the domination by *Macoma carlottensis* in deep, muddy, clayey sediments such as those found at the six stations (Lie 1974, Nichols 1988 and 2001, and Llanso et al. 1998). As a result of these consistent benthic results, samples for benthic taxonomy analysis were collected from only three stations proximal to the outfall alignment and from one nearby reference station.

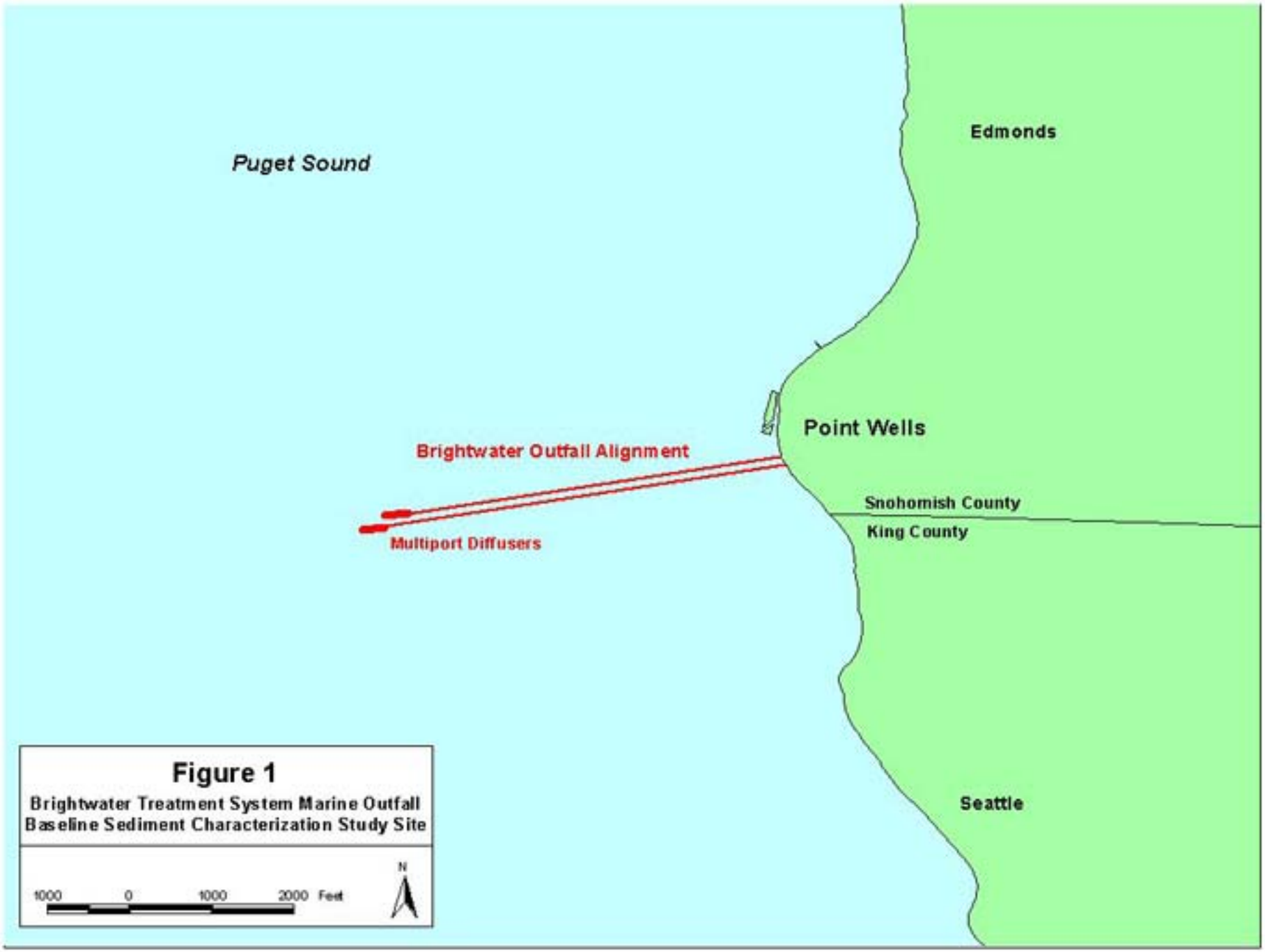


**Figure 1**
Brightwater Treatment System Marine Outfall
Baseline Sediment Characterization Study Site

# 2 Sample Collection and Analysis

Sediment samples were collected for chemical analysis in both 2006 and 2007 from ten stations proximal to the planned marine outfall alignment and one nearby reference station (Figure 2). Sediment chemistry samples were composited from a minimum of three successful grab sampler deployments and were comprised of sediments collected from the 0- to 2-centimeter depth stratum. Samples were also collected for benthic community analysis at three of the outfall stations and the reference station. Benthic community samples were collected in triplicate at each station and concurrently with the collection of sediment chemistry samples. The samples were collected in October of both 2006 and 2007.

## 2.1 Sample Collection

All sample collection followed protocols outlined in the Puget Sound Estuary Program's (PSEP) Puget Sound Protocols (PSEP 1987, 1997a, and 1998). Sediment was obtained using two modified, stainless steel, 0.1 $m^2$ van Veen grab samplers deployed in tandem from King County's research vessel *Liberty*. A single deployment of the tandem van Veen grab samplers was considered "two deployments" when both of the grabs returned an acceptable sample.

The *Liberty* is equipped with a differential global positioning system (DGPS). 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. To increase sampling accuracy, the DGPS system was enhanced by the addition and integration of an ultra-short baseline acoustical navigation system that continuously calculated the three-dimensional position of the submerged grab samplers, relative to that of the surface vessel. Pitch-and-roll motion sensors and an electronic compass were also used to nullify shipboard movement and reference all underwater directional data to magnetic north.

Upon contact of the grab sampler with the bottom, the coordinate data representing the actual sediment grab impact point were electronically recorded in real time. Positioning information included local time and date that a position was recorded, comments, and coordinate data in both latitude/longitude and NAD 83 State Plane formats. Coordinates for each grab deployment are shown in Table 1 and are compared to the prescribed study coordinates.

A minimum sediment recovery depth of 4 cm was required in each acceptable grab to allow collection of the top 2 cm of sediment for chemistry analysis without sampling sediment that had touched the sides or bottom of the grab sampler. The sediment was removed from the grab using stainless-steel spatulas and 200 $cm^3$ "cookie cutters" and placed into a stainless-steel bowl for thorough homogenization. Prior to homogenization, sample aliquots for analysis of total sulfide analysis was collected and placed into the appropriate container. All other sample aliquots were split out after homogenization and placed 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.

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.

Benthic community analysis samples were comprised of the entire contents of each of the three replicate grabs at each station. A single deployment of the tandem Van Veen grab samplers was again considered "two deployments" when both of the grabs returned an acceptable sample. Sediment samples were immediately sieved through a one-millimeter screen and all material retained on the screen was preserved with a 10% buffered formalin solution and stored for later analysis.

## 2.2 Sample Analysis

Eleven sediment samples were submitted in both 2006 and 2007 for chemical analysis of conventional, metal, and organic parameters. Sediment chemistry analytical parameters were selected primarily based on guidance for conducting sediment characterizations (Ecology 2003) and for comparison of analytical results with published sediment quality criteria (Ecology 1995). Other analytical parameters were selected based on previous sediment studies in the vicinity, as well as a desire to begin monitoring emerging chemicals of concern such as nonylphenols and polybrominated diphenyl ethers (PBDEs). Twenty-four benthic community samples, 12 collected synoptically each year with the sediment chemistry samples, were submitted for identification and enumeration of benthic organisms along with biomass measurement.

Conventional analyses included ammonia nitrogen, particle size distribution (PSD), percent solids, total organic carbon (TOC), and total sulfides. Percent solids analysis was performed according to Standard Method (SM)2540-G (APHA 1998), which is a 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, which is a combination of sieve and hydrometer methodologies (ASTM 2002). Ammonia nitrogen and total sulfide were analyzed according to methods SM4500-NH3-G (potassium chloride extraction with autoanalyzer) and SM4500-S2-D (colorimetric determination), respectively.

Metal analytes included aluminum, antimony, arsenic, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver, thallium, and zinc. Mercury was analyzed according to EPA Method 7471A, cold vapor atomic absorption spectroscopy. All other metals were analyzed according to EPA Method 3050A/6010B; strong-acid digestion with inductively coupled plasma optical emission spectroscopy.

Trace organic parameters included base/neutral/acid extractable semivolatile compounds (BNAs), chlorinated pesticides, polychlorinated biphenyls (PCBs), organophosphorus pesticides, chlorinated herbicides, butyltin isomers, and PBDEs. BNA analysis was performed according to EPA methods 3550B/8270A (SW-846), which employ solvent extraction with sonication, and analysis by gas chromatography/mass spectroscopy (GC/MS). Chlorinated pesticide/PCB

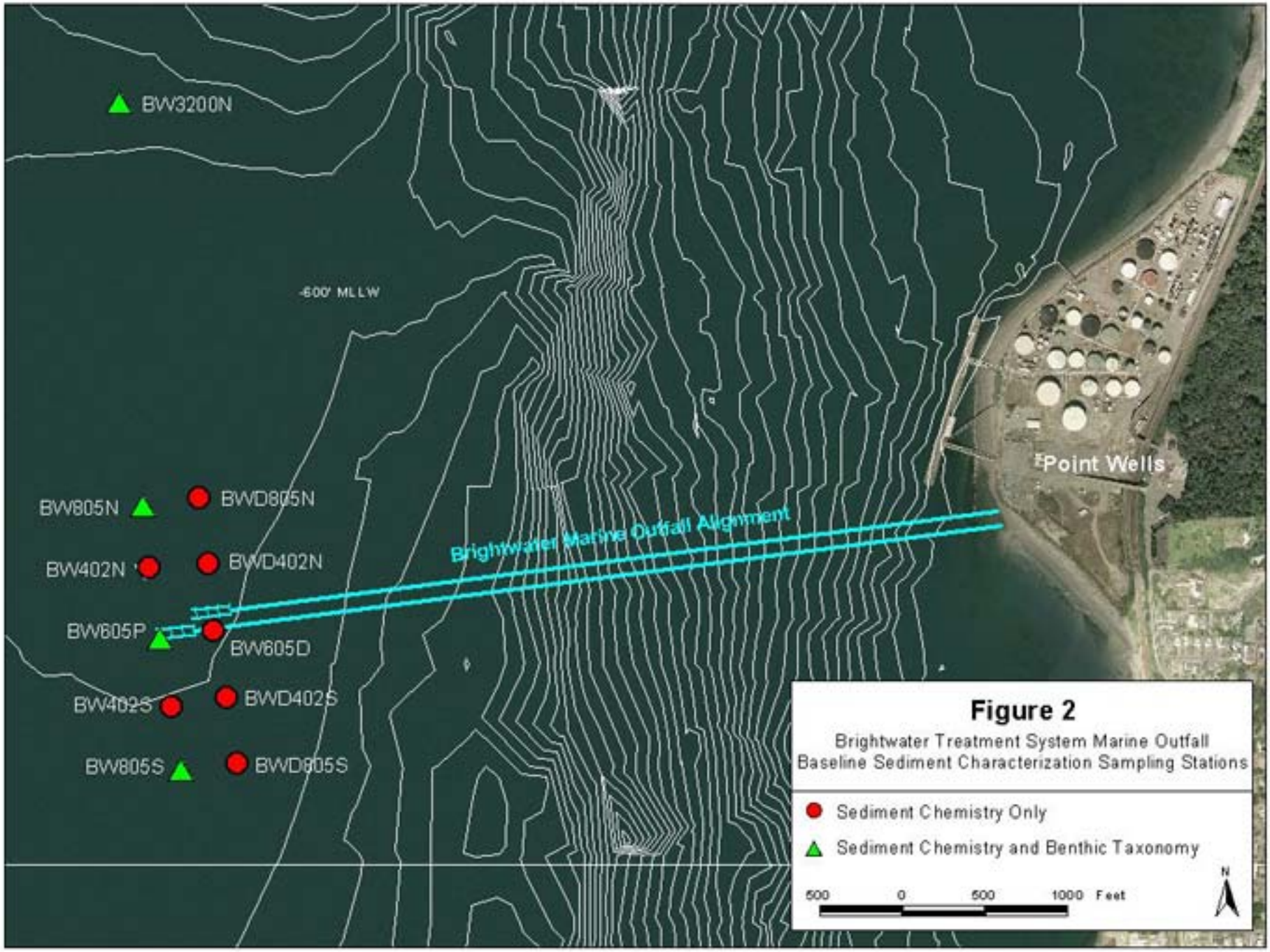


**Figure 2**

Brightwater Treatment System Marine Outfall
Baseline Sediment Characterization Sampling Stations

# Table 1

## Sampling Coordinates

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

***Sampling Coordinates[1] - October 2006***

| | | Grab 1 | | Grab 2 | | Grab 3 | | Average | | Prescribed (SAP) | | Offset | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Depth[2] | Northing | Easting | Northing | Easting | Northing | Easting | Northing | Easting | Northing | Easting | Northing | Easting |
| BW605P | 600 | 287513 | 1250945 | 287517 | 1250928 | 287508 | 1250946 | 287513 | 1250940 | 287508 | 1250940 | 5 | 0 |
| BW402N | 594 | 287885 | 1250857 | 287861 | 1250861 | 287879 | 1250886 | 287875 | 1250868 | 287881 | 1250871 | 6 | 3 |
| BW402S | 604 | 287078 | 1250971 | 287071 | 1250972 | 287086 | 1250970 | 287078 | 1250971 | 287074 | 1250975 | 4 | 4 |
| BW805N | 591 | 288222 | 1250817 | 288255 | 1250790 | 288257 | 1250807 | 288245 | 1250805 | 288237 | 1250801 | 8 | 4 |
| BW805S | 610 | 286666 | 1251080 | 286683 | 1251054 | 286662 | 1251045 | 286670 | 1251060 | 286666 | 1251053 | 4 | 7 |
| BW3200N | 607 | 290677 | 1250643 | 290681 | 1250758 | 290677 | 1250655 | 290678 | 1250685 | 290685 | 1250671 | 7 | 14 |
| BW605D | 600 | 287489 | 1251274 | 287460 | 1251252 | 287471 | 1251272 | 287473 | 1251266 | 287473 | 1251270 | 0 | 4 |
| BWD402N | 591 | 287921 | 1251201 | 287927 | 1251211 | 287903 | 1251211 | 287917 | 1251208 | 287925 | 1251209 | 8 | 1 |
| BWD402S | 607 | 287133 | 1251328 | 287143 | 1251331 | 287146 | 1251330 | 287141 | 1251330 | 287126 | 1251331 | 15 | 1 |
| BWD805N | 587 | 288308 | 1251133 | 288271 | 1251161 | -- | -- | 288290 | 1251147 | 288324 | 1251157 | 35 | 10 |
| BWD805S | 607 | 286757 | 1251367 | 286742 | 1251371 | 286769 | 1251377 | 286756 | 1251372 | 286744 | 1251374 | 12 | 2 |

***Sampling Coordinates[1] - October 2007***

| | | Grab 1 | | Grab 2 | | Grab 3 | | Grab 4 | | Average | | Prescribed (SAP) | | Offset | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Depth[2] | Northing | Easting | Northing | Easting | Northing | Easting | Northing | Easting | Northing | Easting | Northing | Easting | Northing | Easting |
| BW605P | 600 | 287489 | 1250952 | 287525 | 1250957 | 287538 | 1250932 | -- | -- | 287517 | 1250947 | 287508 | 1250940 | 9 | 7 |
| BW402N | 594 | 287880 | 1250849 | 287880 | 1250849 | 287867 | 1250865 | 287867 | 1250865 | 287874 | 1250854 | 287881 | 1250871 | 8 | 17 |
| BW402S | 604 | 287081 | 1250976 | 287081 | 1250976 | 287081 | 1250972 | 287081 | 1250972 | 287081 | 1250975 | 287074 | 1250975 | 7 | 0 |
| BW805N | 591 | 288239 | 1250836 | 288264 | 1250820 | 288282 | 1250796 | -- | -- | 288262 | 1250817 | 288237 | 1250801 | 25 | 16 |
| BW805S | 610 | 286671 | 1251070 | 286683 | 1251083 | 286678 | 1251042 | 286678 | 1251042 | 286678 | 1251065 | 286666 | 1251053 | 12 | 12 |
| BW3200N | 607 | 290699 | 1250666 | 290680 | 1250702 | 290681 | 1250669 | -- | -- | 290687 | 1250679 | 290685 | 1250671 | 2 | 8 |
| BW605D | 600 | 287476 | 1251267 | 287476 | 1251267 | 287470 | 1251271 | 287470 | 1251271 | 287473 | 1251268 | 287473 | 1251270 | 0 | 2 |
| BWD402N | 591 | 287946 | 1251207 | 287946 | 1251207 | 287915 | 1251207 | 287915 | 1251207 | 287931 | 1251207 | 287925 | 1251209 | 6 | 2 |
| BWD402S | 607 | 287128 | 1251334 | 287128 | 1251334 | 287134 | 1251334 | 287134 | 1251334 | 287131 | 1251334 | 287126 | 1251331 | 5 | 3 |
| BWD805N | 587 | 288360 | 1251163 | 288360 | 1251163 | 288337 | 1251101 | 288337 | 1251101 | 288349 | 1251142 | 288324 | 1251157 | 25 | 15 |
| BWD805S | 607 | 286744 | 1251379 | 286744 | 1251379 | 286738 | 1251379 | 286738 | 1251379 | 286741 | 1251379 | 286744 | 1251374 | 3 | 5 |

[1]State Plane Coordinate System - North American Datum 1983 (NAD83).

[2]Depth in feet referenced to Mean Lower Low Water.

analysis was performed according to EPA methods 3550B/8081A/8082 (SW-846), which employ solvent extraction with sonication, and analysis by gas chromatography with electron capture detector (GC/ECD) and dual column confirmation. Organophosphorus pesticide analysis was performed according to EPA Method 3540C/8141A (SW-846), which employs solvent extraction with soxhlet, and analysis by GC/MS in the selected ion monitoring (SIM) mode. Chlorinated herbicide analysis was performed according to EPA Method 8151A Modified (SW-846), which employs solvent extraction with derivatization and analysis by GC/MS with ion trap. Butyltin analysis was performed according to a National Oceanic and Atmospheric Administration method (Krone et al. 1989), which employs a methylene chloride extraction with tumbling, followed by derivatization through a Gringnard reaction, and analysis by GC/MS in the Selected Ion Mode (SIM). PDBE analysis was performed according to EPA method 3550B (SW-846) and King County standard operating procedure (SOP) #7-03-025-D (King County 2005), which employ solvent extraction with sonication and analysis by GC-ICPMS.

Sediment chemistry analyses were performed following guidance recommended in the Puget Sound Protocols (PSEP 1986, 1997b, 1997c) 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. Complete sediment chemistry analytical data, including qualifier flags, are included as Appendix A (2006) and Appendix B (2007). Quality assurance QA1 review narratives are available upon request.

All benthic taxonomy work was performed following accepted regional guidelines (PSEP 1987). Benthic samples were rescreened at the contract laboratory from the 10% buffered formalin solution to 70% ethanol as recommended by the Puget Sound Protocols. Organisms were identified to species level, whenever possible, and then grouped into four categories of taxa for reporting purposes and calculation of biomass. The four taxa categories reported were Annelida, Crustacea, Mollusca, and miscellaneous taxa. A total biomass measurement was reported for each of the four taxa categories, representing the combined weight of all organisms in each taxon and reported in grams. QA/QC procedures included resorting 20% of each processed sample to check sorting efficiency. Five percent of the samples from each major taxonomic group were sent to an independent expert for re-identification, referred to as the voucher collection. Complete benthic taxonomy data and biomass measurements are included as Appendix C (2006) and Appendix D (2007).

# 3 Sediment Chemistry Analytical Results

Complete analytical results for 2006 and 2007, including method detection limits and data qualifiers, are included as Appendix A and Appendix B, respectively. Analytical results for sediment conventional parameters are summarized in Table 2. Analytical results for those chemicals regulated under the Washington State Sediment Management Standards (SMS) are summarized in Table 3, where the results are compared to Sediment Quality Standard (SQS) and Cleanup Screening Level (CSL) chemical criteria (Ecology 1995).

## 3.1 Conventionals

Particle size distribution results indicate a silty, depositional environment at the outfall diffuser site, with total fines (clay plus silt) values ranging from 50 to 60%. Total organic carbon results for the 11 stations were similar over both monitoring years, ranging from 13,000 to 14,700 milligrams per kilogram on a dry weight basis (mg/Kg DW) or approximately 1.3 to 1.5%. Ammonia concentrations were also similar between stations, ranging from 7.68 to 15.0 mg/Kg DW. Total sulfide concentrations were somewhat variable, both spatially and temporally, ranging from 13.3 to 426 mg/Kg DW. There does not appear to be a correlation between total sulfide concentrations and other conventional parameters. Conventional analytical results were similar to those found during the initial sediment characterization, performed in 2001 (King County 2002).

## 3.2 Metals

Metal parameters included aluminum, antimony, arsenic, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver, thallium, and zinc (see Appendices A and B). Antimony, selenium, and thallium were not detected in any of the samples collected during either monitoring year. Concentrations of the other 11 metals in all samples were indicative of background Puget Sound concentrations (NOAA 1988) and showed little variability, either spatially or temporally. Detected concentrations of the eight metals regulated under SMS – arsenic, cadmium, copper, chromium, lead, mercury, silver, and zinc – were all well below their respective SQS chemical criteria as shown below.

| Metal (mg/Kg DW) | Minimum | Maximum | SQS Criterion |
|---|---|---|---|
| Arsenic | 6.2 | 7.9 | 57 |
| Cadmium | 0.45 | 0.63 | 5.1 |
| Chromium | 33.2 | 39.0 | 260 |
| Copper | 24.2 | 29.2 | 390 |
| Lead | 12.0 | 15.7 | 450 |
| Mercury | 0.066 | 0.089 | 0.41 |
| Silver | 0.55 | 1.2 | 6.1 |
| Zinc | 78.1 | 91.7 | 410 |

## 3.3 Organics

Organic parameters included those compounds regulated under SMS – semivolatile organics and PCBs – as well as a wide range of other compounds, including pesticides, herbicides, PBDEs, nonylphenols, and butyltins (see Appendices A and B for the complete list of analytes).

# Table 2

## Sediment Conventionals Analytical Results

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

**Grain Size Distribution[1]**

| Station | Percent Clay | | Percent Silt | | Percent Sand | | Percent Gravel | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2006 | 2007 | 2006 | 2007 | 2006 | 2007 |
| BW605P | 14.3 | 19.4 | 43.0 | 38.8 | 30.9 | 34.4 | 0.2 | 0.1 |
| BW402N | 16.0 | 16.9 | 41.7 | 37.4 | 31.6 | 37.0 | 0.3 | 0.2 |
| BW402S | 18.5 | 21.8 | 41.6 | 32.8 | 32.7 | 36.5 | < 0.1 | 0.2 |
| BW805N | 15.5 | 17.7 | 43.1 | 41.0 | 30.4 | 31.4 | 0.1 | 0.2 |
| BW805S | 15.0 | 18.8 | 36.6 | 35.3 | 33.2 | 37.3 | 0.2 | < 0.1 |
| BW3200N | 13.4 | 17.4 | 40.1 | 32.8 | 37.9 | 40.3 | < 0.1 | 0.2 |
| BW605D | 14.5 | 17.7 | 43.4 | 37.5 | 35.2 | 33.9 | 0.2 | 1.3 |
| BWD402N | 14.0 | 19.5 | 41.9 | 35.3 | 34.1 | 35.8 | 0.4 | 0.2 |
| BWD402S | 12.9 | 20.3 | 45.2 | 38.4 | 33.4 | 31.3 | 0.1 | 1.1 |
| BWD805N | 15.6 | 18.7 | 42.0 | 33.9 | 30.9 | 38.2 | < 0.1 | < 0.1 |
| BWD805S | 12.6 | 17.6 | 44.1 | 34.1 | 33.8 | 38.6 | < 0.1 | 0.2 |

**Conventional Chemistry (mg/Kg DW)[2]**

| Station | Organic Carbon | | Total Ammonia | | Total Sulfides | |
|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2006 | 2007 | 2006 | 2007 |
| BW605P | 14,400 | 13,500 | 14.8 | 11.1 | 71.7 | 173 |
| BW402N | 13,800 | 13,400 | 15.0 | 10.5 | 74.0 | 244 |
| BW402S | 13,700 | 13,400 | 14.2 | 9.84 | 120 | 57.0 |
| BW805N | 13,700 | 14,700 | 13.7 | 14.0 | 29.3 | 70.8 |
| BW805S | 14,100 | 13,800 | 12.6 | 8.80 | 13.3 | 38.0 |
| BW3200N | 13,000 | 13,500 | 10.3 | 10.9 | 252 | 78.6 |
| BW605D | 13,500 | 13,700 | 13.2 | 9.00 | 17.3 | 288 |
| BWD402N | 13,400 | 14,000 | 9.62 | 10.5 | 254 | 32.4 |
| BWD402S | 13,800 | 13,900 | 12.3 | 7.68 | 144 | 426 |
| BWD805N | 13,400 | 14,000 | 12.8 | 12.5 | 307 | 84.1 |
| BWD805S | 13,000 | 13,800 | 9.85 | 9.02 | 73.2 | 191 |

[1]Results noted as "< 0.1" indicates grain sizes in that category were not detected at or above 0.1%.

[2]mg/Kg DW - milligrams per kilogram on a dry weight basis.

# Table 3

## Analytical Results for SMS Chemicals

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| | | | BW605P | | BW402N | | BW402S | | BW805N | | BW805S | | BW3200N | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **SQS** | **CSL** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** |
| **Metals (mg/Kg DW)** | | | | | | | | | | | | | | |
| Arsenic | 57 | 93 | 7.1 | 6.8 | 6.5 | 6.8 | 7.0 | 6.7 | <MDL (6.6) | 8.0 | 7.8 | 8.2 | 6.7 | 7.1 |
| Cadmium | 5.1 | 6.7 | 0.55 | 0.51 | 0.55 | 0.45 | 0.63 | 0.51 | 0.53 | 0.56 | 0.57 | 0.49 | 0.53 | 0.45 |
| Chromium | 260 | 270 | 38.6 | 35.7 | 37.0 | 33.2 | 39.0 | 35.1 | 36.4 | 38.6 | 38.7 | 34.5 | 36.3 | 33.3 |
| Copper | 390 | 390 | 27.3 | 27.1 | 27.0 | 25.1 | 28.3 | 26.5 | 26.4 | 29.2 | 27.5 | 26.1 | 25.6 | 24.2 |
| Lead | 450 | 530 | 13 | 14.5 | 12 | 13.8 | 13 | 14.9 | 12 | 15.7 | 12 | 14.1 | 12 | 13.0 |
| Mercury | 0.41 | 0.59 | 0.071 | 0.086 | 0.070 | 0.075 | 0.070 | 0.088 | 0.087 | 0.083 | 0.070 | 0.075 | 0.072 | 0.069 |
| Silver | 6.1 | 6.1 | <MDL (0.50) | 1.2 | <MDL (0.48) | 0.95 | <MDL (0.48) | 1.2 | <MDL (0.53) | 1.2 | <MDL (0.55) | 1.1 | <MDL (0.49) | 0.97 |
| Zinc | 410 | 960 | 86.6 | 83.6 | 85.8 | 78.1 | 88.4 | 83.0 | 83.1 | 91.7 | 88.1 | 81.0 | 81.5 | 77.0 |
| **Non-Ionic Organics (mg/Kg OC)** | | | | | | | | | | | | | | |
| Acenaphthene | 16 | 57 | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.38) | <MDL (0.37) | <MDL (0.37) | <MDL (0.34) | <MDL (0.36) | <MDL (0.35) |
| Acenaphthylene | 66 | 66 | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | 1.39 | <MDL (0.35) | <MDL (0.38) | <MDL (0.37) | <MDL (0.37) | <MDL (0.34) | <MDL (0.36) | <MDL (0.35) |
| Anthracene | 220 | 1,200 | <MDL (0.36) | 0.45 | 0.47 | 0.835 | 1.08 | 0.50 | 0.54 | 0.46 | 0.876 | 0.460 | 0.768 | 0.55 |
| Fluorene | 23 | 79 | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.38) | <MDL (0.37) | <MDL (0.37) | <MDL (0.34) | <MDL (0.36) | <MDL (0.35) |
| 2-Methylnaphthalene | 38 | 64 | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | 0.35 | <MDL (0.35) | <MDL (0.38) | <MDL (0.37) | <MDL (0.37) | <MDL (0.34) | <MDL (0.36) | <MDL (0.35) |
| Naphthalene | 99 | 170 | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.38) | <MDL (0.37) | <MDL (0.37) | <MDL (0.34) | <MDL (0.36) | <MDL (0.35) |
| Phenanthrene | 100 | 480 | 1.13 | 2.07 | 1.52 | 1.92 | 1.32 | 1.65 | 1.58 | 1.68 | 1.10 | 1.88 | 1.44 | 2.17 |
| Total LPAH | 370 | 780 | 1.13 | 2.5 | 2.0 | 2.76 | 4.1 | 2.2 | 2.1 | 2.1 | 1.98 | 2.3 | 2.2 | 2.7 |
| Benzo(a)anthracene | 110 | 270 | 0.62 | 1.51 | 0.823 | 1.84 | 5.04 | 1.48 | 1.19 | 1.58 | 0.823 | 1.54 | 1.10 | 1.80 |
| Benzo(a)pyrene | 99 | 210 | <MDL (0.36) | 2.14 | <MDL (0.36) | 2.73 | 4.32 | 2.09 | <MDL (0.38) | 2.49 | <MDL (0.37) | 2.22 | <MDL (0.36) | 2.11 |
| Benzofluoranthenes (Total) | 230 | 450 | 1.7 | 2.5 | 2.06 | 3.06 | 6.79 | 2.54 | 1.60 | 3.04 | 1.89 | 2.68 | 2.36 | 2.7 |
| Benzo(g,h,i)perylene | 31 | 78 | 0.68 | 0.915 | 0.846 | 1.44 | 2.99 | 1.15 | 1.20 | 1.29 | 0.926 | 1.18 | 1.15 | 1.10 |
| Chrysene | 110 | 460 | 1.00 | 1.33 | 1.21 | 1.82 | 6.53 | 1.54 | 1.63 | 1.64 | 0.993 | 1.64 | 1.43 | 1.49 |
| Dibenzo(a,h)anthracene | 12 | 33 | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | 0.906 | <MDL (0.35) | <MDL (0.38) | 0.49 | <MDL (0.37) | <MDL (0.34) | <MDL (0.36) | <MDL (0.35) |
| Fluoranthene | 160 | 1,200 | 1.58 | 2.81 | 2.13 | 3.40 | 7.59 | 2.70 | 2.54 | 2.60 | 1.83 | 2.87 | 2.57 | 3.08 |
| Indeno(1,2,3-cd)pyrene | 34 | 88 | 0.55 | 0.882 | 0.71 | 1.32 | 2.60 | 0.995 | 0.919 | 1.19 | 0.70 | 1.01 | 0.891 | 1.04 |
| Pyrene | 1,000 | 1,400 | 1.72 | 2.50 | 2.37 | 3.72 | 9.98 | 2.66 | 2.79 | 2.49 | 2.05 | 2.78 | 2.78 | 3.17 |
| Total HPAH | 960 | 5,300 | 7.9 | 15 | 10 | 19.3 | 46.7 | 15.2 | 11.9 | 17 | 9.2 | 15.9 | 12.3 | 16 |
| Benzyl Butyl Phthalate | 4.9 | 64 | <MDL (0.18) | 4.14 | 1.13 | 4.14 | 1.12 | 3.88 | <MDL (0.19) | <MDL (0.18) | 1.30 | <MDL (0.17) | <MDL (0.18) | 3.79 |
| Bis(2-Ethylhexyl)Phthalate | 47 | 78 | <MDL (1.3), B | <MDL (4.5), B | <MDL (1.3), B | <MDL (4.7), B | <MDL (1.5), B | <MDL (4.0), B | <MDL (1.8), B | <MDL (4.2), B | <MDL (1.5), B | <MDL (4.2), B | <MDL (1.4), B | <MDL (4.5), B |
| Diethyl Phthalate | 61 | 110 | <MDL (0.73) | <MDL (0.72) | <MDL (0.72) | <MDL (0.72) | <MDL (0.71) | <MDL (0.70) | <MDL (0.77) | <MDL (0.74) | <MDL (0.74) | <MDL (0.68) | <MDL (0.71) | <MDL (0.70) |
| Dimethyl Phthalate | 53 | 53 | <MDL (0.73) | <MDL (0.72) | <MDL (0.72) | <MDL (0.72) | <MDL (0.71) | <MDL (0.70) | <MDL (0.77) | <MDL (0.74) | <MDL (0.74) | <MDL (0.68) | <MDL (0.71) | <MDL (0.70) |
| Di-N-Butyl Phthalate | 220 | 1,700 | <MDL (1.2), B | <MDL (2.3), B | <MDL (1.1), B | <MDL (2.2), B | <MDL (1.4), B | <MDL (2.1), B | <MDL (1.1), B | <MDL (2.3), B | <MDL (1.5), B | <MDL (2.1), B | <MDL (1.5), B | <MDL (2.1), B |
| Di-N-Octyl Phthalate | 58 | 4,500 | <MDL (0.73) | <MDL (0.30) | <MDL (0.72) | <MDL (5.5), B | <MDL (0.71) | <MDL (4.6), B | <MDL (0.77) | <MDL (5.8), B | <MDL (0.74) | <MDL (5.0), B | <MDL (0.71) | <MDL (5.5) |
| 1,2,4-Trichlorobenzene | 0.81 | 1.8 | <MDL (0.018) | <MDL (0.018) | <MDL (0.018) | <MDL (0.019) | <MDL (0.018) | <MDL (0.017) | <MDL (0.019) | <MDL (0.017) | <MDL (0.018) | <MDL (0.017) | <MDL (0.018) | <MDL (0.018) |
| 1,2-Dichlorobenzene | 2.3 | 2.3 | <MDL (0.036) | <MDL (0.036) | <MDL (0.036) | <MDL (0.038) | <MDL (0.035) | <MDL (0.034) | <MDL (0.038) | <MDL (0.034) | <MDL (0.037) | <MDL (0.034) | <MDL (0.036) | <MDL (0.036) |
| 1,4-Dichlorobenzene | 3.1 | 9 | <MDL (0.036) | <MDL (0.036) | <MDL (0.036) | <MDL (0.038) | <MDL (0.035) | <MDL (0.034) | <MDL (0.038) | <MDL (0.034) | <MDL (0.037) | <MDL (0.034) | <MDL (0.036) | <MDL (0.036) |
| Hexachlorobenzene | 0.38 | 2.3 | <MDL (0.018) | <MDL (0.018) | <MDL (0.018) | <MDL (0.019) | <MDL (0.018) | <MDL (0.017) | <MDL (0.019) | <MDL (0.017) | <MDL (0.018) | <MDL (0.017) | <MDL (0.018) | <MDL (0.018) |
| Dibenzofuran | 15 | 58 | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.38) | <MDL (0.37) | <MDL (0.37) | <MDL (0.34) | <MDL (0.36) | <MDL (0.35) |
| Hexachlorobutadiene | 3.9 | 6.2 | <MDL (0.091) | <MDL (0.091) | <MDL (0.090) | <MDL (0.094) | <MDL (0.088) | <MDL (0.087) | <MDL (0.096) | <MDL (0.091) | <MDL (0.092) | <MDL (0.085) | <MDL (0.089) | <MDL (0.088) |
| N-Nitrosodiphenylamine | 11 | 11 | <MDL (0.73) | <MDL (0.72) | <MDL (0.72) | <MDL (0.72) | <MDL (0.71) | <MDL (0.70) | <MDL (0.77) | <MDL (0.74) | <MDL (0.74) | <MDL (0.68) | <MDL (0.71) | <MDL (0.70) |
| Total PCBs (as Aroclors) | 12 | 65 | <MDL (0.24) | <MDL (0.24) | <MDL (0.24) | 0.662 | <MDL (0.23) | 0.38 | <MDL (0.25) | <MDL (0.24) | <MDL (0.24) | 0.37 | <MDL (0.23) | <MDL (0.23) |
| **Ionic Organics (µg/Kg DW)** | | | | | | | | | | | | | | |
| Benzoic Acid | 650 | 650 | 185 | 206 | 217 | 248 | 190 | 231 | 319 | 263 | 187 | 251 | 165 | 209 |
| Benzyl Alcohol | 57 | 73 | <MDL (5.2) | <MDL (.49) | <MDL (5.0) | <MDL (5.0) | <MDL (4.8) | <MDL (4.7) | <MDL (5.3) | <MDL (5.4) | <MDL (5.2) | <MDL (4.7) | <MDL (4.6) | <MDL (4.8) |
| 2,4-Dimethylphenol | 29 | 29 | <MDL (2.6) | <MDL (2.5) | <MDL (2.5) | <MDL (2.5) | <MDL (2.4) | <MDL (2.4) | <MDL (2.6) | <MDL (2.7) | <MDL (2.6) | <MDL (2.4) | <MDL (2.3) | <MDL (2.4) |
| 2-Methylphenol | 63 | 63 | <MDL (5.2) | <MDL (4.9) | <MDL (5.0) | <MDL (5.0) | <MDL (4.8) | <MDL (4.7) | <MDL (5.3) | <MDL (5.4) | <MDL (5.2) | <MDL (4.7) | <MDL (4.6) | <MDL (4.8) |
| 4-Methylphenol | 670 | 670 | <MDL (10) | <MDL (9.8) | <MDL (10) | <MDL (10) | <MDL (9.7) | <MDL (9.4) | <MDL (11) | <MDL (11) | <MDL (10) | <MDL (9.4) | <MDL (9.2) | <MDL (9.6) |
| Pentachlorophenol | 360 | 690 | <MDL (26) | <MDL (25) | <MDL (25) | <MDL (25) | <MDL (24) | <MDL (24) | <MDL (26) | <MDL (27) | <MDL (26) | <MDL (24) | <MDL (23) | <MDL 24) |
| Phenol | 420 | 1,200 | 32.8 | <MDL (9.8) | 47.5 | <MDL (10) | 60.5 | <MDL (9.4) | 73.9 | <MDL (11) | 52.5 | <MDL (9.4) | 32.3 | <MDL (9.6) |

**Notes**

SMS - Sediment Management Standards, Chapter 173-204 WAC (Ecology 1995).
SQS - Sediment Quality Standard from Table I of Chapter 173-204 WAC.
CSL - Cleanup Screening Level from Table III of Chapter 173-204 WAC.
mg/Kg DW - Milligrams per kilogram normalized to dry weight, based on percent solids.
mg/Kg OC - Milligrams per kilogram normalized to organic carbon, based on total organic carbon
µg/Kg DW - Micrograms per kilogram normalized to dry weight, based on percent solids.

<MDL (#) - Analytical result is less than the *method detection limit* (MDL). Number in parentheses is numeric MDL.
<MDL (#), B - Method detection limit raised due to laboratory contmaination indicated by method blank positive result
LPAHs - Low molecular weight polynuclear aromatic hydrocarbons.
HPAHs - High molecular weight polynuclear aromatic hydrocarbons.
PCBs - Polychlorinated biphenyls.

# Table 3

## Analytical Results for SMS Chemicals

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| | | | BW605D | | BWD402N | | BWD402S | | BWD805N | | BWD805S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **SQS** | **CSL** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** |
| **Metals (mg/Kg DW)** | | | | | | | | | | | | |
| Arsenic | 57 | 93 | 7.1 | 7.4 | 6.2 | 6.7 | 6.8 | 7.9 | 6.9 | 7.2 | 6.6 | 7.6 |
| Cadmium | 5.1 | 6.7 | 0.57 | 0.48 | 0.57 | 0.47 | 0.53 | 0.49 | 0.52 | 0.52 | 0.54 | 0.49 |
| Chromium | 260 | 270 | 38.9 | 35.0 | 37.9 | 33.7 | 37.8 | 35.5 | 37.4 | 35.5 | 38.2 | 35.4 |
| Copper | 390 | 390 | 27.8 | 26.0 | 27.5 | 26.2 | 27.1 | 27.6 | 26.7 | 27.0 | 27.5 | 27.0 |
| Lead | 450 | 530 | 13 | 14.2 | 13 | 13.7 | 13 | 14.4 | 13 | 14.8 | 13 | 14.3 |
| Mercury | 0.41 | 0.59 | 0.071 | 0.076 | 0.066 | 0.075 | 0.070 | 0.073 | 0.079 | 0.089 | 0.066 | 0.081 |
| Silver | 6.1 | 6.1 | <MDL (0.47) | 1.0 | 0.55 | 0.92 | <MDL (0.50) | 0.99 | <MDL (0.50) | 1.1 | <MDL (0.48) | 1.0 |
| Zinc | 410 | 960 | 86.7 | 80.7 | 86.0 | 78.8 | 85.2 | 82.3 | 83.8 | 83.4 | 84.9 | 81.6 |
| **Non-Ionic Organics (mg/Kg OC)** | | | | | | | | | | | | |
| Acenaphthene | 16 | 57 | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.36) | <MDL (0.36) | <MDL (0.32) | <MDL (0.35) | <MDL (0.36) | <MDL (0.37) | <MDL (0.36) |
| Acenaphthylene | 66 | 66 | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.36) | <MDL (0.36) | <MDL (0.32) | <MDL (0.35) | <MDL (0.36) | <MDL (0.37) | <MDL (0.36) |
| Anthracene | 220 | 1,200 | 0.64 | 0.51 | 0.821 | 0.46 | 0.69 | 0.46 | 0.57 | 0.899 | 0.43 | 0.60 |
| Fluorene | 23 | 79 | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.36) | <MDL (0.36) | <MDL (0.32) | <MDL (0.35) | <MDL (0.36) | <MDL (0.37) | <MDL (0.36) |
| 2-Methylnaphthalene | 38 | 64 | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.36) | <MDL (0.36) | <MDL (0.32) | <MDL (0.35) | <MDL (0.36) | <MDL (0.37) | <MDL (0.36) |
| Naphthalene | 99 | 170 | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.36) | <MDL (0.36) | <MDL (0.32) | <MDL (0.35) | <MDL (0.36) | <MDL (0.37) | <MDL (0.36) |
| Phenanthrene | 100 | 480 | 1.25 | 1.49 | 1.41 | 2.29 | 1.27 | 1.58 | 1.45 | 2.65 | 1.39 | 1.94 |
| Total LPAH | 370 | 780 | 1.9 | 2.0 | 2.23 | 2.8 | 2.0 | 2.0 | 2.0 | 3.55 | 1.8 | 2.5 |
| Benzo(a)anthracene | 110 | 270 | 0.765 | 2.09 | 1.11 | 2.00 | 1.49 | 1.67 | 1.08 | 2.02 | 0.996 | 1.51 |
| Benzo(a)pyrene | 99 | 210 | <MDL (0.36) | 2.42 | <MDL (0.35) | 2.41 | 0.58 | 2.37 | <MDL (0.35) | 2.72 | 0.37 | 2.11 |
| Benzofluoranthenes (Total) | 230 | 450 | 1.68 | 3.18 | 2.33 | 3.29 | 2.81 | 2.78 | 2.55 | 3.09 | 2.92 | 2.67 |
| Benzo(g,h,i)perylene | 31 | 78 | 0.865 | 1.44 | 0.963 | 1.65 | 1.31 | 1.35 | 1.16 | 1.08 | 1.09 | 1.13 |
| Chrysene | 110 | 460 | 0.951 | 1.93 | 1.41 | 2.54 | 1.88 | 1.51 | 1.72 | 2.86 | 1.28 | 1.41 |
| Dibenzo(a,h)anthracene | 12 | 33 | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | 0.54 | <MDL (0.36) | 0.56 | <MDL (0.35) | <MDL (0.36) | <MDL (0.37) | 0.44 |
| Fluoranthene | 160 | 1,200 | 1.64 | 2.98 | 2.46 | 3.05 | 3.84 | 2.79 | 2.66 | 3.89 | 2.24 | 2.56 |
| Indeno(1,2,3-cd)pyrene | 34 | 88 | 0.66 | 1.17 | 0.830 | 1.35 | 0.996 | 1.13 | 0.936 | 1.11 | 0.923 | 1.08 |
| Pyrene | 1,000 | 1,400 | 1.82 | 3.83 | 2.64 | 3.14 | 4.29 | 3.27 | 2.77 | 4.32 | 2.54 | 2.65 |
| Total HPAH | 960 | 5,300 | 8.4 | 19.0 | 11.7 | 20 | 17 | 17 | 12.9 | 21.1 | 12 | 16 |
| Benzyl Butyl Phthalate | 4.9 | 64 | 1.17 | <MDL (0.17) | <MDL (0.18) | <MDL (0.18) | 1.21 | 3.52 | 1.16 | <MDL (0.18) | 1.17 | 4.05 |
| Bis(2-Ethylhexyl)Phthalate | 47 | 78 | <MDL (1.6), B | <MDL (4.2), B | <MDL (1.4), B | <MDL (5.2), B | <MDL (1.3), B | <MDL (4.3), B | <MDL (1.4), B | <MDL (4.8), B | <MDL (1.7), B | <MDL (4.5), B |
| Diethyl Phthalate | 61 | 110 | <MDL (0.73) | <MDL (0.70) | <MDL (0.71) | <MDL (0.72) | 1.1 | 0.68 | <MDL (0.71) | <MDL (0.72) | <MDL (0.75) | <MDL (0.72) |
| Dimethyl Phthalate | 53 | 53 | <MDL (0.73) | <MDL (0.70) | <MDL (0.71) | <MDL (0.72) | <MDL (0.72) | <MDL (0.68) | <MDL (0.71) | <MDL (0.72) | <MDL (0.75) | <MDL (0.72) |
| Di-N-Butyl Phthalate | 220 | 1,700 | <MDL (1.4), B | <MDL (2.2), B | <MDL (1.2), B | <MDL (2.2), B | <MDL (1.4), B | <MDL (2.0), B | <MDL (1.5), B | <MDL (2.3), B | <MDL (1.4), B | <MDL (2.2), B |
| Di-N-Octyl Phthalate | 58 | 4,500 | <MDL (0.73) | <MDL (5.0), B | <MDL (0.71) | <MDL (5.3), B | <MDL (0.72) | <MDL (4.7), B | <MDL (0.71) | <MDL (5.6), B | <MDL (0.75) | <MDL (0.29) |
| 1,2,4-Trichlorobenzene | 0.81 | 1.8 | <MDL (0.018) | <MDL (0.017) | <MDL (0.018) | <MDL (0.018) | <MDL (0.018) | <MDL (0.016) | <MDL (0.018) | <MDL (0.018) | <MDL (0.019) | <MDL (0.018) |
| 1,2-Dichlorobenzene | 2.3 | 2.3 | <MDL (0.036) | <MDL (0.034) | <MDL (0.035) | <MDL (0.036) | <MDL (0.036) | <MDL (0.032) | <MDL (0.035) | <MDL (0.036) | <MDL (0.037) | <MDL (0.036) |
| 1,4-Dichlorobenzene | 3.1 | 9 | <MDL (0.036) | <MDL (0.034) | <MDL (0.035) | <MDL (0.036) | <MDL (0.036) | <MDL (0.032) | <MDL (0.035) | <MDL (0.036) | <MDL (0.037) | <MDL (0.036) |
| Hexachlorobenzene | 0.38 | 2.3 | <MDL (0.018) | <MDL (0.017) | <MDL (0.018) | <MDL (0.018) | <MDL (0.018) | <MDL (0.016) | <MDL (0.018) | <MDL (0.018) | <MDL (0.019) | <MDL (0.018) |
| Dibenzofuran | 15 | 58 | <MDL (0.36) | <MDL (0.35) | <MDL (0.35) | <MDL (0.36) | <MDL (0.36) | <MDL (0.32) | <MDL (0.35) | <MDL (0.36) | <MDL (0.37) | <MDL (0.36) |
| Hexachlorobutadiene | 3.9 | 6.2 | <MDL (0.091) | <MDL (0.087) | <MDL (0.088) | <MDL (0.089) | <MDL (0.091) | <MDL (0.079) | <MDL (0.089) | <MDL (0.089) | <MDL (0.093) | <MDL (0.089) |
| N-Nitrosodiphenylamine | 11 | 11 | <MDL (0.73) | <MDL (0.70) | <MDL (0.71) | <MDL (0.72) | <MDL (0.72) | <MDL (0.68) | <MDL (0.71) | <MDL (0.72) | <MDL (0.75) | <MDL (0.72) |
| Total PCBs (as Aroclors) | 12 | 65 | <MDL (0.24) | 0.33 | <MDL (0.23) | 0.36 | <MDL (0.24) | 0.29 | <MDL (0.23) | 0.36 | 0.43 | 0.34 |
| **Ionic Organics (µg/Kg DW)** | | | | | | | | | | | | |
| Benzoic Acid | 650 | 650 | 154 | 183 | 190 | 267 | 190 | 173 | 186 | 201 | 137 | 203 |
| Benzyl Alcohol | 57 | 73 | <MDL (4.9) | <MDL (4.8) | <MDL (4.7) | <MDL (5.0) | <MDL (5.0) | <MDL (4.4) | <MDL (4.8) | <MDL (5.0) | <MDL (4.9) | <MDL (4.9) |
| 2,4-Dimethylphenol | 29 | 29 | <MDL (2.5) | <MDL (2.4) | <MDL (2.4) | <MDL (2.5) | <MDL (2.5) | <MDL (2.2) | <MDL (2.4) | <MDL (2.5) | <MDL (2.4) | <MDL (2.5) |
| 2-Methylphenol | 63 | 63 | <MDL (4.9) | <MDL (4.8) | <MDL (4.7) | <MDL (5.0) | <MDL (5.0) | <MDL (4.4) | <MDL (4.8) | <MDL (5.0) | <MDL (4.9) | <MDL (4.9) |
| 4-Methylphenol | 670 | 670 | <MDL (9.9) | <MDL (9.6) | <MDL (9.5) | <MDL (10) | <MDL (10) | <MDL (8.8) | <MDL (9.5) | <MDL (10) | <MDL (9.7) | <MDL (9.8) |
| Pentachlorophenol | 360 | 690 | <MDL (25) | <MDL 24) | <MDL (24) | <MDL (25) | <MDL (25) | <MDL (22) | <MDL (24) | <MDL (25) | <MDL (24) | <MDL (25) |
| Phenol | 420 | 1,200 | 39.4 | <MDL (9.6) | 42.9 | <MDL (10) | 38.1 | <MDL (8.8) | 54.5 | <MDL (10) | 24.1 | <MDL (9.8) |

### *3.3.1 Semivolatile Organic Compounds*

Semivolatile organic analysis included 43 compounds, of which 37 are regulated under the SMS (see Table 3). In accordance with SMS guidance, semivolatile organic results in Table 3 are presented normalized to organic carbon for the non-ionizing compounds, including PAHs, phthalates, chlorobenzenes, and PCBs. Results for ionizing compounds, including acids, alcohols, and phenolics, are presented normalized to dry weight.

PAH compounds were detected in every sample collected during both monitoring events. Total low-molecular-weight PAH (LPAH) concentrations ranged from 1.13 to 4.1 milligrams per kilogram normalized to organic carbon (mg/Kg OC), which is well below the SQS chemical criterion for total LPAH of 370 mg/Kg OC. Total high-molecular-weight PAH (HPAH) concentrations ranged from 7.9 to 46.7 mg/Kg OC. These total HPAH concentrations are also well below their SQS chemical criterion of 960 mg/Kg OC. All detected individual PAH concentrations were well below their respective SQS chemical criteria (see Table 3).

Benzyl butyl phthalate was detected in 7 of the 11 samples collected during the 2006 monitoring event and in 6 of the 11 samples collected during the 2007 monitoring event. Benzyl butyl phthalate concentrations ranged from 1.12 to 4.14 mg/Kg OC, all below the SQS chemical criterion of 4.9 mg/Kg OC. Diethyl phthalate was detected at one station, BWD402S, during both the 2006 and 2007 monitoring events at concentrations of 1.1 and 0.68 mg/Kg OC, which are just above the method detection limit and well below the SQS chemical criterion of 61 mg/Kg OC. Dimethyl phthalate was not detected in any of the samples collected during either monitoring event. Sample results for bis(2-ethylhexyl) phthalate and di-n-butyl phthalate were compromised by laboratory contamination during both the 2006 and 2007 monitoring events and di-n-octyl phthalate sample results were compromised during the 2007 monitoring event. These three compounds were detected in laboratory quality control method blanks. Sample results for these three compounds were all less than 10 times the concentration detected in the method blank and, therefore, should be considered as undetected.

Chlorobenzenes compounds, dibenzofuran, hexachlorobutadiene, and N-nitrosodiphenylamine were not detected in any of the samples collected during either monitoring event.

Benzoic acid was detected in every sample, collected during both monitoring events, at concentrations ranging from 137 to 319 micrograms per kilogram on a dry weight basis (µg/Kg DW), all well below the benzoic acid SQS chemical criterion of 650 µg/Kg DW. Phenol was detected in all 11 samples collected during the 2006 monitoring event at concentrations ranging from 24.1 to 73.9 µg/Kg DW. These phenol concentrations are also well below their SQS chemical criterion of 420 µg/Kg DW. Phenol was not detected in any of the samples collected during the 2007 monitoring event. The method detection limit for phenol for the 2007 monitoring event ranged from 8.8 to 11 ug/Kg DW. Benzyl alcohol, pentachlorophenol, 2-methylphenol, 4-methylphenol, and 2,4-dimethylphenol were not detected in any of the samples collected during either monitoring event.

### *3.3.2 PCBs*

Aroclor 1254 was detected at a concentration of 0.43 mg/Kg OC at Station BWD805S during the 2006 monitoring event. This concentration is just slightly above the method detection limit and is less than 5% of the SQS chemical criterion of 12 mg/Kg OC for total PCBs. PCBs were not detected at the other 10 monitoring stations during 2006, at method detection limits ranging from

0.23 to 0.25 mg/Kg OC. Aroclor 1254 was detected in 8 of 11 samples collected during the 2007 monitoring event at concentrations ranging from 0.29 to 0.662 mg/Kg OC, again, just slightly above the method detection limit and well below the SQS chemical criterion.

### *3.3.3 Nonylphenols*

Total 4-nonylphenol, analyzed as a surrogate for nonylphenol surfactants, was not detected in any of the samples collected during either monitoring event.

### *3.3.4 PBDEs*

PBDEs are widely used as flame retardants and can be found in 209 different chemical forms, or congeners. Samples were analyzed for 14 PBDE congeners, including tri-, tetra-, penta-, hexa-, hepta-, and decaBDEs. PBDEs were detected in every sample collected during both monitoring events. Two of the 14 congeners, TetraBDE-47 and PentaBDE-99 were detected in the quality control laboratory method blank during the 2006 monitoring event. Sample results for these two congeners were all less than 10 times the concentration detected in the method blank. As a result, sample results for TetraBDE-47 and PentaBDE-99 have been reported as "less than the method detection limit" with an elevated method detection limit for that monitoring event. No PBDE congeners were detected in the method blank associated with the samples collected during the 2007 monitoring event.

The sum of detected congeners ranged from 0.96 to 1.86 µg/Kg DW in the 11 samples collected during the 2006 monitoring event and ranged from 0.801 to 8.22 µg/Kg DW. It should be noted that the "sum of congeners" does not represent a "total PBDE" concentration since only 14 out of 209 congeners were analyzed. The percent contribution of DecaBDE-209 to the "sum of congeners" ranged from 77 to 92% during the 2006 monitoring event and from 16 to 73% during the 2007 monitoring event. DecaBDE-209 is the only PBDE still commercially produced in the United States and is the most-widely used form of these compounds. PBDE results for 2006 and 2007 are summarized below.

| PBDEs (µg/Kg DW) | 2006 Sum of 14 Congeners | 2007 Sum of 14 Congeners | 2006 Deca-BDE 209 | 2007 Deca-BDE 209 | 2006 Deca-BDE % of Sum | 2006 Deca-BDE % of Sum |
|---|---|---|---|---|---|---|
| BW605P | 2.59 | 1.97 | 1.13 | 0.73 | 44 | 37 |
| BW402N | 1.72 | 2.04 | 0.87 | 1.01 | 50 | 50 |
| BW402S | 1.95 | 8.22 | 1.27 | 1.34 | 65 | 16 |
| BW805N | 2.16 | 0.80 | 1.07 | 0.57 | 49 | 71 |
| BW805S | 1.71 | 1.53 | 0.81 | 0.79 | 47 | 52 |
| BW3200N | 1.59 | 1.34 | 0.82 | 0.67 | 52 | 50 |
| BW605D | 2.56 | 1.69 | 1.64 | 0.78 | 64 | 46 |
| BWD402N | 2.09 | 1.63 | 1.40 | 0.86 | 67 | 53 |
| BWD402S | 2.06 | 0.89 | 1.03 | 0.65 | 50 | 73 |
| BWD805N | 2.00 | 1.10 | 1.23 | 0.68 | 61 | 62 |
| BWD805S | 2.13 | 1.24 | 1.37 | 0.83 | 64 | 67 |

### *3.3.5 Pesticides and Herbicides*

Pesticide and herbicide analysis included 10 chlorinated herbicides, 20 chlorinated pesticides, and seven organophosphorus pesticides (see Appendices A and B). These compounds were not detected in any of the samples collected during either monitoring event.

### *3.3.6 Butyltins*

Butyltin analysis included four isomers; mono-, di-, tri-, and tetra-n-butyltin (see Appendices A and B). These compounds were not detected in any of the samples collected during either monitoring event.

# 4 Benthic Community Analysis

Complete listings of all species identified during the 2006 and 2007 monitoring events, along with biomass measurements, are included as Appendix C and Appendix D, respectively. Table 4 summarizes the benthic community analysis results, along with summaries of physical characteristics for each sediment sample.

There are several indices that can be used to evaluate benthic community assemblages and compare results between sampling stations. 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.

## 4.1 Species Distribution and Biomass

Total richness values showed spatial similarities and slight temporal variation. The total number of species collected during the 2006 monitoring event ranged from 36 to 46 over the four stations. The total number of species collected during the 2006 monitoring event ranged from 48 to 53. Species richness was also fairly evenly distributed between the three major taxa, Annelida, Crustacea, and Mollusca at all four stations during both monitoring years.

Total abundance results were also spatially similar but exhibited a large temporal variation. Total abundance values ranged from 509 to 593 individuals during the 2006 monitoring event but ranged from 1,347 to 1,790 individuals during the 2007 monitoring event. While abundance in all taxa generally increased from 2006 to 2007, the large increase in total abundance is mostly attributable to a three- to four-fold increase in mollusca abundance at all four stations. This increase in mollusca abundance is almost entirely due the increase in the numbers of a single species of clam, *Macoma carlottensis*, which is the dominant organism in the study area.

Total biomass is expressed in grams per 0.1 square meter (g/0.1 $m^2$). Reported total biomass measurements ranged from 29.75 to 103.30 g/0.1 $m^2$. Although always measured, total biomass is not a particularly useful comparative tool for assessing benthic community assemblages, given such confounding factors as differences in shell or carapace size, or the presence of one large individual in a sample.

## 4.2 Benthic Community 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

# Table 4

## Benthic Community Analysis

### Brightwater Treatment Facility Marine Outfall

### Baseline Sediment Characterization

| ***Physical Characteristics*** | **BW605P** | | **BW805N** | | **BW805S** | | **BW3200N** | |
|---|---|---|---|---|---|---|---|---|
| **Parameter (wet weight except for carbon)** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** |
| Percent Fines (Clay plus Silt) | 57.3 | 58.1 | 58.6 | 58.8 | 51.6 | 54.1 | 53.5 | 50.3 |
| Percent Clay | 14.3 | 19.4 | 15.5 | 17.7 | 15.0 | 18.8 | 13.4 | 17.4 |
| Percent Silt | 43.0 | 38.8 | 43.1 | 41.0 | 36.6 | 35.3 | 40.1 | 32.8 |
| Percent Sand | 30.9 | 34.4 | 30.4 | 31.4 | 33.2 | 37.3 | 37.9 | 40.3 |
| Percent Gravel | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0 | 0 | 0.2 |
| Total Organic Carbon (mg/Kg dry weight) | 14,400 | 13,500 | 13,700 | 14,700 | 14,100 | 13,800 | 13,000 | 13,500 |
| Total Organic Carbon (percent dry weight) | 1.4 | 1.4 | 1.4 | 1.5 | 1.4 | 1.4 | 1.3 | 1.4 |

| ***Benthic Community Indices*** | **BW605P** | | **BW805N** | | **BW805S** | | **BW3200N** | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** | **2006** | **2007** |
| **Total Richness (# of species/0.1 $m^2$)** | **40** | **50** | **38** | **48** | **46** | **53** | **36** | **52** |
| Annelida Richness | 15 | 17 | 13 | 17 | 16 | 19 | 14 | 20 |
| Crustacea Richness | 13 | 15 | 11 | 16 | 15 | 17 | 11 | 16 |
| Mollusca Richness | 10 | 14 | 10 | 12 | 12 | 13 | 9 | 14 |
| Miscellaneous Taxa Richness | 2 | 4 | 4 | 3 | 2 | 4 | 2 | 2 |
| **Total Abundance (# of individuals/0.1 $m^2$)** | **540** | **1,520** | **593** | **1,347** | **587** | **1,712** | **509** | **1,790** |
| Annelida Abundance | 50 | 83 | 55 | 44 | 69 | 74 | 44 | 64 |
| Crustacea Abundance | 82 | 189 | 97 | 143 | 124 | 223 | 84 | 162 |
| Mollusca Abundance | 407 | 1,242 | 435 | 1,155 | 392 | 1,407 | 378 | 1,561 |
| Miscellaneous Taxa Abundance | 2 | 6 | 5 | 5 | 2 | 8 | 2 | 3 |
| **Total Biomass (g/0.1 $m^2$)** | **37.04** | **49.36** | **103.30** | **50.45** | **71.10** | **29.75** | **71.91** | **72.48** |
| Annelida Biomass | 2.37 | 1.99 | 1.69 | 5.35 | 2.82 | 2.09 | 2.45 | 5.72 |
| Crustacea Biomass | 0.27 | 0.73 | 3.32 | 0.55 | 0.35 | 0.60 | 0.23 | 0.39 |
| Mollusca Biomass | 8.88 | 15.25 | 9.62 | 3.76 | 8.25 | 5.38 | 8.52 | 34.95 |
| Miscellaneous Taxa Biomass | 25.51 | 31.39 | 88.67 | 40.79 | 59.68 | 21.68 | 60.72 | 31.42 |
| **Shannon-Wiener Diversity Index** | **2.52** | **1.88** | **2.51** | **1.54** | **2.94** | **1.86** | **2.42** | **1.45** |
| **Pielou's Evenness Index** | **0.47** | **0.33** | **0.48** | **0.28** | **0.53** | **0.32** | **0.47** | **0.25** |
| **Swartz's Dominance Index** | **3** | **1** | **3** | **1** | **4** | **1** | **2** | **1** |
| **Dominant Species (% of Total Abundance)** | *Macoma carlottensis (62.7)* | *Macoma carlottensis (75.9)* | *Macoma carlottensis (63.7)* | *Macoma carlottensis (80.9)* | *Macoma carlottensis (53.3)* | *Macoma carlottensis (76.1)* | *Macoma carlottensis (63.3)* | *Macoma carlottensis (82.3)* |
| | *Euphilomedes producta (9.5)* | | *Euphilomedes producta (10.6)* | | *Euphilomedes producta (14.3)* | | *Euphilomedes producta (12.0)* | |
| | *Axinopsida serricata (6.1)* | | *Axinopsida serricata (4.8)* | | *Axinopsida serricata (6.8)* | | | |
| | | | | | *Pectinaria californiensis (3.7)* | | | |

**Notes**

*Macoma carlottensis* - Phylum Mollusca (Bivalve)
*Euphilomedes producta* - Phylum Crustacea (Ostracod)
*Axinopsida serricata* - Phylum Mollusca (Bivalve)
*Pectinaria californiensis* - Phylum Annelida (Polychaete)

species in a sample as well as the abundance of single species to determine diversity. Shannon-Wiener diversity values were similar across all four stations in 2006, ranging between 2.42 and 2.94. Shannon-Wiener values decrease in 2007, ranging from 1.45 to 1.88.

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 in 2006 ranged from 0.47 to 0.53, again very similar over the four stations and well-correlated with the Shannon-Wiener values. Pielou's Evenness values exhibited a similar decrease in 2007, ranging from 0.25 to 0.33.

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 between 2 and 4 species during the 2006 monitoring event.

The benthic community at all four stations monitored in 2006 was dominated by the small clam *Macoma carlottensis*. This single species represented 53.3 to 63.7% of the total abundance at the four stations. The second-most abundant species at all four stations was *Euphilomedes producta*, an ostrocod, which accounts for an additional 9.5 to 14.3% of the total abundance. These two species comprise the Swartz's dominant species list at Reference Station BW3200N. *Axinopsida serricata*, another small clam, completes the Swartz's dominant species list at Stations BW605P and BW805N. *Axinopsida serricata* and *Pectinaria californiensis*, a polychaete, complete the Swartz's dominant species list at Station BW805S.

The large increase in the abundance of *Macoma carlottensis* between 2006 and 2007 resulted in this species being the single dominant organism in the study area, based on the Swartz's Dominance index. *Macoma carlottensis* abundance in 2007 represented between 75.9 and 82.3% of the total abundance at all four stations. This dominance by *Macoma carlottensis* was similar to results from the 2001 marine outfall siting study baseline sediment characterization, in which this clam represented between 77.8 and 81.2% of the total abundance.

The benthic community assemblages found during the 2006 and 2007 monitoring events are similar to those found during the 2001 baseline sediment characterization study (King County 2002) and are typical of communities found in deep, depositional areas of Puget Sound (Lie 1974, Nichols 1988 and 2001, Llanso et al. 1998).

# 5 Summary and Discussion

King County performed a two-year baseline sediment characterization study at the location of the Brightwater Treatment Facility marine outfall diffuser. Sediment samples were collected from 11 stations both in 2006 and 2007 for analysis of sediment chemical constituents. Sediment samples were collected synoptically both years from four of these stations for analysis of the benthic community structure. This baseline sediment characterization study was performed to partially fulfill requirements of the County's outfall lease from the Washington State Department of Natural Resources and its HPA permit from the Washington State Department of Fish and Wildlife. Results from this study will be used to establish a sediment quality baseline at the diffuser location, against which future monitoring results may be compared.

A total of 119 chemicals were analyzed in each sediment sample, including 14 metals and 105 organic compounds. Eleven of the 14 metals analyzed were detected in most of the samples, at concentrations indicative of Puget Sound regional background levels. Antimony, selenium, and thallium were not detected in any of the samples collected during either monitoring event. Concentrations of the eight metals regulated under SMS were all well below their respective SQS chemical criteria. Of the 105 organic compounds analyzed, only 30 were detected in one or more samples. Pesticides, herbicides, nonylphenols, and butyltins were not detected in any of the samples collected during either monitoring event.

Trace levels of Aroclor 1254 were detected in several samples, however, the detected concentrations of this PCB were all well below the SQS chemical criterion for Total PCBs. Trace levels of PAH compounds were detected in every sample collected during both monitoring events. The detected PAH concentrations, again, were all well below their respective SQS chemical criteria. One phthalate compound, benzyl butyl phthalate, was detected in most of the samples collected; some at concentrations that approached the SQS chemical criterion. This plasticizer is ubiquitous in the environment and care must be taken not to impart contamination to samples during the sampling or analytical process. Further monitoring will continue to assess concentrations of this compound at the site. PBDEs, the brominated flame retardants, were detected in every sample collected during both monitoring events. These compounds appear frequently in the marine environment and will warrant further monitoring both to evaluate their concentrations in ambient areas and their potential impacts. Additional regional monitoring will help determine if concentrations of PBDEs found at the outfall diffuser location may represent background concentrations.

The benthic community at the outfall diffuser location is dominated by a single species of clam, *Macoma carlottensis*. Other studies in Puget Sound have shown that the benthic community structure at the Brightwater study area is typical of deep, depositional environments in the region. Benthic community analyses performed in 2001, 2006, and 2007 showed little spatial variability in the benthic community structure between the four sampling stations during any given monitoring event but large temporal variabilities in benthic indices, driven mainly by interannual variation in the abundance of *Macoma carlottensis*. These variations in abundance of a single species, which so dominates the benthos, result in the temporal variations exhibited in the other benthic diversity indices. Future monitoring will continue to assess the benthic community and further evaluate these temporal variations.

The sediment characterizations performed at the Brightwater outfall diffuser site in 2006 and 2007, along with the initial sediment characterization performed in 2001 have provided a robust sediment quality baseline, against which future monitoring data can be compared. One additional sediment monitoring event will be performed at the outfall diffuser in October 2011, to further enhance the sediment quality baseline and assess conditions in the receiving environment just prior to commencement of facility and outfall operation.

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# Appendix A
## Sediment Chemistry Analytical Results – October 2006

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW805N | | | | | Locator: | BW402N | | | | | Locator: | BW605P | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 02, 2006 | | | | | Sampled: | Oct 05, 2006 | | | | | Sampled: | Oct 02, 2006 | | | | |
| Lab ID: | L40539-1 | | | | | Lab ID: | L40539-2 | | | | | Lab ID: | L40539-3 | | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | |
| % Solids: | 37.9 | | | | | % Solids: | 40 | | | | | % Solids: | 38.1 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | | - Dry Weight Basis | | |
| **M=ES NONE** | | | | | | | | | | | | | | | | |
| Sampcoordx1 * | 1250817 | | | | ft | 1250857 | | | | ft | | 1250945 | | | | ft |
| Sampcoordx2 * | 1250790 | | | | ft | 1250861 | | | | ft | | 1250928 | | | | ft |
| Sampcoordx3 * | 1250807 | | | | ft | 1250886 | | | | ft | | 1250946 | | | | ft |
| Sampcoordy1 * | 288222 | | | | ft | 287885 | | | | ft | | 287513 | | | | ft |
| Sampcoordy2 * | 288255 | | | | ft | 287861 | | | | ft | | 287517 | | | | ft |
| Sampcoordy3 * | 288257 | | | | ft | 287879 | | | | ft | | 287508 | | | | ft |
| Sample Depth * | 180 | | | | m | 181 | | | | m | | 183 | | | | m |
| Sample Start Time * | 1015 | | | | hr | 1300 | | | | hr | | 1315 | | | | hr |
| Sediment Sampling Depth * | 17 | | | | cm | 17 | | | | cm | | 16 | | | | cm |
| Sediment Sampling Range * | 0-2 cm | | | | cm | 0-2 cm | | | | cm | | 0-2 cm | | | | cm |
| Tidal Condition* | F | | | | none | F | | | | none | | F | | | | none |
| Tide Height * | 4 | | | | ft | 5 | | | | ft | | 8 | | | | ft |
| **M=CV ASTM D422(03-02-005-001)** | | | | | | | | | | | | | | | | |
| Fines * | 58.6 | E | 0.5 | 1 | % | 57.8 | | 0.5 | 1 | % | | 57.3 | E | 0.5 | 1 | % |
| Clay * | 15.5 | E | 0.5 | 1 | % | 16 | | 0.5 | 1 | % | | 14.3 | E | 0.5 | 1 | % |
| Silt * | 43.1 | E | 0.5 | 1 | % | 41.7 | | 0.5 | 1 | % | | 43 | E | 0.5 | 1 | % |
| Sand * | 30.4 | E | 0.1 | 1 | % | 31.6 | | 0.1 | 1 | % | | 30.9 | E | 0.1 | 1 | % |
| Gravel * | 0.1 | <RDL,E | 0.1 | 1 | % | 0.3 | <RDL | 0.1 | 1 | % | | 0.2 | <RDL,E | 0.1 | 1 | % |
| p-2.00(less than) * | | <MDL,E | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % | | | <MDL,E | 0.1 | 1 | % |
| p-2.00 * | 0.1 | <RDL,E | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % | | | <MDL,E | 0.1 | 1 | % |
| p-1.00 * | | <MDL,E | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % | | 0.2 | <RDL,E | 0.1 | 1 | % |
| p+0.00 * | 0.1 | <RDL,E | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % | | 0.1 | <RDL,E | 0.1 | 1 | % |
| p+1.00 * | 0.2 | <RDL,E | 0.1 | 1 | % | 0.3 | <RDL | 0.1 | 1 | % | | 0.2 | <RDL,E | 0.1 | 1 | % |
| p+2.00 * | 0.5 | <RDL,E | 0.1 | 1 | % | 0.6 | <RDL | 0.1 | 1 | % | | 0.5 | <RDL,E | 0.1 | 1 | % |
| p+3.00 * | 1.6 | E | 0.1 | 1 | % | 1.4 | | 0.1 | 1 | % | | 1.5 | E | 0.1 | 1 | % |
| p+4.00 * | 28 | E | 0.1 | 1 | % | 29.1 | | 0.1 | 1 | % | | 28.7 | E | 0.1 | 1 | % |
| p+5.00 * | 25.9 | E | 0.5 | 1 | % | 22.5 | | 0.5 | 1 | % | | 22.3 | E | 0.5 | 1 | % |
| p+6.00 * | 5.2 | E | 0.5 | 1 | % | 9.6 | | 0.5 | 1 | % | | 8 | E | 0.5 | 1 | % |
| p+7.00 * | 8.6 | E | 0.5 | 1 | % | 4.8 | | 0.5 | 1 | % | | 6.4 | E | 0.5 | 1 | % |
| p+8.00 * | 3.5 | E | 0.5 | 1 | % | 4.8 | | 0.5 | 1 | % | | 6.4 | E | 0.5 | 1 | % |
| p+9.00 * | 3.5 | E | 0.5 | 1 | % | 1.6 | | 0.5 | 1 | % | | 4.8 | E | 0.5 | 1 | % |
| p+10.0(equal/more than) * | 12.1 | E | 0.5 | 1 | % | 14.4 | | 0.5 | 1 | % | | 9.6 | E | 0.5 | 1 | % |
| **M=CV EPA 9030B (03-03-015-000)** | | | | | | | | | | | | | | | | |
| Total Sulfide | 29.3 | | 1.3 | 5.28 | mg/Kg | 74 | | 6.3 | 25 | mg/Kg | | 71.7 | | 6.6 | 26.2 | mg/Kg |
| **M=CV EPA 9060-PSEP96(03-04-002-003)** | | | | | | | | | | | | | | | | |
| Total Organic Carbon | 13,700 | | 1,000 | 2,060 | mg/Kg | 13,800 | | 1,300 | 2,500 | mg/Kg | | 14,400 | | 1,700 | 3,460 | mg/Kg |
| **M=CV SM2540-G (03-01-007-002)** | | | | | | | | | | | | | | | | |
| Total Solids * | 37.9 | | 0.005 | 0.01 | % | 40 | | 0.005 | 0.01 | % | | 38.1 | | 0.005 | 0.01 | % |
| **M=CV SM4500-NH3-G(03-03-014-001)KCL** | | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | 13.7 | | 2.6 | 5.28 | mg/Kg | 15 | | 1.3 | 2.5 | mg/Kg | | 14.8 | | 1.3 | 2.62 | mg/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW805N | | | | | Locator: | BW402N | | | | Locator: | BW605P | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| Sampled: | Oct 02, 2006 | | | | | Sampled: | Oct 05, 2006 | | | | Sampled: | Oct 02, 2006 | | | |
| Lab ID: | L40539-1 | | | | | Lab ID: | L40539-2 | | | | Lab ID: | L40539-3 | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| % Solids: | 37.9 | | | | | % Solids: | 40 | | | | % Solids: | 38.1 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| **M=MT EPA 7471A (06-01-004-003)** | | | | | | | | | | | | | | | |
| Mercury, Total, CVAA | 0.087 | <RDL | 0.026 | 0.258 | mg/Kg | 0.07 | <RDL | 0.025 | 0.253 | mg/Kg | 0.071 | <RDL | 0.026 | 0.262 | mg/Kg |
| **M=MT EPA3050A/6010B (06-02-004-002)** | | | | | | | | | | | | | | | |
| Aluminum, Total, ICP | 15300 | | 13 | 66 | mg/Kg | 15400 | | 12 | 60.5 | mg/Kg | 16000 | | 13 | 64 | mg/Kg |
| Antimony, Total, ICP | | <MDL,G | 4 | 19.8 | mg/Kg | | <MDL,G | 3.8 | 18.2 | mg/Kg | | <MDL,G | 3.9 | 19.2 | mg/Kg |
| Arsenic, Total, ICP | | <MDL | 6.6 | 33 | mg/Kg | 6.5 | <RDL | 6 | 30.3 | mg/Kg | 7.1 | <RDL | 6.3 | 32 | mg/Kg |
| Beryllium, Total, ICP | 0.37 | <RDL | 0.13 | 0.66 | mg/Kg | 0.38 | <RDL | 0.12 | 0.605 | mg/Kg | 0.37 | <RDL | 0.13 | 0.64 | mg/Kg |
| Cadmium, Total, ICP | 0.53 | <RDL | 0.4 | 1.98 | mg/Kg | 0.55 | <RDL | 0.38 | 1.82 | mg/Kg | 0.55 | <RDL | 0.39 | 1.92 | mg/Kg |
| Chromium, Total, ICP | 36.4 | | 0.66 | 3.3 | mg/Kg | 37 | | 0.6 | 3.03 | mg/Kg | 38.6 | | 0.63 | 3.2 | mg/Kg |
| Copper, Total, ICP | 26.4 | | 0.53 | 2.64 | mg/Kg | 27 | | 0.48 | 2.42 | mg/Kg | 27.3 | | 0.5 | 2.56 | mg/Kg |
| Iron, Total, ICP | 27400 | | 6.6 | 33 | mg/Kg | 28000 | | 6 | 30.3 | mg/Kg | 28900 | | 6.3 | 32 | mg/Kg |
| Lead, Total, ICP | 12 | <RDL | 4 | 19.8 | mg/Kg | 12 | <RDL | 3.8 | 18.2 | mg/Kg | 13 | <RDL | 3.9 | 19.2 | mg/Kg |
| Nickel, Total, ICP | 32.7 | | 2.6 | 13.2 | mg/Kg | 33 | | 2.4 | 12.1 | mg/Kg | 34.4 | | 2.5 | 12.8 | mg/Kg |
| Selenium, Total, ICP | | <MDL | 6.6 | 33 | mg/Kg | | <MDL | 6 | 30.3 | mg/Kg | | <MDL | 6.3 | 32 | mg/Kg |
| Silver, Total, ICP | | <MDL | 0.53 | 2.64 | mg/Kg | | <MDL | 0.48 | 2.42 | mg/Kg | | <MDL | 0.5 | 2.56 | mg/Kg |
| Thallium, Total, ICP | | <MDL | 26 | 132 | mg/Kg | | <MDL | 24 | 121 | mg/Kg | | <MDL | 25 | 128 | mg/Kg |
| Zinc, Total, ICP | 83.1 | | 0.66 | 3.3 | mg/Kg | 85.8 | | 0.6 | 3.03 | mg/Kg | 86.6 | | 0.63 | 3.2 | mg/Kg |
| **M=OR EPA 3540C/8270C (7-3-04-001)** | | | | | | | | | | | | | | | |
| Chlorpyrifos | | <MDL | 14 | 28.2 | ug/Kg | | <MDL | 13 | 26.8 | ug/Kg | | <MDL | 14 | 28.1 | ug/Kg |
| Diazinon | | <MDL | 8.4 | 14.1 | ug/Kg | | <MDL | 8 | 13.3 | ug/Kg | | <MDL | 8.4 | 14 | ug/Kg |
| Disulfoton | | <MDL | 8.4 | 14.1 | ug/Kg | | <MDL | 8 | 13.3 | ug/Kg | | <MDL | 8.4 | 14 | ug/Kg |
| Malathion | | <MDL | 22 | 42.2 | ug/Kg | | <MDL | 21 | 40 | ug/Kg | | <MDL | 22 | 42 | ug/Kg |
| Parathion-Ethyl | | <MDL | 22 | 42.2 | ug/Kg | | <MDL | 21 | 40 | ug/Kg | | <MDL | 22 | 42 | ug/Kg |
| Parathion-Methyl | | <MDL | 22 | 42.2 | ug/Kg | | <MDL | 21 | 40 | ug/Kg | | <MDL | 22 | 42 | ug/Kg |
| Phorate | | <MDL | 14 | 28.2 | ug/Kg | | <MDL | 13 | 26.8 | ug/Kg | | <MDL | 14 | 28.1 | ug/Kg |
| **M=OR EPA 3550B (7-3-025-000)** | | | | | | | | | | | | | | | |
| DecaBDE-209 | 1.07 | | 0.29 | 0.562 | ug/Kg | 0.865 | | 0.28 | 0.533 | ug/Kg | 1.13 | | 0.29 | 0.559 | ug/Kg |
| HeptaBDE-183 | | <MDL | 0.055 | 0.113 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg | | <MDL | 0.055 | 0.112 | ug/Kg |
| HeptaBDE-190 | | <MDL | 0.055 | 0.113 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg | | <MDL | 0.055 | 0.112 | ug/Kg |
| HexaBDE-138 | | <MDL,TA | 0.055 | 0.113 | ug/Kg | | <MDL,TA | 0.053 | 0.107 | ug/Kg | | <MDL,TA | 0.055 | 0.112 | ug/Kg |
| HexaBDE-153 | | <MDL | 0.055 | 0.113 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg | 0.066 | <RDL | 0.055 | 0.112 | ug/Kg |
| HexaBDE-154 | 0.061 | <RDL | 0.055 | 0.113 | ug/Kg | 0.063 | <RDL | 0.053 | 0.107 | ug/Kg | 0.073 | <RDL | 0.055 | 0.112 | ug/Kg |
| PentaBDE-100 | 0.151 | | 0.055 | 0.113 | ug/Kg | 0.154 | | 0.053 | 0.107 | ug/Kg | 0.203 | | 0.055 | 0.112 | ug/Kg |
| PentaBDE-85 | | <MDL | 0.055 | 0.113 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg | | <MDL | 0.055 | 0.112 | ug/Kg |
| PentaBDE-99 | 0.274 | B | 0.055 | 0.113 | ug/Kg | 0.205 | B | 0.053 | 0.107 | ug/Kg | 0.446 | B | 0.055 | 0.112 | ug/Kg |
| TetraBDE-47 | 0.609 | B | 0.055 | 0.113 | ug/Kg | 0.43 | B | 0.053 | 0.107 | ug/Kg | 0.672 | B | 0.055 | 0.112 | ug/Kg |
| TetraBDE-66 | | <MDL | 0.055 | 0.113 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg | | <MDL | 0.055 | 0.112 | ug/Kg |
| TetraBDE-71 | | <MDL,TA | 0.055 | 0.113 | ug/Kg | | <MDL,TA | 0.053 | 0.107 | ug/Kg | | <MDL,TA | 0.055 | 0.112 | ug/Kg |
| TriBDE-17 | | <MDL | 0.055 | 0.113 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg | | <MDL | 0.055 | 0.112 | ug/Kg |
| TriBDE-28 | | <MDL,TA | 0.055 | 0.113 | ug/Kg | | <MDL,TA | 0.053 | 0.107 | ug/Kg | | <MDL,TA | 0.055 | 0.112 | ug/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BW805N | | | | Locator: | BW402N | | | | Locator: | BW605P | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 02, 2006 | | | | Sampled: | Oct 05, 2006 | | | | Sampled: | Oct 02, 2006 | | | |
| | Lab ID: | L40539-1 | | | | Lab ID: | L40539-2 | | | | Lab ID: | L40539-3 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 37.9 | | | | % Solids: | 40 | | | | % Solids: | 38.1 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| M=OR EPA 3550B/8270C (7-3-01-004) | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | <MDL | 0.26 | 0.528 | ug/Kg | | <MDL | 0.25 | 0.5 | ug/Kg | | <MDL | 0.26 | 0.525 | ug/Kg |
| 1,2-Dichlorobenzene | | <MDL | 0.53 | 1.06 | ug/Kg | | <MDL | 0.5 | 1 | ug/Kg | | <MDL | 0.52 | 1.05 | ug/Kg |
| 1,3-Dichlorobenzene | | <MDL | 0.53 | 1.06 | ug/Kg | | <MDL | 0.5 | 1 | ug/Kg | | <MDL | 0.52 | 1.05 | ug/Kg |
| 1,4-Dichlorobenzene | | <MDL | 0.53 | 1.06 | ug/Kg | | <MDL | 0.5 | 1 | ug/Kg | | <MDL | 0.52 | 1.05 | ug/Kg |
| 2,4-Dimethylphenol | | <MDL | 2.6 | 5.28 | ug/Kg | | <MDL | 2.5 | 5 | ug/Kg | | <MDL | 2.6 | 5.25 | ug/Kg |
| 2-Methylnaphthalene | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| 2-Methylphenol | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| 4-Methylphenol | | <MDL | 11 | 21.1 | ug/Kg | | <MDL | 10 | 20 | ug/Kg | | <MDL | 10 | 21 | ug/Kg |
| Acenaphthene | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Acenaphthylene | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Anthracene | 7.4 | <RDL | 5.3 | 10.6 | ug/Kg | 6.5 | <RDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Benzo(a)anthracene | 16.4 | | 5.3 | 10.6 | ug/Kg | 11.4 | | 5 | 10 | ug/Kg | 8.9 | <RDL | 5.2 | 10.5 | ug/Kg |
| Benzo(a)pyrene | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Benzo(b)fluoranthene | 13.9 | | 5.3 | 10.6 | ug/Kg | 14.2 | | 5 | 10 | ug/Kg | 8.9 | <RDL | 5.2 | 10.5 | ug/Kg |
| Benzo(g,h,i)perylene | 16.5 | | 5.3 | 10.6 | ug/Kg | 11.7 | | 5 | 10 | ug/Kg | 9.7 | <RDL | 5.2 | 10.5 | ug/Kg |
| Benzo(k)fluoranthene | 21.9 | | 5.3 | 10.6 | ug/Kg | 14.3 | | 5 | 10 | ug/Kg | 14.9 | | 5.2 | 10.5 | ug/Kg |
| Benzoic Acid | 319 | | 26 | 52.8 | ug/Kg | 217 | | 25 | 50 | ug/Kg | 185 | | 26 | 52.5 | ug/Kg |
| Benzyl Alcohol | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Benzyl Butyl Phthalate | | <MDL | 2.6 | 5.28 | ug/Kg | 15.7 | | 2.5 | 5 | ug/Kg | | <MDL | 2.6 | 5.25 | ug/Kg |
| Bis(2-Ethylhexyl)Phthalate | 24.9 | B | 11 | 21.1 | ug/Kg | 18 | <RDL,B | 10 | 20 | ug/Kg | 18 | <RDL,B | 10 | 21 | ug/Kg |
| Caffeine | | <MDL | 11 | 21.1 | ug/Kg | | <MDL | 10 | 20 | ug/Kg | | <MDL | 10 | 21 | ug/Kg |
| Carbazole | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Chrysene | 22.3 | | 5.3 | 10.6 | ug/Kg | 16.7 | | 5 | 10 | ug/Kg | 14.4 | | 5.2 | 10.5 | ug/Kg |
| Coprostanol | | <MDL | 110 | 211 | ug/Kg | | <MDL | 100 | 200 | ug/Kg | | <MDL | 100 | 210 | ug/Kg |
| Dibenzo(a,h)anthracene | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Dibenzofuran | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Diethyl Phthalate | | <MDL | 11 | 21.1 | ug/Kg | | <MDL | 10 | 20 | ug/Kg | | <MDL | 10 | 21 | ug/Kg |
| Dimethyl Phthalate | | <MDL | 11 | 21.1 | ug/Kg | | <MDL | 10 | 20 | ug/Kg | | <MDL | 10 | 21 | ug/Kg |
| Di-N-Butyl Phthalate | 16 | <RDL,B | 11 | 21.1 | ug/Kg | 16 | <RDL,B | 10 | 20 | ug/Kg | 17 | <RDL,B | 10 | 21 | ug/Kg |
| Di-N-Octyl Phthalate | | <MDL | 11 | 21.1 | ug/Kg | | <MDL | 10 | 20 | ug/Kg | | <MDL | 10 | 21 | ug/Kg |
| Fluoranthene | 34.8 | | 5.3 | 10.6 | ug/Kg | 29.5 | | 5 | 10 | ug/Kg | 22.7 | | 5.2 | 10.5 | ug/Kg |
| Fluorene | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Hexachlorobenzene | | <MDL | 0.26 | 0.528 | ug/Kg | | <MDL | 0.25 | 0.5 | ug/Kg | | <MDL | 0.26 | 0.525 | ug/Kg |
| Hexachlorobutadiene | | <MDL | 1.3 | 2.64 | ug/Kg | | <MDL | 1.3 | 2.5 | ug/Kg | | <MDL | 1.3 | 2.62 | ug/Kg |
| Hexachloroethane | | <MDL | 2.6 | 5.28 | ug/Kg | | <MDL | 2.5 | 5 | ug/Kg | | <MDL | 2.6 | 5.25 | ug/Kg |
| Indeno(1,2,3-Cd)Pyrene | 12.6 | | 5.3 | 10.6 | ug/Kg | 9.8 | <RDL | 5 | 10 | ug/Kg | 7.9 | <RDL | 5.2 | 10.5 | ug/Kg |
| Naphthalene | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| N-Nitrosodiphenylamine | | <MDL | 11 | 21.1 | ug/Kg | | <MDL | 10 | 20 | ug/Kg | | <MDL | 10 | 21 | ug/Kg |
| Pentachlorophenol | | <MDL | 26 | 52.8 | ug/Kg | | <MDL | 25 | 50 | ug/Kg | | <MDL | 26 | 52.5 | ug/Kg |
| Phenanthrene | 21.7 | | 5.3 | 10.6 | ug/Kg | 21 | | 5 | 10 | ug/Kg | 16.3 | | 5.2 | 10.5 | ug/Kg |
| Phenol | 73.9 | E | 11 | 21.1 | ug/Kg | 47.5 | E | 10 | 20 | ug/Kg | 32.8 | E | 10 | 21 | ug/Kg |

# King County Environmental Laboratory Analytical Report

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**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | BW805N | BW402N | BW605P |
|---|---|---|---|
| Locator: | BW805N | BW402N | BW605P |
| Descrip: | Brightwater Outfall Diffuser | Brightwater Outfall Diffuser | Brightwater Outfall Diffuser |
| Sampled: | Oct 02, 2006 | Oct 05, 2006 | Oct 02, 2006 |
| Lab ID: | L40539-1 | L40539-2 | L40539-3 |
| Matrix: | SALTWTRSED | SALTWTRSED | SALTWTRSED |
| % Solids: | 37.9 | 40 | 38.1 |

| | BW805N | | | | | BW402N | | | | | BW605P | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| Pyrene | 38.3 | | 5.3 | 10.6 | ug/Kg | 32.8 | | 5 | 10 | ug/Kg | 24.8 | | 5.2 | 10.5 | ug/Kg |
| Total 4-Nonylphenol | | <MDL | 13 | 26.4 | ug/Kg | | <MDL | 13 | 25 | ug/Kg | | <MDL | 13 | 26.2 | ug/Kg |
| Total HPAHS | 180 | | 5.3 | 10.6 | ug/Kg | 141 | | 5 | 10 | ug/Kg | 107 | | 5.2 | 10.5 | ug/Kg |
| Total LPAHs | 39.8 | | 5.3 | 10.6 | ug/Kg | 35 | | 5 | 10 | ug/Kg | 25.3 | | 5.2 | 10.5 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-03-002)** | | | | | | | | | | | | | | | |
| 4,4'-DDD | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| 4,4'-DDE | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| 4,4'-DDT | | <MDL,E,TA | 3.4 | 6.6 | ug/Kg | | <MDL,E,TA | 3.3 | 6.25 | ug/Kg | | <MDL,E,TA | 3.4 | 6.56 | ug/Kg |
| Aldrin | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Alpha-BHC | | <MDL | 1.7 | 3.3 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg | | <MDL | 1.7 | 3.28 | ug/Kg |
| Alpha-Chlordane | | <MDL | 1.7 | 3.3 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg | | <MDL | 1.7 | 3.28 | ug/Kg |
| Aroclor 1016 | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Aroclor 1221 | | <MDL | 6.6 | 13.2 | ug/Kg | | <MDL | 6.3 | 12.5 | ug/Kg | | <MDL | 6.6 | 13.1 | ug/Kg |
| Aroclor 1232 | | <MDL | 6.6 | 13.2 | ug/Kg | | <MDL | 6.3 | 12.5 | ug/Kg | | <MDL | 6.6 | 13.1 | ug/Kg |
| Aroclor 1242 | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Aroclor 1248 | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Aroclor 1254 | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Aroclor 1260 | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Beta-BHC | | <MDL | 1.7 | 3.3 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg | | <MDL | 1.7 | 3.28 | ug/Kg |
| Delta-BHC | | <MDL | 1.7 | 3.3 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg | | <MDL | 1.7 | 3.28 | ug/Kg |
| Dieldrin | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Endosulfan I | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Endosulfan II | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Endosulfan Sulfate | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Endrin | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Endrin Aldehyde | | <MDL | 3.4 | 6.6 | ug/Kg | | <MDL | 3.3 | 6.25 | ug/Kg | | <MDL | 3.4 | 6.56 | ug/Kg |
| Gamma-BHC (Lindane) | | <MDL | 1.7 | 3.3 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg | | <MDL | 1.7 | 3.28 | ug/Kg |
| Gamma-Chlordane | | <MDL | 1.7 | 3.3 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg | | <MDL | 1.7 | 3.28 | ug/Kg |
| Heptachlor | | <MDL | 1.7 | 3.3 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg | | <MDL | 1.7 | 3.28 | ug/Kg |
| Heptachlor Epoxide | | <MDL | 1.7 | 3.3 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg | | <MDL | 1.7 | 3.28 | ug/Kg |
| Methoxychlor | | <MDL,E,TA | 17 | 33 | ug/Kg | | <MDL,E,TA | 16 | 31.3 | ug/Kg | | <MDL,E,TA | 17 | 32.8 | ug/Kg |
| Toxaphene | | <MDL | 34 | 66 | ug/Kg | | <MDL | 33 | 62.5 | ug/Kg | | <MDL | 34 | 65.6 | ug/Kg |
| **M=OR KRONE 1989 (07-03-026-000)** | | | | | | | | | | | | | | | |
| Di-n-Butyltin (as dibutyltin ion) | | <MDL | 4.7 | 9.23 | ug/Kg | | <MDL | 4.5 | 8.75 | ug/Kg | | <MDL | 4.7 | 9.19 | ug/Kg |
| Mono-n-Butyltin (as monobutyltin ion) | | <MDL | 22 | 44.3 | ug/Kg | | <MDL | 21 | 42 | ug/Kg | | <MDL | 22 | 44.1 | ug/Kg |
| Tetra-n-Butyltin (as tetrabutyltin) | | <MDL | 5.3 | 10.6 | ug/Kg | | <MDL | 5 | 10 | ug/Kg | | <MDL | 5.2 | 10.5 | ug/Kg |
| Tri-n-Butyltin (as tributyltin ion) | | <MDL | 2.6 | 5.49 | ug/Kg | | <MDL | 2.5 | 5.2 | ug/Kg | | <MDL | 2.6 | 5.46 | ug/Kg |
| **M=OR SW-846 8151A GC/MS MODIFIED** | | | | | | | | | | | | | | | |
| 2,4,5-T | | <MDL | 1.4 | 16.9 | ug/Kg | | <MDL | 1.3 | 16 | ug/Kg | | <MDL | 1.4 | 16.8 | ug/Kg |
| 2,4,5-TP (Silvex) | | <MDL | 5.3 | 16.9 | ug/Kg | | <MDL | 5 | 16 | ug/Kg | | <MDL | 5.2 | 16.8 | ug/Kg |
| 2,4-D | | <MDL | 2 | 16.9 | ug/Kg | | <MDL | 1.9 | 16 | ug/Kg | | <MDL | 2 | 16.8 | ug/Kg |
| 2,4-DB | | <MDL | 4 | 16.9 | ug/Kg | | <MDL | 3.8 | 16 | ug/Kg | | <MDL | 3.9 | 16.8 | ug/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW805N | | | | | Locator: | BW402N | | | | | Locator: | BW605P | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | |
| Sampled: | Oct 02, 2006 | | | | | Sampled: | Oct 05, 2006 | | | | | Sampled: | Oct 02, 2006 | | |
| Lab ID: | L40539-1 | | | | | Lab ID: | L40539-2 | | | | | Lab ID: | L40539-3 | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | |
| % Solids: | 37.9 | | | | | % Solids: | 40 | | | | | % Solids: | 38.1 | | |
| Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units |
| | | - Dry Weight Basis | | | | | | - Dry Weight Basis | | | | | | - Dry Weight Basis | | |
| Dalapon | <MDL | 12 | 42.2 | ug/Kg | | | <MDL | 11 | 40 | ug/Kg | | | <MDL | 12 | 42 | ug/Kg |
| Dicamba | <MDL | 2.3 | 16.9 | ug/Kg | | | <MDL | 2.2 | 16 | ug/Kg | | | <MDL | 2.3 | 16.8 | ug/Kg |
| Dichloroprop | <MDL | 3.7 | 16.9 | ug/Kg | | | <MDL | 3.5 | 16 | ug/Kg | | | <MDL | 3.7 | 16.8 | ug/Kg |
| Dinoseb | <MDL | 5.8 | 42.2 | ug/Kg | | | <MDL | 5.5 | 40 | ug/Kg | | | <MDL | 5.8 | 42 | ug/Kg |
| MCPA | <MDL | 2.2 | 16.9 | ug/Kg | | | <MDL | 2.1 | 16 | ug/Kg | | | <MDL | 2.2 | 16.8 | ug/Kg |
| MCPP | <MDL | 2.6 | 16.9 | ug/Kg | | | <MDL | 2.4 | 16 | ug/Kg | | | <MDL | 2.5 | 16.8 | ug/Kg |

* Not converted to dry weight basis for this parameter

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | BW402S | | | | | BW805S | | | | | BWD805N | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW402S | | | | | BW805S | | | | | BWD805N | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 10, 2006 | | | | | Oct 02, 2006 | | | | | Oct 05, 2006 | | | | |
| Lab ID: | L40539-4 | | | | | L40539-5 | | | | | L40539-6 | | | | |
| Matrix: | SALTWTRSED | | | | | SALTWTRSED | | | | | SALTWTRSED | | | | |
| % Solids: | 41.3 | | | | | 38.5 | | | | | 42 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| **M=ES NONE** | | | | | | | | | | | | | | | |
| Sampcoordx1 * | 1250971 | | | | ft | 1251080 | | | | ft | 1251133 | | | | ft |
| Sampcoordx2 * | 1250972 | | | | ft | 1251054 | | | | ft | 1251161 | | | | ft |
| Sampcoordx3 * | 1250970 | | | | ft | 1251045 | | | | ft | | | | | |
| Sampcoordy1 * | 287078 | | | | ft | 286666 | | | | ft | 288308 | | | | ft |
| Sampcoordy2 * | 287071 | | | | ft | 286683 | | | | ft | 288271 | | | | ft |
| Sampcoordy3 * | 287086 | | | | ft | 286662 | | | | ft | | | | | |
| Sample Depth * | 184 | | | | m | 186 | | | | m | 179 | | | | m |
| Sample Start Time * | 920 | | | | hr | 1425 | | | | hr | 1110 | | | | hr |
| Sediment Sampling Depth * | 16 | | | | cm | 16 | | | | cm | 15 | | | | cm |
| Sediment Sampling Range * | 0-2 cm | | | | cm | 0-2 cm | | | | cm | 0-2 cm | | | | cm |
| Tidal Condition* | E | | | | none | S | | | | none | F | | | | none |
| Tide Height * | 8.4 | | | | ft | 8.2 | | | | ft | 2 | | | | ft |
| **M=CV ASTM D422(03-02-005-001)** | | | | | | | | | | | | | | | |
| Fines * | 60.1 | | 0.5 | 1 | % | 51.6 | E | 0.5 | 1 | % | 57.6 | E | 0.5 | 1 | % |
| Clay * | 18.5 | | 0.5 | 1 | % | 15 | E | 0.5 | 1 | % | 15.6 | E | 0.5 | 1 | % |
| Silt * | 41.6 | | 0.5 | 1 | % | 36.6 | E | 0.5 | 1 | % | 42 | E | 0.5 | 1 | % |
| Sand * | 32.7 | | 0.1 | 1 | % | 33.2 | E | 0.1 | 1 | % | 30.9 | E | 0.1 | 1 | % |
| Gravel * | | <MDL | 0.1 | 1 | % | 0.2 | <RDL,E | 0.1 | 1 | % | | <MDL,E | 0.1 | 1 | % |
| p-2.00(less than) * | | <MDL | 0.1 | 1 | % | | <MDL,E | 0.1 | 1 | % | | <MDL,E | 0.1 | 1 | % |
| p-2.00 * | | <MDL | 0.1 | 1 | % | | <MDL,E | 0.1 | 1 | % | | <MDL,E | 0.1 | 1 | % |
| p-1.00 * | | <MDL | 0.1 | 1 | % | 0.2 | <RDL,E | 0.1 | 1 | % | | <MDL,E | 0.1 | 1 | % |
| p+0.00 * | 0.2 | <RDL | 0.1 | 1 | % | 0.1 | <RDL,E | 0.1 | 1 | % | | <MDL,E | 0.1 | 1 | % |
| p+1.00 * | 0.2 | <RDL | 0.1 | 1 | % | 0.2 | <RDL,E | 0.1 | 1 | % | 0.2 | <RDL,E | 0.1 | 1 | % |
| p+2.00 * | 0.9 | <RDL | 0.1 | 1 | % | 0.5 | <RDL,E | 0.1 | 1 | % | 0.6 | <RDL,E | 0.1 | 1 | % |
| p+3.00 * | 1.9 | | 0.1 | 1 | % | 2.3 | E | 0.1 | 1 | % | 1.9 | E | 0.1 | 1 | % |
| p+4.00 * | 29.6 | | 0.1 | 1 | % | 30.1 | E | 0.1 | 1 | % | 28.2 | E | 0.1 | 1 | % |
| p+5.00 * | 20 | | 0.5 | 1 | % | 18.3 | E | 0.5 | 1 | % | 17.1 | E | 0.5 | 1 | % |
| p+6.00 * | 9.2 | | 0.5 | 1 | % | 6.7 | E | 0.5 | 1 | % | 15.6 | E | 0.5 | 1 | % |
| p+7.00 * | 6.2 | | 0.5 | 1 | % | 6.7 | E | 0.5 | 1 | % | 3.1 | E | 0.5 | 1 | % |
| p+8.00 * | 6.2 | | 0.5 | 1 | % | 5 | E | 0.5 | 1 | % | 6.2 | E | 0.5 | 1 | % |
| p+9.00 * | 4.6 | | 0.5 | 1 | % | 5 | E | 0.5 | 1 | % | 4.7 | E | 0.5 | 1 | % |
| p+10.0(equal/more than) * | 13.9 | | 0.5 | 1 | % | 10 | E | 0.5 | 1 | % | 10.9 | E | 0.5 | 1 | % |
| **M=CV EPA 9030B (03-03-015-000)** | | | | | | | | | | | | | | | |
| Total Sulfide | 120 | | 12 | 48.4 | mg/Kg | 13.3 | | 1.3 | 5.19 | mg/Kg | 307 | | 24 | 95.2 | mg/Kg |
| **M=CV EPA 9060-PSEP96(03-04-002-003)** | | | | | | | | | | | | | | | |
| Total Organic Carbon | 13,700 | | 1,600 | 3,240 | mg/Kg | 14,100 | | 1,700 | 3,430 | mg/Kg | 13,400 | | 1,600 | 3,210 | mg/Kg |
| **M=CV SM2540-G (03-01-007-002)** | | | | | | | | | | | | | | | |
| Total Solids * | 41.3 | | 0.005 | 0.01 | % | 38.5 | | 0.005 | 0.01 | % | 42 | | 0.005 | 0.01 | % |
| **M=CV SM4500-NH3-G(03-03-014-001)KCL** | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | 14.2 | | 1.2 | 2.42 | mg/Kg | 12.6 | | 1.3 | 2.6 | mg/Kg | 12.8 | | 1.2 | 2.38 | mg/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | BW402S | | | | | BW805S | | | | | BWD805N | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW402S | | | | | BW805S | | | | | BWD805N | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 10, 2006 | | | | | Oct 02, 2006 | | | | | Oct 05, 2006 | | | | |
| Lab ID: | L40539-4 | | | | | L40539-5 | | | | | L40539-6 | | | | |
| Matrix: | SALTWTRSED | | | | | SALTWTRSED | | | | | SALTWTRSED | | | | |
| % Solids: | 41.3 | | | | | 38.5 | | | | | 42 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| **M=MT EPA 7471A (06-01-004-003)** | | | | | | | | | | | | | | | |
| Mercury, Total, CVAA | 0.07 | <RDL | 0.024 | 0.241 | mg/Kg | 0.07 | <RDL | 0.026 | 0.258 | mg/Kg | 0.079 | <RDL | 0.024 | 0.24 | mg/Kg |
| **M=MT EPA3050A/6010B (06-02-004-002)** | | | | | | | | | | | | | | | |
| Aluminum, Total, ICP | 16400 | | 12 | 60.8 | mg/Kg | 16400 | | 13 | 66.8 | mg/Kg | 15600 | | 12 | 58.3 | mg/Kg |
| Antimony, Total, ICP | | <MDL,G | 3.6 | 18.2 | mg/Kg | | <MDL,G | 3.9 | 20 | mg/Kg | | <MDL,G | 3.6 | 17.5 | mg/Kg |
| Arsenic, Total, ICP | 7 | <RDL | 6.1 | 30.3 | mg/Kg | 7.8 | <RDL | 6.8 | 33.2 | mg/Kg | 6.9 | <RDL | 6 | 29.3 | mg/Kg |
| Beryllium, Total, ICP | 0.41 | <RDL | 0.12 | 0.608 | mg/Kg | 0.39 | <RDL | 0.13 | 0.668 | mg/Kg | 0.36 | <RDL | 0.12 | 0.583 | mg/Kg |
| Cadmium, Total, ICP | 0.63 | <RDL | 0.36 | 1.82 | mg/Kg | 0.57 | <RDL | 0.39 | 2 | mg/Kg | 0.52 | <RDL | 0.36 | 1.75 | mg/Kg |
| Chromium, Total, ICP | 39 | | 0.61 | 3.03 | mg/Kg | 38.7 | | 0.68 | 3.32 | mg/Kg | 37.4 | | 0.6 | 2.93 | mg/Kg |
| Copper, Total, ICP | 28.3 | | 0.48 | 2.42 | mg/Kg | 27.5 | | 0.55 | 2.68 | mg/Kg | 26.7 | | 0.48 | 2.34 | mg/Kg |
| Iron, Total, ICP | 29300 | | 6.1 | 30.3 | mg/Kg | 29600 | | 6.8 | 33.2 | mg/Kg | 27600 | | 6 | 29.3 | mg/Kg |
| Lead, Total, ICP | 13 | <RDL | 3.6 | 18.2 | mg/Kg | 12 | <RDL | 3.9 | 20 | mg/Kg | 13 | <RDL | 3.6 | 17.5 | mg/Kg |
| Nickel, Total, ICP | 34.6 | | 2.4 | 12.2 | mg/Kg | 34.8 | | 2.6 | 13.3 | mg/Kg | 33.1 | | 2.3 | 11.7 | mg/Kg |
| Selenium, Total, ICP | | <MDL | 6.1 | 30.3 | mg/Kg | | <MDL | 6.8 | 33.2 | mg/Kg | | <MDL | 6 | 29.3 | mg/Kg |
| Silver, Total, ICP | | <MDL | 0.48 | 2.42 | mg/Kg | | <MDL | 0.55 | 2.68 | mg/Kg | | <MDL | 0.48 | 2.34 | mg/Kg |
| Thallium, Total, ICP | | <MDL | 24 | 122 | mg/Kg | | <MDL | 26 | 133 | mg/Kg | | <MDL | 23 | 117 | mg/Kg |
| Zinc, Total, ICP | 88.4 | | 0.61 | 3.03 | mg/Kg | 88.1 | | 0.68 | 3.32 | mg/Kg | 83.8 | | 0.6 | 2.93 | mg/Kg |
| **M=OR EPA 3540C/8270C (7-3-04-001)** | | | | | | | | | | | | | | | |
| Chlorpyrifos | | <MDL | 13 | 25.9 | ug/Kg | | <MDL | 14 | 27.8 | ug/Kg | | <MDL | 13 | 25.5 | ug/Kg |
| Diazinon | | <MDL | 7.7 | 12.9 | ug/Kg | | <MDL | 8.3 | 13.8 | ug/Kg | | <MDL | 7.6 | 12.7 | ug/Kg |
| Disulfoton | | <MDL | 7.7 | 12.9 | ug/Kg | | <MDL | 8.3 | 13.8 | ug/Kg | | <MDL | 7.6 | 12.7 | ug/Kg |
| Malathion | | <MDL | 21 | 38.7 | ug/Kg | | <MDL | 22 | 41.6 | ug/Kg | | <MDL | 20 | 38.1 | ug/Kg |
| Parathion-Ethyl | | <MDL | 21 | 38.7 | ug/Kg | | <MDL | 22 | 41.6 | ug/Kg | | <MDL | 20 | 38.1 | ug/Kg |
| Parathion-Methyl | | <MDL | 21 | 38.7 | ug/Kg | | <MDL | 22 | 41.6 | ug/Kg | | <MDL | 20 | 38.1 | ug/Kg |
| Phorate | | <MDL | 13 | 25.9 | ug/Kg | | <MDL | 14 | 27.8 | ug/Kg | | <MDL | 13 | 25.5 | ug/Kg |
| **M=OR EPA 3550B (7-3-025-000)** | | | | | | | | | | | | | | | |
| DecaBDE-209 | 1.27 | | 0.27 | 0.516 | ug/Kg | 0.805 | | 0.29 | 0.553 | ug/Kg | 1.23 | | 0.26 | 0.507 | ug/Kg |
| HeptaBDE-183 | | <MDL | 0.051 | 0.103 | ug/Kg | | <MDL | 0.055 | 0.111 | ug/Kg | | <MDL | 0.05 | 0.102 | ug/Kg |
| HeptaBDE-190 | | <MDL | 0.051 | 0.103 | ug/Kg | | <MDL | 0.055 | 0.111 | ug/Kg | | <MDL | 0.05 | 0.102 | ug/Kg |
| HexaBDE-138 | | <MDL,TA | 0.051 | 0.103 | ug/Kg | | <MDL,TA | 0.055 | 0.111 | ug/Kg | | <MDL,TA | 0.05 | 0.102 | ug/Kg |
| HexaBDE-153 | | <MDL | 0.051 | 0.103 | ug/Kg | | <MDL | 0.055 | 0.111 | ug/Kg | | <MDL | 0.05 | 0.102 | ug/Kg |
| HexaBDE-154 | | <MDL | 0.051 | 0.103 | ug/Kg | | <MDL | 0.055 | 0.111 | ug/Kg | 0.052 | <RDL | 0.05 | 0.102 | ug/Kg |
| PentaBDE-100 | 0.133 | | 0.051 | 0.103 | ug/Kg | 0.151 | | 0.055 | 0.111 | ug/Kg | 0.123 | | 0.05 | 0.102 | ug/Kg |
| PentaBDE-85 | | <MDL | 0.051 | 0.103 | ug/Kg | | <MDL | 0.055 | 0.111 | ug/Kg | | <MDL | 0.05 | 0.102 | ug/Kg |
| PentaBDE-99 | 0.192 | B | 0.051 | 0.103 | ug/Kg | 0.237 | B | 0.055 | 0.111 | ug/Kg | 0.211 | B | 0.05 | 0.102 | ug/Kg |
| TetraBDE-47 | 0.354 | B | 0.051 | 0.103 | ug/Kg | 0.517 | B | 0.055 | 0.111 | ug/Kg | 0.383 | B | 0.05 | 0.102 | ug/Kg |
| TetraBDE-66 | | <MDL | 0.051 | 0.103 | ug/Kg | | <MDL | 0.055 | 0.111 | ug/Kg | | <MDL | 0.05 | 0.102 | ug/Kg |
| TetraBDE-71 | | <MDL,TA | 0.051 | 0.103 | ug/Kg | | <MDL,TA | 0.055 | 0.111 | ug/Kg | | <MDL,TA | 0.05 | 0.102 | ug/Kg |
| TriBDE-17 | | <MDL | 0.051 | 0.103 | ug/Kg | | <MDL | 0.055 | 0.111 | ug/Kg | | <MDL | 0.05 | 0.102 | ug/Kg |
| TriBDE-28 | | <MDL,TA | 0.051 | 0.103 | ug/Kg | | <MDL,TA | 0.055 | 0.111 | ug/Kg | | <MDL,TA | 0.05 | 0.102 | ug/Kg |

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| | BW402S | | | | | BW805S | | | | | BWD805N | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW402S | | | | | BW805S | | | | | BWD805N | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 10, 2006 | | | | | Oct 02, 2006 | | | | | Oct 05, 2006 | | | | |
| Lab ID: | L40539-4 | | | | | L40539-5 | | | | | L40539-6 | | | | |
| Matrix: | SALTWTRSED | | | | | SALTWTRSED | | | | | SALTWTRSED | | | | |
| % Solids: | 41.3 | | | | | 38.5 | | | | | 42 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| M=OR EPA 3550B/8270C (7-3-01-004) | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | <MDL | 0.24 | 0.484 | ug/Kg | | <MDL | 0.26 | 0.519 | ug/Kg | | <MDL | 0.24 | 0.476 | ug/Kg |
| 1,2-Dichlorobenzene | | <MDL | 0.48 | 0.969 | ug/Kg | | <MDL | 0.52 | 1.04 | ug/Kg | | <MDL | 0.48 | 0.952 | ug/Kg |
| 1,3-Dichlorobenzene | | <MDL | 0.48 | 0.969 | ug/Kg | | <MDL | 0.52 | 1.04 | ug/Kg | | <MDL | 0.48 | 0.952 | ug/Kg |
| 1,4-Dichlorobenzene | | <MDL | 0.48 | 0.969 | ug/Kg | | <MDL | 0.52 | 1.04 | ug/Kg | | <MDL | 0.48 | 0.952 | ug/Kg |
| 2,4-Dimethylphenol | | <MDL | 2.4 | 4.84 | ug/Kg | | <MDL | 2.6 | 5.19 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg |
| 2-Methylnaphthalene | 4.8 | <RDL | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| 2-Methylphenol | | <MDL | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| 4-Methylphenol | | <MDL | 9.7 | 19.4 | ug/Kg | | <MDL | 10 | 20.8 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Acenaphthene | | <MDL | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| Acenaphthylene | 19.1 | | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| Anthracene | 14.7 | | 4.8 | 9.69 | ug/Kg | 12.3 | | 5.2 | 10.4 | ug/Kg | 7.6 | <RDL | 4.8 | 9.52 | ug/Kg |
| Benzo(a)anthracene | 69 | | 4.8 | 9.69 | ug/Kg | 11.6 | | 5.2 | 10.4 | ug/Kg | 14.5 | | 4.8 | 9.52 | ug/Kg |
| Benzo(a)pyrene | 59.1 | | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| Benzo(b)fluoranthene | 49.2 | | 4.8 | 9.69 | ug/Kg | 15.1 | | 5.2 | 10.4 | ug/Kg | 19 | | 4.8 | 9.52 | ug/Kg |
| Benzo(g,h,i)perylene | 40.9 | | 4.8 | 9.69 | ug/Kg | 13 | | 5.2 | 10.4 | ug/Kg | 15.6 | | 4.8 | 9.52 | ug/Kg |
| Benzo(k)fluoranthene | 43.8 | | 4.8 | 9.69 | ug/Kg | 11.5 | | 5.2 | 10.4 | ug/Kg | 15.4 | | 4.8 | 9.52 | ug/Kg |
| Benzoic Acid | 190 | | 24 | 48.4 | ug/Kg | 187 | | 26 | 51.9 | ug/Kg | 186 | | 24 | 47.6 | ug/Kg |
| Benzyl Alcohol | | <MDL | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| Benzyl Butyl Phthalate | 15.4 | | 2.4 | 4.84 | ug/Kg | 18.2 | | 2.6 | 5.19 | ug/Kg | 15.6 | | 2.4 | 4.76 | ug/Kg |
| Bis(2-Ethylhexyl)Phthalate | 19.9 | B | 9.7 | 19.4 | ug/Kg | 20.9 | B | 10 | 20.8 | ug/Kg | 19 | <RDL,B | 9.5 | 19 | ug/Kg |
| Caffeine | | <MDL | 9.7 | 19.4 | ug/Kg | | <MDL | 10 | 20.8 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Carbazole | | <MDL | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| Chrysene | 89.3 | | 4.8 | 9.69 | ug/Kg | 14 | | 5.2 | 10.4 | ug/Kg | 23.1 | | 4.8 | 9.52 | ug/Kg |
| Coprostanol | | <MDL | 97 | 194 | ug/Kg | | <MDL | 100 | 208 | ug/Kg | | <MDL | 95 | 190 | ug/Kg |
| Dibenzo(a,h)anthracene | 12.4 | | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| Dibenzofuran | | <MDL | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| Diethyl Phthalate | | <MDL | 9.7 | 19.4 | ug/Kg | | <MDL | 10 | 20.8 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Dimethyl Phthalate | | <MDL | 9.7 | 19.4 | ug/Kg | | <MDL | 10 | 20.8 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Di-N-Butyl Phthalate | 19 | <RDL,B | 9.7 | 19.4 | ug/Kg | 21 | <RDL,B | 10 | 20.8 | ug/Kg | 19.5 | B | 9.5 | 19 | ug/Kg |
| Di-N-Octyl Phthalate | | <MDL | 9.7 | 19.4 | ug/Kg | | <MDL | 10 | 20.8 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Fluoranthene | 104 | | 4.8 | 9.69 | ug/Kg | 25.8 | | 5.2 | 10.4 | ug/Kg | 35.7 | | 4.8 | 9.52 | ug/Kg |
| Fluorene | | <MDL | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| Hexachlorobenzene | | <MDL | 0.24 | 0.484 | ug/Kg | | <MDL | 0.26 | 0.519 | ug/Kg | | <MDL | 0.24 | 0.476 | ug/Kg |
| Hexachlorobutadiene | | <MDL | 1.2 | 2.42 | ug/Kg | | <MDL | 1.3 | 2.6 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Hexachloroethane | | <MDL | 2.4 | 4.84 | ug/Kg | | <MDL | 2.6 | 5.19 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg |
| Indeno(1,2,3-Cd)Pyrene | 35.6 | | 4.8 | 9.69 | ug/Kg | 9.9 | <RDL | 5.2 | 10.4 | ug/Kg | 12.6 | | 4.8 | 9.52 | ug/Kg |
| Naphthalene | | <MDL | 4.8 | 9.69 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg |
| N-Nitrosodiphenylamine | | <MDL | 9.7 | 19.4 | ug/Kg | | <MDL | 10 | 20.8 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Pentachlorophenol | | <MDL | 24 | 48.4 | ug/Kg | | <MDL | 26 | 51.9 | ug/Kg | | <MDL | 24 | 47.6 | ug/Kg |
| Phenanthrene | 18.1 | | 4.8 | 9.69 | ug/Kg | 15.5 | | 5.2 | 10.4 | ug/Kg | 19.4 | | 4.8 | 9.52 | ug/Kg |
| Phenol | 60.5 | E | 9.7 | 19.4 | ug/Kg | 52.5 | E | 10 | 20.8 | ug/Kg | 54.5 | E | 9.5 | 19 | ug/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW402S | | | | | Locator: | BW805S | | | | | Locator: | BWD805N | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 10, 2006 | | | | | Sampled: | Oct 02, 2006 | | | | | Sampled: | Oct 05, 2006 | | | | |
| Lab ID: | L40539-4 | | | | | Lab ID: | L40539-5 | | | | | Lab ID: | L40539-6 | | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | |
| % Solids: | 41.3 | | | | | % Solids: | 38.5 | | | | | % Solids: | 42 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| Pyrene | 137 | | 4.8 | 9.69 | ug/Kg | 28.8 | | 5.2 | 10.4 | ug/Kg | 37.1 | | 4.8 | 9.52 | ug/Kg |
| Total 4-Nonylphenol | | <MDL | 12 | 24.2 | ug/Kg | | <MDL | 13 | 26 | ug/Kg | | <MDL | 12 | 23.8 | ug/Kg |
| Total HPAHS | 639 | | 4.8 | 9.69 | ug/Kg | 130 | | 5.2 | 10.4 | ug/Kg | 178 | | 4.8 | 9.52 | ug/Kg |
| Total LPAHs | 61 | | 4.8 | 9.69 | ug/Kg | 37.1 | | 5.2 | 10.4 | ug/Kg | 39 | | 4.8 | 9.52 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-03-002)** | | | | | | | | | | | | | | | |
| 4,4'-DDD | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| 4,4'-DDE | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| 4,4'-DDT | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Aldrin | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Alpha-BHC | | <MDL | 1.5 | 3.03 | ug/Kg | | <MDL | 1.6 | 3.25 | ug/Kg | | <MDL | 1.5 | 2.98 | ug/Kg |
| Alpha-Chlordane | | <MDL | 1.5 | 3.03 | ug/Kg | | <MDL | 1.6 | 3.25 | ug/Kg | | <MDL | 1.5 | 2.98 | ug/Kg |
| Aroclor 1016 | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Aroclor 1221 | | <MDL | 6.1 | 12.1 | ug/Kg | | <MDL | 6.5 | 13 | ug/Kg | | <MDL | 6 | 11.9 | ug/Kg |
| Aroclor 1232 | | <MDL | 6.1 | 12.1 | ug/Kg | | <MDL | 6.5 | 13 | ug/Kg | | <MDL | 6 | 11.9 | ug/Kg |
| Aroclor 1242 | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Aroclor 1248 | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Aroclor 1254 | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Aroclor 1260 | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Beta-BHC | | <MDL | 1.5 | 3.03 | ug/Kg | | <MDL | 1.6 | 3.25 | ug/Kg | | <MDL | 1.5 | 2.98 | ug/Kg |
| Delta-BHC | | <MDL | 1.5 | 3.03 | ug/Kg | | <MDL | 1.6 | 3.25 | ug/Kg | | <MDL | 1.5 | 2.98 | ug/Kg |
| Dieldrin | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Endosulfan I | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Endosulfan II | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Endosulfan Sulfate | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Endrin | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Endrin Aldehyde | | <MDL | 3.1 | 6.05 | ug/Kg | | <MDL | 3.4 | 6.49 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg |
| Gamma-BHC (Lindane) | | <MDL | 1.5 | 3.03 | ug/Kg | | <MDL | 1.6 | 3.25 | ug/Kg | | <MDL | 1.5 | 2.98 | ug/Kg |
| Gamma-Chlordane | | <MDL | 1.5 | 3.03 | ug/Kg | | <MDL | 1.6 | 3.25 | ug/Kg | | <MDL | 1.5 | 2.98 | ug/Kg |
| Heptachlor | | <MDL | 1.5 | 3.03 | ug/Kg | | <MDL | 1.6 | 3.25 | ug/Kg | | <MDL | 1.5 | 2.98 | ug/Kg |
| Heptachlor Epoxide | | <MDL | 1.5 | 3.03 | ug/Kg | | <MDL | 1.6 | 3.25 | ug/Kg | | <MDL | 1.5 | 2.98 | ug/Kg |
| Methoxychlor | | <MDL | 15 | 30.3 | ug/Kg | | <MDL | 16 | 32.5 | ug/Kg | | <MDL | 15 | 29.8 | ug/Kg |
| Toxaphene | | <MDL | 31 | 60.5 | ug/Kg | | <MDL | 34 | 64.9 | ug/Kg | | <MDL | 31 | 59.5 | ug/Kg |
| **M=OR KRONE 1989 (07-03-026-000)** | | | | | | | | | | | | | | | |
| Di-n-Butyltin (as dibutyltin ion) | | <MDL | 4.4 | 8.47 | ug/Kg | | <MDL | 4.7 | 9.09 | ug/Kg | | <MDL | 4.3 | 8.33 | ug/Kg |
| Mono-n-Butyltin (as monobutyltin ion) | | <MDL | 20 | 40.7 | ug/Kg | | <MDL | 22 | 43.6 | ug/Kg | | <MDL | 20 | 40 | ug/Kg |
| Tetra-n-Butyltin (as tetrabutyltin) | | <MDL | 4.8 | 9.71 | ug/Kg | | <MDL | 5.2 | 10.4 | ug/Kg | | <MDL | 4.8 | 9.55 | ug/Kg |
| Tri-n-Butyltin (as tributyltin ion) | | <MDL | 2.4 | 5.04 | ug/Kg | | <MDL | 2.6 | 5.4 | ug/Kg | | <MDL | 2.4 | 4.95 | ug/Kg |
| **M=OR SW-846 8151A GC/MS MODIFIED** | | | | | | | | | | | | | | | |
| 2,4,5-T | | <MDL | 1.3 | 15.7 | ug/Kg | | <MDL | 1.4 | 17.1 | ug/Kg | | <MDL | 1.3 | 15.2 | ug/Kg |
| 2,4,5-TP (Silvex) | | <MDL | 4.8 | 15.7 | ug/Kg | | <MDL | 5.2 | 17.1 | ug/Kg | | <MDL | 4.8 | 15.2 | ug/Kg |
| 2,4-D | | <MDL | 1.8 | 15.7 | ug/Kg | | <MDL | 2 | 17.1 | ug/Kg | | <MDL | 1.8 | 15.2 | ug/Kg |
| 2,4-DB | | <MDL | 3.9 | 15.7 | ug/Kg | | <MDL | 4.2 | 17.1 | ug/Kg | | <MDL | 3.6 | 15.2 | ug/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW402S | | | | | Locator: | BW805S | | | | | Locator: | BWD805N | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 10, 2006 | | | | | Sampled: | Oct 02, 2006 | | | | | Sampled: | Oct 05, 2006 | | | | |
| Lab ID: | L40539-4 | | | | | Lab ID: | L40539-5 | | | | | Lab ID: | L40539-6 | | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | |
| % Solids: | 41.3 | | | | | % Solids: | 38.5 | | | | | % Solids: | 42 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | |
| Dalapon | | <MDL | 11 | 38.7 | ug/Kg | | <MDL | 12 | 41.6 | ug/Kg | | <MDL | 10 | 38.1 | ug/Kg |
| Dicamba | | <MDL | 2.2 | 15.7 | ug/Kg | | <MDL | 2.3 | 17.1 | ug/Kg | | <MDL | 2.1 | 15.2 | ug/Kg |
| Dichloroprop | | <MDL | 3.4 | 15.7 | ug/Kg | | <MDL | 3.6 | 17.1 | ug/Kg | | <MDL | 3.3 | 15.2 | ug/Kg |
| Dinoseb | | <MDL | 5.3 | 38.7 | ug/Kg | | <MDL | 5.7 | 41.6 | ug/Kg | | <MDL | 5.2 | 38.1 | ug/Kg |
| MCPA | | <MDL | 2.1 | 15.7 | ug/Kg | | <MDL | 2.2 | 17.1 | ug/Kg | | <MDL | 2 | 15.2 | ug/Kg |
| MCPP | | <MDL | 2.4 | 15.7 | ug/Kg | | <MDL | 2.6 | 17.1 | ug/Kg | | <MDL | 2.3 | 15.2 | ug/Kg |

* Not converted to dry weight basis for this parameter

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | BWD402N | | | | | BW605D | | | | | BWD402S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD402N | | | | | BW605D | | | | | BWD402S | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 05, 2006 | | | | | Oct 10, 2006 | | | | | Oct 10, 2006 | | | | |
| Lab ID: | L40539-7 | | | | | L40539-8 | | | | | L40539-9 | | | | |
| Matrix: | SALTWTRSED | | | | | SALTWTRSED | | | | | SALTWTRSED | | | | |
| % Solids: | 42.2 | | | | | 40.6 | | | | | 39.9 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| **M=ES NONE** | | | | | | | | | | | | | | | |
| Sampcoordx1 * | 1251201 | | | | ft | 1251274 | | | | ft | 1251328 | | | | ft |
| Sampcoordx2 * | 1251211 | | | | ft | 1251252 | | | | ft | 1251331 | | | | ft |
| Sampcoordx3 * | 1251211 | | | | ft | 1251272 | | | | ft | 1251330 | | | | ft |
| Sampcoordy1 * | 287921 | | | | ft | 287489 | | | | ft | 287133 | | | | ft |
| Sampcoordy2 * | 287927 | | | | ft | 287460 | | | | ft | 287143 | | | | ft |
| Sampcoordy3 * | 287903 | | | | ft | 287471 | | | | ft | 287146 | | | | ft |
| Sample Depth * | 180 | | | | m | 183 | | | | m | 185 | | | | m |
| Sample Start Time * | 1200 | | | | hr | 1122 | | | | hr | 1030 | | | | hr |
| Sediment Sampling Depth * | 16 | | | | cm | 16 | | | | cm | 17 | | | | cm |
| Sediment Sampling Range * | 0-2 cm | | | | cm | 0-2 cm | | | | cm | 0-2 cm | | | | cm |
| Tidal Condition* | F | | | | none | E | | | | none | E | | | | none |
| Tide Height * | 3.5 | | | | ft | 6.5 | | | | ft | 8 | | | | ft |
| **M=CV ASTM D422(03-02-005-001)** | | | | | | | | | | | | | | | |
| Fines * | 55.9 | | 0.5 | 1 | % | 57.9 | | 0.5 | 1 | % | 58.1 | | 0.5 | 1 | % |
| Clay * | 14 | | 0.5 | 1 | % | 14.5 | | 0.5 | 1 | % | 12.9 | | 0.5 | 1 | % |
| Silt * | 41.9 | | 0.5 | 1 | % | 43.4 | | 0.5 | 1 | % | 45.2 | | 0.5 | 1 | % |
| Sand * | 34.1 | | 0.1 | 1 | % | 35.2 | | 0.1 | 1 | % | 33.4 | | 0.1 | 1 | % |
| Gravel * | 0.4 | <RDL | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % |
| p-2.00(less than) * | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % |
| p-2.00 * | 0.4 | <RDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % |
| p-1.00 * | | <MDL | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % |
| p+0.00 * | 0.1 | <RDL | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % |
| p+1.00 * | 0.2 | <RDL | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % | 0.3 | <RDL | 0.1 | 1 | % |
| p+2.00 * | 1 | <RDL | 0.1 | 1 | % | 1.1 | | 0.1 | 1 | % | 1.1 | | 0.1 | 1 | % |
| p+3.00 * | 2 | | 0.1 | 1 | % | 3 | | 0.1 | 1 | % | 2.7 | | 0.1 | 1 | % |
| p+4.00 * | 30.9 | | 0.1 | 1 | % | 30.7 | | 0.1 | 1 | % | 29.2 | | 0.1 | 1 | % |
| p+5.00 * | 21.7 | | 0.5 | 1 | % | 24.1 | | 0.5 | 1 | % | 24.2 | | 0.5 | 1 | % |
| p+6.00 * | 7.8 | | 0.5 | 1 | % | 6.4 | | 0.5 | 1 | % | 8.1 | | 0.5 | 1 | % |
| p+7.00 * | 7.8 | | 0.5 | 1 | % | 8 | | 0.5 | 1 | % | 6.5 | | 0.5 | 1 | % |
| p+8.00 * | 4.7 | | 0.5 | 1 | % | 4.8 | | 0.5 | 1 | % | 6.5 | | 0.5 | 1 | % |
| p+9.00 * | 4.7 | | 0.5 | 1 | % | 4.8 | | 0.5 | 1 | % | 3.2 | | 0.5 | 1 | % |
| p+10.0(equal/more than) * | 9.3 | | 0.5 | 1 | % | 9.7 | | 0.5 | 1 | % | 9.7 | | 0.5 | 1 | % |
| **M=CV EPA 9030B (03-03-015-000)** | | | | | | | | | | | | | | | |
| Total Sulfide | 254 | | 24 | 94.8 | mg/Kg | 17.3 | | 1.2 | 4.93 | mg/Kg | 144 | | 13 | 50.1 | mg/Kg |
| **M=CV EPA 9060-PSEP96(03-04-002-003)** | | | | | | | | | | | | | | | |
| Total Organic Carbon | 13,400 | | 1,700 | 3,320 | mg/Kg | 13,500 | | 1,700 | 3,280 | mg/Kg | 13,800 | | 1,700 | 3,330 | mg/Kg |
| **M=CV SM2540-G (03-01-007-002)** | | | | | | | | | | | | | | | |
| Total Solids * | 42.2 | | 0.005 | 0.01 | % | 40.6 | | 0.005 | 0.01 | % | 39.9 | | 0.005 | 0.01 | % |
| **M=CV SM4500-NH3-G(03-03-014-001)KCL** | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | 9.62 | | 1.2 | 2.37 | mg/Kg | 13.2 | | 1.2 | 2.46 | mg/Kg | 12.3 | | 1.3 | 2.51 | mg/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | BWD402N | | | | | BW605D | | | | | BWD402S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD402N | | | | | BW605D | | | | | BWD402S | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 05, 2006 | | | | | Oct 10, 2006 | | | | | Oct 10, 2006 | | | | |
| Lab ID: | L40539-7 | | | | | L40539-8 | | | | | L40539-9 | | | | |
| Matrix: | SALTWTRSED | | | | | SALTWTRSED | | | | | SALTWTRSED | | | | |
| % Solids: | 42.2 | | | | | 40.6 | | | | | 39.9 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| **M=MT EPA 7471A (06-01-004-003)** | | | | | | | | | | | | | | | |
| Mercury, Total, CVAA | 0.066 | <RDL | 0.024 | 0.237 | mg/Kg | 0.071 | <RDL | 0.025 | 0.246 | mg/Kg | 0.07 | <RDL | 0.025 | 0.256 | mg/Kg |
| **M=MT EPA3050A/6010B (06-02-004-002)** | | | | | | | | | | | | | | | |
| Aluminum, Total, ICP | 16100 | | 11 | 56.9 | mg/Kg | 16400 | | 12 | 59.4 | mg/Kg | 15700 | | 13 | 63.9 | mg/Kg |
| Antimony, Total, ICP | | <MDL,G | 3.3 | 17.1 | mg/Kg | | <MDL,G | 3.4 | 17.8 | mg/Kg | | <MDL,G | 3.8 | 19.1 | mg/Kg |
| Arsenic, Total, ICP | 6.2 | <RDL | 5.7 | 28.4 | mg/Kg | 7.1 | <RDL | 5.9 | 29.8 | mg/Kg | 6.8 | <RDL | 6.3 | 31.8 | mg/Kg |
| Beryllium, Total, ICP | 0.38 | <RDL | 0.11 | 0.569 | mg/Kg | 0.39 | <RDL | 0.12 | 0.594 | mg/Kg | 0.38 | <RDL | 0.13 | 0.639 | mg/Kg |
| Cadmium, Total, ICP | 0.57 | <RDL | 0.33 | 1.71 | mg/Kg | 0.57 | <RDL | 0.34 | 1.78 | mg/Kg | 0.53 | <RDL | 0.38 | 1.91 | mg/Kg |
| Chromium, Total, ICP | 37.9 | | 0.57 | 2.84 | mg/Kg | 38.9 | | 0.59 | 2.98 | mg/Kg | 37.8 | | 0.63 | 3.18 | mg/Kg |
| Copper, Total, ICP | 27.5 | | 0.45 | 2.28 | mg/Kg | 27.8 | | 0.47 | 2.38 | mg/Kg | 27.1 | | 0.5 | 2.56 | mg/Kg |
| Iron, Total, ICP | 28700 | | 5.7 | 28.4 | mg/Kg | 29300 | | 5.9 | 29.8 | mg/Kg | 28100 | | 6.3 | 31.8 | mg/Kg |
| Lead, Total, ICP | 13 | <RDL | 3.3 | 17.1 | mg/Kg | 13 | <RDL | 3.4 | 17.8 | mg/Kg | 13 | <RDL | 3.8 | 19.1 | mg/Kg |
| Nickel, Total, ICP | 33.6 | | 2.3 | 11.4 | mg/Kg | 34.2 | | 2.4 | 11.9 | mg/Kg | 33.8 | | 2.5 | 12.8 | mg/Kg |
| Selenium, Total, ICP | | <MDL | 5.7 | 28.4 | mg/Kg | | <MDL | 5.9 | 29.8 | mg/Kg | | <MDL | 6.3 | 31.8 | mg/Kg |
| Silver, Total, ICP | 0.55 | <RDL | 0.45 | 2.28 | mg/Kg | | <MDL | 0.47 | 2.38 | mg/Kg | | <MDL | 0.5 | 2.56 | mg/Kg |
| Thallium, Total, ICP | | <MDL | 23 | 114 | mg/Kg | | <MDL | 24 | 119 | mg/Kg | | <MDL | 25 | 128 | mg/Kg |
| Zinc, Total, ICP | 86 | | 0.57 | 2.84 | mg/Kg | 86.7 | | 0.59 | 2.98 | mg/Kg | 85.2 | | 0.63 | 3.18 | mg/Kg |
| **M=OR EPA 3540C/8270C (7-3-04-001)** | | | | | | | | | | | | | | | |
| Chlorpyrifos | | <MDL | 13 | 25.4 | ug/Kg | | <MDL | 13 | 26.4 | ug/Kg | | <MDL | 13 | 26.8 | ug/Kg |
| Diazinon | | <MDL | 7.6 | 12.6 | ug/Kg | | <MDL | 7.9 | 13.1 | ug/Kg | | <MDL | 8 | 13.4 | ug/Kg |
| Disulfoton | | <MDL | 7.6 | 12.6 | ug/Kg | | <MDL | 7.9 | 13.1 | ug/Kg | | <MDL | 8 | 13.4 | ug/Kg |
| Malathion | | <MDL | 20 | 37.9 | ug/Kg | | <MDL | 21 | 39.4 | ug/Kg | | <MDL | 21 | 40.1 | ug/Kg |
| Parathion-Ethyl | | <MDL | 20 | 37.9 | ug/Kg | | <MDL | 21 | 39.4 | ug/Kg | | <MDL | 21 | 40.1 | ug/Kg |
| Parathion-Methyl | | <MDL | 20 | 37.9 | ug/Kg | | <MDL | 21 | 39.4 | ug/Kg | | <MDL | 21 | 40.1 | ug/Kg |
| Phorate | | <MDL | 13 | 25.4 | ug/Kg | | <MDL | 13 | 26.4 | ug/Kg | | <MDL | 13 | 26.8 | ug/Kg |
| **M=OR EPA 3550B (7-3-025-000)** | | | | | | | | | | | | | | | |
| DecaBDE-209 | 1.4 | | 0.26 | 0.505 | ug/Kg | 1.64 | | 0.27 | 0.525 | ug/Kg | 1.03 | | 0.28 | 0.534 | ug/Kg |
| HeptaBDE-183 | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.052 | 0.105 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg |
| HeptaBDE-190 | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.052 | 0.105 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg |
| HexaBDE-138 | | <MDL,TA | 0.05 | 0.101 | ug/Kg | | <MDL,TA | 0.052 | 0.105 | ug/Kg | | <MDL,TA | 0.053 | 0.107 | ug/Kg |
| HexaBDE-153 | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.052 | 0.105 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg |
| HexaBDE-154 | | <MDL | 0.05 | 0.101 | ug/Kg | 0.054 | <RDL | 0.052 | 0.105 | ug/Kg | 0.068 | <RDL | 0.053 | 0.107 | ug/Kg |
| PentaBDE-100 | 0.123 | | 0.05 | 0.101 | ug/Kg | 0.166 | | 0.052 | 0.105 | ug/Kg | 0.158 | | 0.053 | 0.107 | ug/Kg |
| PentaBDE-85 | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.052 | 0.105 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg |
| PentaBDE-99 | 0.188 | B | 0.05 | 0.101 | ug/Kg | 0.233 | B | 0.052 | 0.105 | ug/Kg | 0.268 | B | 0.053 | 0.107 | ug/Kg |
| TetraBDE-47 | 0.382 | B | 0.05 | 0.101 | ug/Kg | 0.466 | B | 0.052 | 0.105 | ug/Kg | 0.536 | B | 0.053 | 0.107 | ug/Kg |
| TetraBDE-66 | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.052 | 0.105 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg |
| TetraBDE-71 | | <MDL,TA | 0.05 | 0.101 | ug/Kg | | <MDL,TA | 0.052 | 0.105 | ug/Kg | | <MDL,TA | 0.053 | 0.107 | ug/Kg |
| TriBDE-17 | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.052 | 0.105 | ug/Kg | | <MDL | 0.053 | 0.107 | ug/Kg |
| TriBDE-28 | | <MDL,TA | 0.05 | 0.101 | ug/Kg | | <MDL,TA | 0.052 | 0.105 | ug/Kg | | <MDL,TA | 0.053 | 0.107 | ug/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
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**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | BWD402N | | | | | BW605D | | | | | BWD402S | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD402N | | | | | BW605D | | | | | BWD402S | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 05, 2006 | | | | | Oct 10, 2006 | | | | | Oct 10, 2006 | | | | |
| Lab ID: | L40539-7 | | | | | L40539-8 | | | | | L40539-9 | | | | |
| Matrix: | SALTWTRSED | | | | | SALTWTRSED | | | | | SALTWTRSED | | | | |
| % Solids: | 42.2 | | | | | 40.6 | | | | | 39.9 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| M=OR EPA 3550B/8270C (7-3-01-004) | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | <MDL | 0.24 | 0.474 | ug/Kg | | <MDL | 0.25 | 0.493 | ug/Kg | | <MDL | 0.25 | 0.501 | ug/Kg |
| 1,2-Dichlorobenzene | | <MDL | 0.47 | 0.948 | ug/Kg | | <MDL | 0.49 | 0.985 | ug/Kg | | <MDL | 0.5 | 1 | ug/Kg |
| 1,3-Dichlorobenzene | | <MDL | 0.47 | 0.948 | ug/Kg | | <MDL | 0.49 | 0.985 | ug/Kg | | <MDL | 0.5 | 1 | ug/Kg |
| 1,4-Dichlorobenzene | | <MDL | 0.47 | 0.948 | ug/Kg | | <MDL | 0.49 | 0.985 | ug/Kg | | <MDL | 0.5 | 1 | ug/Kg |
| 2,4-Dimethylphenol | | <MDL | 2.4 | 4.74 | ug/Kg | | <MDL | 2.5 | 4.93 | ug/Kg | | <MDL | 2.5 | 5.01 | ug/Kg |
| 2-Methylnaphthalene | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| 2-Methylphenol | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| 4-Methylphenol | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 9.9 | 19.7 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg |
| Acenaphthene | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| Acenaphthylene | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| Anthracene | 11 | | 4.7 | 9.48 | ug/Kg | 8.6 | <RDL | 4.9 | 9.85 | ug/Kg | 9.5 | <RDL | 5 | 10 | ug/Kg |
| Benzo(a)anthracene | 14.9 | | 4.7 | 9.48 | ug/Kg | 10.3 | | 4.9 | 9.85 | ug/Kg | 20.6 | | 5 | 10 | ug/Kg |
| Benzo(a)pyrene | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | 8 | <RDL | 5 | 10 | ug/Kg |
| Benzo(b)fluoranthene | 15.9 | | 4.7 | 9.48 | ug/Kg | 12.4 | | 4.9 | 9.85 | ug/Kg | 19.4 | | 5 | 10 | ug/Kg |
| Benzo(g,h,i)perylene | 12.9 | | 4.7 | 9.48 | ug/Kg | 11.7 | | 4.9 | 9.85 | ug/Kg | 18.1 | | 5 | 10 | ug/Kg |
| Benzo(k)fluoranthene | 15.4 | | 4.7 | 9.48 | ug/Kg | 10.3 | | 4.9 | 9.85 | ug/Kg | 19.5 | | 5 | 10 | ug/Kg |
| Benzoic Acid | 190 | | 24 | 47.4 | ug/Kg | 154 | | 25 | 49.3 | ug/Kg | 190 | | 25 | 50.1 | ug/Kg |
| Benzyl Alcohol | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| Benzyl Butyl Phthalate | | <MDL | 2.4 | 4.74 | ug/Kg | 15.9 | | 2.5 | 4.93 | ug/Kg | 16.8 | | 2.5 | 5.01 | ug/Kg |
| Bis(2-Ethylhexyl)Phthalate | 19 | <RDL,B | 9.5 | 19 | ug/Kg | 21.7 | B | 9.9 | 19.7 | ug/Kg | 18 | <RDL,B | 10 | 20.1 | ug/Kg |
| Caffeine | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 9.9 | 19.7 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg |
| Carbazole | | <MDL | 4.7 | 9.48 | ug/Kg | 9.6 | <RDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| Chrysene | 18.8 | | 4.7 | 9.48 | ug/Kg | 12.9 | | 4.9 | 9.85 | ug/Kg | 26.1 | | 5 | 10 | ug/Kg |
| Coprostanol | | <MDL | 95 | 190 | ug/Kg | | <MDL | 99 | 197 | ug/Kg | | <MDL | 100 | 201 | ug/Kg |
| Dibenzo(a,h)anthracene | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| Dibenzofuran | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| Diethyl Phthalate | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 9.9 | 19.7 | ug/Kg | 15 | <RDL | 10 | 20.1 | ug/Kg |
| Dimethyl Phthalate | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 9.9 | 19.7 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg |
| Di-N-Butyl Phthalate | 16 | <RDL,B | 9.5 | 19 | ug/Kg | 19 | <RDL,B | 9.9 | 19.7 | ug/Kg | 20 | <RDL,B | 10 | 20.1 | ug/Kg |
| Di-N-Octyl Phthalate | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 9.9 | 19.7 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg |
| Fluoranthene | 32.9 | | 4.7 | 9.48 | ug/Kg | 22.1 | | 4.9 | 9.85 | ug/Kg | 53.1 | | 5 | 10 | ug/Kg |
| Fluorene | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| Hexachlorobenzene | | <MDL | 0.24 | 0.474 | ug/Kg | | <MDL | 0.25 | 0.493 | ug/Kg | | <MDL | 0.25 | 0.501 | ug/Kg |
| Hexachlorobutadiene | | <MDL | 1.2 | 2.37 | ug/Kg | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg |
| Hexachloroethane | | <MDL | 2.4 | 4.74 | ug/Kg | | <MDL | 2.5 | 4.93 | ug/Kg | | <MDL | 2.5 | 5.01 | ug/Kg |
| Indeno(1,2,3-Cd)Pyrene | 11.1 | | 4.7 | 9.48 | ug/Kg | 8.9 | <RDL | 4.9 | 9.85 | ug/Kg | 13.8 | | 5 | 10 | ug/Kg |
| Naphthalene | | <MDL | 4.7 | 9.48 | ug/Kg | | <MDL | 4.9 | 9.85 | ug/Kg | | <MDL | 5 | 10 | ug/Kg |
| N-Nitrosodiphenylamine | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 9.9 | 19.7 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg |
| Pentachlorophenol | | <MDL | 24 | 47.4 | ug/Kg | | <MDL | 25 | 49.3 | ug/Kg | | <MDL | 25 | 50.1 | ug/Kg |
| Phenanthrene | 18.9 | | 4.7 | 9.48 | ug/Kg | 16.9 | | 4.9 | 9.85 | ug/Kg | 17.5 | | 5 | 10 | ug/Kg |
| Phenol | 42.9 | E | 9.5 | 19 | ug/Kg | 39.4 | E | 9.9 | 19.7 | ug/Kg | 38.1 | E | 10 | 20.1 | ug/Kg |

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**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | BWD402N | BW605D | BWD402S |
|---|---|---|---|
| Locator: | BWD402N | BW605D | BWD402S |
| Descrip: | Brightwater Outfall Diffuser | Brightwater Outfall Diffuser | Brightwater Outfall Diffuser |
| Sampled: | Oct 05, 2006 | Oct 10, 2006 | Oct 10, 2006 |
| Lab ID: | L40539-7 | L40539-8 | L40539-9 |
| Matrix: | SALTWTRSED | SALTWTRSED | SALTWTRSED |
| % Solids: | 42.2 | 40.6 | 39.9 |

| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| Pyrene | 35.3 | | 4.7 | 9.48 | ug/Kg | 24.6 | | 4.9 | 9.85 | ug/Kg | 59.4 | | 5 | 10 | ug/Kg |
| Total 4-Nonylphenol | | <MDL | 12 | 23.7 | ug/Kg | | <MDL | 12 | 24.6 | ug/Kg | | <MDL | 13 | 25.1 | ug/Kg |
| Total HPAHS | 162 | | 4.7 | 9.48 | ug/Kg | 111 | | 4.9 | 9.85 | ug/Kg | 242 | | 5 | 10 | ug/Kg |
| Total LPAHs | 37.4 | | 4.7 | 9.48 | ug/Kg | 32.5 | | 4.9 | 9.85 | ug/Kg | 39.1 | | 5 | 10 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-03-002)** | | | | | | | | | | | | | | | |
| 4,4'-DDD | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| 4,4'-DDE | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| 4,4'-DDT | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Aldrin | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Alpha-BHC | | <MDL | 1.5 | 2.96 | ug/Kg | | <MDL | 1.6 | 3.08 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg |
| Alpha-Chlordane | | <MDL | 1.5 | 2.96 | ug/Kg | | <MDL | 1.6 | 3.08 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg |
| Aroclor 1016 | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Aroclor 1221 | | <MDL | 5.9 | 11.8 | ug/Kg | | <MDL | 6.2 | 12.3 | ug/Kg | | <MDL | 6.3 | 12.5 | ug/Kg |
| Aroclor 1232 | | <MDL | 5.9 | 11.8 | ug/Kg | | <MDL | 6.2 | 12.3 | ug/Kg | | <MDL | 6.3 | 12.5 | ug/Kg |
| Aroclor 1242 | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Aroclor 1248 | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Aroclor 1254 | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Aroclor 1260 | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Beta-BHC | | <MDL | 1.5 | 2.96 | ug/Kg | | <MDL | 1.6 | 3.08 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg |
| Delta-BHC | | <MDL | 1.5 | 2.96 | ug/Kg | | <MDL | 1.6 | 3.08 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg |
| Dieldrin | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Endosulfan I | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Endosulfan II | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Endosulfan Sulfate | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Endrin | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Endrin Aldehyde | | <MDL | 3.1 | 5.92 | ug/Kg | | <MDL | 3.2 | 6.16 | ug/Kg | | <MDL | 3.3 | 6.27 | ug/Kg |
| Gamma-BHC (Lindane) | | <MDL | 1.5 | 2.96 | ug/Kg | | <MDL | 1.6 | 3.08 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg |
| Gamma-Chlordane | | <MDL | 1.5 | 2.96 | ug/Kg | | <MDL | 1.6 | 3.08 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg |
| Heptachlor | | <MDL | 1.5 | 2.96 | ug/Kg | | <MDL | 1.6 | 3.08 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg |
| Heptachlor Epoxide | | <MDL | 1.5 | 2.96 | ug/Kg | | <MDL | 1.6 | 3.08 | ug/Kg | | <MDL | 1.6 | 3.13 | ug/Kg |
| Methoxychlor | | <MDL | 15 | 29.6 | ug/Kg | | <MDL | 16 | 30.8 | ug/Kg | | <MDL | 16 | 31.3 | ug/Kg |
| Toxaphene | | <MDL | 31 | 59.2 | ug/Kg | | <MDL | 32 | 61.6 | ug/Kg | | <MDL | 33 | 62.7 | ug/Kg |
| **M=OR KRONE 1989 (07-03-026-000)** | | | | | | | | | | | | | | | |
| Di-n-Butyltin (as dibutyltin ion) | | <MDL | 4.3 | 8.29 | ug/Kg | | <MDL | 4.4 | 8.62 | ug/Kg | | <MDL | 4.5 | 8.77 | ug/Kg |
| Mono-n-Butyltin (as monobutyltin ion) | | <MDL | 20 | 39.8 | ug/Kg | | <MDL | 21 | 41.4 | ug/Kg | | <MDL | 21 | 42.1 | ug/Kg |
| Tetra-n-Butyltin (as tetrabutyltin) | | <MDL | 4.7 | 9.5 | ug/Kg | | <MDL | 4.9 | 9.88 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg |
| Tri-n-Butyltin (as tributyltin ion) | | <MDL | 2.4 | 4.93 | ug/Kg | | <MDL | 2.5 | 5.12 | ug/Kg | | <MDL | 2.5 | 5.21 | ug/Kg |
| **M=OR SW-846 8151A GC/MS MODIFIED** | | | | | | | | | | | | | | | |
| 2,4,5-T | | <MDL | 1.3 | 15.6 | ug/Kg | | <MDL | 1.4 | 16.3 | ug/Kg | | <MDL | 1.4 | 16.5 | ug/Kg |
| 2,4,5-TP (Silvex) | | <MDL | 4.7 | 15.6 | ug/Kg | | <MDL | 4.9 | 16.3 | ug/Kg | | <MDL | 5 | 16.5 | ug/Kg |
| 2,4-D | | <MDL | 1.8 | 15.6 | ug/Kg | | <MDL | 1.9 | 16.3 | ug/Kg | | <MDL | 1.9 | 16.5 | ug/Kg |
| 2,4-DB | | <MDL | 3.8 | 15.6 | ug/Kg | | <MDL | 3.9 | 16.3 | ug/Kg | | <MDL | 4 | 16.5 | ug/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD402N | | | | | Locator: | BW605D | | | | | Locator: | BWD402S | | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | |
| Sampled: | Oct 05, 2006 | | | | | Sampled: | Oct 10, 2006 | | | | | Sampled: | Oct 10, 2006 | | | | |
| Lab ID: | L40539-7 | | | | | Lab ID: | L40539-8 | | | | | Lab ID: | L40539-9 | | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | |
| % Solids: | 42.2 | | | | | % Solids: | 40.6 | | | | | % Solids: | 39.9 | | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | |
| Dalapon | | <MDL | 11 | 37.9 | ug/Kg | | <MDL | 11 | 41.9 | ug/Kg | | <MDL | 12 | 40.1 | ug/Kg |
| Dicamba | | <MDL | 2.1 | 15.6 | ug/Kg | | <MDL | 2.2 | 16.3 | ug/Kg | | <MDL | 2.3 | 16.5 | ug/Kg |
| Dichloroprop | | <MDL | 3.3 | 15.6 | ug/Kg | | <MDL | 3.4 | 16.3 | ug/Kg | | <MDL | 3.5 | 16.5 | ug/Kg |
| Dinoseb | | <MDL | 5.2 | 37.9 | ug/Kg | | <MDL | 5.4 | 41.9 | ug/Kg | | <MDL | 5.5 | 40.1 | ug/Kg |
| MCPA | | <MDL | 2 | 15.6 | ug/Kg | | <MDL | 2.1 | 16.3 | ug/Kg | | <MDL | 2.1 | 16.5 | ug/Kg |
| MCPP | | <MDL | 2.3 | 15.6 | ug/Kg | | <MDL | 2.5 | 16.3 | ug/Kg | | <MDL | 2.5 | 16.5 | ug/Kg |

* Not converted to dry weight basis for this parameter

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD805S | | | | | Locator: | BW3200N | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| Sampled: | Oct 10, 2006 | | | | | Sampled: | Oct 03, 2006 | | | |
| Lab ID: | L40539-10 | | | | | Lab ID: | L40539-11 | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | |
| % Solids: | 41.1 | | | | | % Solids: | 43.3 | | | |
| | Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | | - Dry Weight Basis | | |
| **M=ES NONE** | | | | | | | | | | | |
| Sampcoordx1 * | 1251367 | | | | ft | | 1250643 | | | | ft |
| Sampcoordx2 * | 1251371 | | | | ft | | 1250758 | | | | ft |
| Sampcoordx3 * | 1251377 | | | | ft | | 1250655 | | | | ft |
| Sampcoordy1 * | 286757 | | | | ft | | 290677 | | | | ft |
| Sampcoordy2 * | 286742 | | | | ft | | 290681 | | | | ft |
| Sampcoordy3 * | 286769 | | | | ft | | 290677 | | | | ft |
| Sample Depth * | 185 | | | | m | | 185 | | | | m |
| Sample Start Time * | 1215 | | | | hr | | 1435 | | | | hr |
| Sediment Sampling Depth * | 15 | | | | cm | | 15 | | | | cm |
| Sediment Sampling Range * | 0-2 cm | | | | cm | | 0-2 cm | | | | cm |
| Tidal Condition* | S | | | | none | | S | | | | none |
| Tide Height * | 6 | | | | ft | | 8 | | | | ft |
| **M=CV ASTM D422(03-02-005-001)** | | | | | | | | | | | |
| Fines * | 56.7 | | 0.5 | 1 | % | | 53.5 | | 0.5 | 1 | % |
| Clay * | 12.6 | | 0.5 | 1 | % | | 13.4 | | 0.5 | 1 | % |
| Silt * | 44.1 | | 0.5 | 1 | % | | 40.1 | | 0.5 | 1 | % |
| Sand * | 33.8 | | 0.1 | 1 | % | | 37.9 | | 0.1 | 1 | % |
| Gravel * | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % |
| p-2.00(less than) * | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % |
| p-2.00 * | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % |
| p-1.00 * | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % |
| p+0.00 * | 0.1 | <RDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % |
| p+1.00 * | 0.2 | <RDL | 0.1 | 1 | % | | 0.1 | <RDL | 0.1 | 1 | % |
| p+2.00 * | 0.6 | <RDL | 0.1 | 1 | % | | 0.6 | <RDL | 0.1 | 1 | % |
| p+3.00 * | 2.8 | | 0.1 | 1 | % | | 3 | | 0.1 | 1 | % |
| p+4.00 * | 30 | | 0.1 | 1 | % | | 34.1 | | 0.1 | 1 | % |
| p+5.00 * | 25.2 | | 0.5 | 1 | % | | 20.8 | | 0.5 | 1 | % |
| p+6.00 * | 6.3 | | 0.5 | 1 | % | | 7.4 | | 0.5 | 1 | % |
| p+7.00 * | 9.5 | | 0.5 | 1 | % | | 5.9 | | 0.5 | 1 | % |
| p+8.00 * | 3.2 | | 0.5 | 1 | % | | 5.9 | | 0.5 | 1 | % |
| p+9.00 * | 3.2 | | 0.5 | 1 | % | | 4.5 | | 0.5 | 1 | % |
| p+10.0(equal/more than) * | 9.5 | | 0.5 | 1 | % | | 8.9 | | 0.5 | 1 | % |
| **M=CV EPA 9030B (03-03-015-000)** | | | | | | | | | | | |
| Total Sulfide | 73.2 | | 6.1 | 24.3 | mg/Kg | | 252 | | 12 | 46.2 | mg/Kg |
| **M=CV EPA 9060-PSEP96(03-04-002-003)** | | | | | | | | | | | |
| Total Organic Carbon | 13,000 | | 1,600 | 3,210 | mg/Kg | | 13,000 | | 1,700 | 3,370 | mg/Kg |
| **M=CV SM2540-G (03-01-007-002)** | | | | | | | | | | | |
| Total Solids * | 41.1 | | 0.005 | 0.01 | % | | 43.3 | | 0.005 | 0.01 | % |
| **M=CV SM4500-NH3-G(03-03-014-001)KCL** | | | | | | | | | | | |
| Ammonia Nitrogen | 9.85 | | 1.2 | 2.43 | mg/Kg | | 10.3 | | 1.2 | 2.31 | mg/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD805S | | | | | Locator: | BW3200N | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| Sampled: | Oct 10, 2006 | | | | | Sampled: | Oct 03, 2006 | | | |
| Lab ID: | L40539-10 | | | | | Lab ID: | L40539-11 | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | |
| % Solids: | 41.1 | | | | | % Solids: | 43.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| **M=MT EPA 7471A (06-01-004-003)** | | | | | | | | | | |
| Mercury, Total, CVAA | 0.066 | <RDL | 0.024 | 0.246 | mg/Kg | 0.072 | <RDL | 0.023 | 0.226 | mg/Kg |
| **M=MT EPA3050A/6010B (06-02-004-002)** | | | | | | | | | | |
| Aluminum, Total, ICP | 16100 | | 12 | 59.9 | mg/Kg | 15400 | | 11 | 56.1 | mg/Kg |
| Antimony, Total, ICP | | <MDL,G | 3.6 | 18 | mg/Kg | | <MDL,G | 3.5 | 16.8 | mg/Kg |
| Arsenic, Total, ICP | 6.6 | <RDL | 6.1 | 29.9 | mg/Kg | 6.7 | <RDL | 5.5 | 27.9 | mg/Kg |
| Beryllium, Total, ICP | 0.39 | <RDL | 0.12 | 0.599 | mg/Kg | 0.35 | <RDL | 0.11 | 0.561 | mg/Kg |
| Cadmium, Total, ICP | 0.54 | <RDL | 0.36 | 1.8 | mg/Kg | 0.53 | <RDL | 0.35 | 1.68 | mg/Kg |
| Chromium, Total, ICP | 38.2 | | 0.61 | 2.99 | mg/Kg | 36.3 | | 0.55 | 2.79 | mg/Kg |
| Copper, Total, ICP | 27.5 | | 0.49 | 2.39 | mg/Kg | 25.6 | | 0.44 | 2.24 | mg/Kg |
| Iron, Total, ICP | 28700 | | 6.1 | 29.9 | mg/Kg | 27500 | | 5.5 | 27.9 | mg/Kg |
| Lead, Total, ICP | 13 | <RDL | 3.6 | 18 | mg/Kg | 12 | <RDL | 3.5 | 16.8 | mg/Kg |
| Nickel, Total, ICP | 33.8 | | 2.4 | 12 | mg/Kg | 32.6 | | 2.2 | 11.2 | mg/Kg |
| Selenium, Total, ICP | | <MDL | 6.1 | 29.9 | mg/Kg | | <MDL | 5.5 | 27.9 | mg/Kg |
| Silver, Total, ICP | | <MDL | 0.49 | 2.39 | mg/Kg | | <MDL | 0.44 | 2.24 | mg/Kg |
| Thallium, Total, ICP | | <MDL | 24 | 120 | mg/Kg | | <MDL | 22 | 112 | mg/Kg |
| Zinc, Total, ICP | 84.9 | | 0.61 | 2.99 | mg/Kg | 81.5 | | 0.55 | 2.79 | mg/Kg |
| **M=OR EPA 3540C/8270C (7-3-04-001)** | | | | | | | | | | |
| Chlorpyrifos | | <MDL | 13 | 26 | ug/Kg | | <MDL | 12 | 24.7 | ug/Kg |
| Diazinon | | <MDL | 7.8 | 13 | ug/Kg | | <MDL | 7.4 | 12.3 | ug/Kg |
| Disulfoton | | <MDL | 7.8 | 13 | ug/Kg | | <MDL | 7.4 | 12.3 | ug/Kg |
| Malathion | | <MDL | 21 | 38.9 | ug/Kg | | <MDL | 20 | 37 | ug/Kg |
| Parathion-Ethyl | | <MDL | 21 | 38.9 | ug/Kg | | <MDL | 20 | 37 | ug/Kg |
| Parathion-Methyl | | <MDL | 21 | 38.9 | ug/Kg | | <MDL | 20 | 37 | ug/Kg |
| Phorate | | <MDL | 13 | 26 | ug/Kg | | <MDL | 12 | 24.7 | ug/Kg |
| **M=OR EPA 3550B (7-3-025-000)** | | | | | | | | | | |
| DecaBDE-209 | 1.37 | | 0.27 | 0.518 | ug/Kg | 0.822 | | 0.25 | 0.492 | ug/Kg |
| HeptaBDE-183 | | <MDL | 0.051 | 0.104 | ug/Kg | | <MDL | 0.048 | 0.0986 | ug/Kg |
| HeptaBDE-190 | | <MDL | 0.051 | 0.104 | ug/Kg | | <MDL | 0.048 | 0.0986 | ug/Kg |
| HexaBDE-138 | | <MDL,TA | 0.051 | 0.104 | ug/Kg | | <MDL,TA | 0.048 | 0.0986 | ug/Kg |
| HexaBDE-153 | | <MDL | 0.051 | 0.104 | ug/Kg | 0.051 | <RDL | 0.048 | 0.0986 | ug/Kg |
| HexaBDE-154 | | <MDL | 0.051 | 0.104 | ug/Kg | | <MDL | 0.048 | 0.0986 | ug/Kg |
| PentaBDE-100 | 0.149 | | 0.051 | 0.104 | ug/Kg | 0.141 | | 0.048 | 0.0986 | ug/Kg |
| PentaBDE-85 | | <MDL | 0.051 | 0.104 | ug/Kg | | <MDL | 0.048 | 0.0986 | ug/Kg |
| PentaBDE-99 | 0.209 | B | 0.051 | 0.104 | ug/Kg | 0.19 | B | 0.048 | 0.0986 | ug/Kg |
| TetraBDE-47 | 0.401 | B | 0.051 | 0.104 | ug/Kg | 0.383 | B | 0.048 | 0.0986 | ug/Kg |
| TetraBDE-66 | | <MDL | 0.051 | 0.104 | ug/Kg | | <MDL | 0.048 | 0.0986 | ug/Kg |
| TetraBDE-71 | | <MDL,TA | 0.051 | 0.104 | ug/Kg | | <MDL,TA | 0.048 | 0.0986 | ug/Kg |
| TriBDE-17 | | <MDL | 0.051 | 0.104 | ug/Kg | | <MDL | 0.048 | 0.0986 | ug/Kg |
| TriBDE-28 | | <MDL,TA | 0.051 | 0.104 | ug/Kg | | <MDL,TA | 0.048 | 0.0986 | ug/Kg |

# King County Environmental Laboratory Analytical Report

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**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD805S | | | | | Locator: | BW3200N | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| Sampled: | Oct 10, 2006 | | | | | Sampled: | Oct 03, 2006 | | | |
| Lab ID: | L40539-10 | | | | | Lab ID: | L40539-11 | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | |
| % Solids: | 41.1 | | | | | % Solids: | 43.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| **M=OR EPA 3550B/8270C (7-3-01-004)** | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | <MDL | 0.24 | 0.487 | ug/Kg | | <MDL | 0.23 | 0.462 | ug/Kg |
| 1,2-Dichlorobenzene | | <MDL | 0.49 | 0.973 | ug/Kg | | <MDL | 0.46 | 0.924 | ug/Kg |
| 1,3-Dichlorobenzene | | <MDL | 0.49 | 0.973 | ug/Kg | | <MDL | 0.46 | 0.924 | ug/Kg |
| 1,4-Dichlorobenzene | | <MDL | 0.49 | 0.973 | ug/Kg | | <MDL | 0.46 | 0.924 | ug/Kg |
| 2,4-Dimethylphenol | | <MDL | 2.4 | 4.87 | ug/Kg | | <MDL | 2.3 | 4.62 | ug/Kg |
| 2-Methylnaphthalene | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| 2-Methylphenol | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| 4-Methylphenol | | <MDL | 9.7 | 19.5 | ug/Kg | | <MDL | 9.2 | 18.5 | ug/Kg |
| Acenaphthene | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| Acenaphthylene | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| Anthracene | 5.6 | <RDL | 4.9 | 9.73 | ug/Kg | 9.95 | | 4.6 | 9.24 | ug/Kg |
| Benzo(a)anthracene | 13 | | 4.9 | 9.73 | ug/Kg | 14.3 | | 4.6 | 9.24 | ug/Kg |
| Benzo(a)pyrene | 4.9 | <RDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| Benzo(b)fluoranthene | 22.8 | | 4.9 | 9.73 | ug/Kg | 15.1 | | 4.6 | 9.24 | ug/Kg |
| Benzo(g,h,i)perylene | 14.2 | | 4.9 | 9.73 | ug/Kg | 14.9 | | 4.6 | 9.24 | ug/Kg |
| Benzo(k)fluoranthene | 15.2 | | 4.9 | 9.73 | ug/Kg | 15.4 | | 4.6 | 9.24 | ug/Kg |
| Benzoic Acid | 137 | | 24 | 48.7 | ug/Kg | 165 | | 23 | 46.2 | ug/Kg |
| Benzyl Alcohol | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| Benzyl Butyl Phthalate | 15.3 | | 2.4 | 4.87 | ug/Kg | | <MDL | 2.3 | 4.62 | ug/Kg |
| Bis(2-Ethylhexyl)Phthalate | 21.6 | B | 9.7 | 19.5 | ug/Kg | 18 | <RDL,B | 9.2 | 18.5 | ug/Kg |
| Caffeine | | <MDL | 9.7 | 19.5 | ug/Kg | | <MDL | 9.2 | 18.5 | ug/Kg |
| Carbazole | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| Chrysene | 16.7 | | 4.9 | 9.73 | ug/Kg | 18.5 | | 4.6 | 9.24 | ug/Kg |
| Coprostanol | | <MDL | 97 | 195 | ug/Kg | | <MDL | 92 | 185 | ug/Kg |
| Dibenzo(a,h)anthracene | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| Dibenzofuran | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| Diethyl Phthalate | | <MDL | 9.7 | 19.5 | ug/Kg | | <MDL | 9.2 | 18.5 | ug/Kg |
| Dimethyl Phthalate | | <MDL | 9.7 | 19.5 | ug/Kg | | <MDL | 9.2 | 18.5 | ug/Kg |
| Di-N-Butyl Phthalate | 18 | <RDL,B | 9.7 | 19.5 | ug/Kg | 19.8 | B | 9.2 | 18.5 | ug/Kg |
| Di-N-Octyl Phthalate | | <MDL | 9.7 | 19.5 | ug/Kg | | <MDL | 9.2 | 18.5 | ug/Kg |
| Fluoranthene | 29.2 | | 4.9 | 9.73 | ug/Kg | 33.3 | | 4.6 | 9.24 | ug/Kg |
| Fluorene | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| Hexachlorobenzene | | <MDL | 0.24 | 0.487 | ug/Kg | | <MDL | 0.23 | 0.462 | ug/Kg |
| Hexachlorobutadiene | | <MDL | 1.2 | 2.43 | ug/Kg | | <MDL | 1.2 | 2.31 | ug/Kg |
| Hexachloroethane | | <MDL | 2.4 | 4.87 | ug/Kg | | <MDL | 2.3 | 4.62 | ug/Kg |
| Indeno(1,2,3-Cd)Pyrene | 12 | | 4.9 | 9.73 | ug/Kg | 11.5 | | 4.6 | 9.24 | ug/Kg |
| Naphthalene | | <MDL | 4.9 | 9.73 | ug/Kg | | <MDL | 4.6 | 9.24 | ug/Kg |
| N-Nitrosodiphenylamine | | <MDL | 9.7 | 19.5 | ug/Kg | | <MDL | 9.2 | 18.5 | ug/Kg |
| Pentachlorophenol | | <MDL | 24 | 48.7 | ug/Kg | | <MDL | 23 | 46.2 | ug/Kg |
| Phenanthrene | 18.1 | | 4.9 | 9.73 | ug/Kg | 18.6 | | 4.6 | 9.24 | ug/Kg |
| Phenol | 24.1 | E | 9.7 | 19.5 | ug/Kg | 32.3 | E | 9.2 | 18.5 | ug/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BWD805S | | | | Locator: | BW3200N | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 10, 2006 | | | | Sampled: | Oct 03, 2006 | | | |
| | Lab ID: | L40539-10 | | | | Lab ID: | L40539-11 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 41.1 | | | | % Solids: | 43.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | - Dry Weight Basis | | | | | - Dry Weight Basis | | |
| Pyrene | 33.1 | | 4.9 | 9.73 | ug/Kg | 36 | | 4.6 | 9.24 | ug/Kg |
| Total 4-Nonylphenol | | <MDL | 12 | 24.3 | ug/Kg | | <MDL | 12 | 23.1 | ug/Kg |
| Total HPAHS | 165 | | 4.9 | 9.73 | ug/Kg | 164 | | 4.6 | 9.24 | ug/Kg |
| Total LPAHs | 33.6 | | 4.9 | 9.73 | ug/Kg | 40.6 | | 4.6 | 9.24 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-03-002)** | | | | | | | | | | |
| 4,4'-DDD | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| 4,4'-DDE | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| 4,4'-DDT | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Aldrin | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Alpha-BHC | | <MDL | 1.5 | 3.04 | ug/Kg | | <MDL | 1.5 | 2.89 | ug/Kg |
| Alpha-Chlordane | | <MDL | 1.5 | 3.04 | ug/Kg | | <MDL | 1.5 | 2.89 | ug/Kg |
| Aroclor 1016 | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Aroclor 1221 | | <MDL | 6.1 | 12.2 | ug/Kg | | <MDL | 5.8 | 11.5 | ug/Kg |
| Aroclor 1232 | | <MDL | 6.1 | 12.2 | ug/Kg | | <MDL | 5.8 | 11.5 | ug/Kg |
| Aroclor 1242 | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Aroclor 1248 | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Aroclor 1254 | 5.6 | <RDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Aroclor 1260 | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Beta-BHC | | <MDL | 1.5 | 3.04 | ug/Kg | | <MDL | 1.5 | 2.89 | ug/Kg |
| Delta-BHC | | <MDL | 1.5 | 3.04 | ug/Kg | | <MDL | 1.5 | 2.89 | ug/Kg |
| Dieldrin | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Endosulfan I | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Endosulfan II | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Endosulfan Sulfate | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Endrin | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Endrin Aldehyde | | <MDL | 3.2 | 6.08 | ug/Kg | | <MDL | 3 | 5.77 | ug/Kg |
| Gamma-BHC (Lindane) | | <MDL | 1.5 | 3.04 | ug/Kg | | <MDL | 1.5 | 2.89 | ug/Kg |
| Gamma-Chlordane | | <MDL | 1.5 | 3.04 | ug/Kg | | <MDL | 1.5 | 2.89 | ug/Kg |
| Heptachlor | | <MDL | 1.5 | 3.04 | ug/Kg | | <MDL | 1.5 | 2.89 | ug/Kg |
| Heptachlor Epoxide | | <MDL | 1.5 | 3.04 | ug/Kg | | <MDL | 1.5 | 2.89 | ug/Kg |
| Methoxychlor | | <MDL | 15 | 30.4 | ug/Kg | | <MDL | 15 | 28.9 | ug/Kg |
| Toxaphene | | <MDL | 32 | 60.8 | ug/Kg | | <MDL | 30 | 57.7 | ug/Kg |
| **M=OR KRONE 1989 (07-03-026-000)** | | | | | | | | | | |
| Di-n-Butyltin (as dibutyltin ion) | | <MDL | 4.4 | 8.52 | ug/Kg | | <MDL | 4.2 | 8.08 | ug/Kg |
| Mono-n-Butyltin (as monobutyltin ion) | | <MDL | 20 | 40.9 | ug/Kg | | <MDL | 19 | 38.8 | ug/Kg |
| Tetra-n-Butyltin (as tetrabutyltin) | | <MDL | 4.9 | 9.76 | ug/Kg | | <MDL | 4.6 | 9.26 | ug/Kg |
| Tri-n-Butyltin (as tributyltin ion) | | <MDL | 2.4 | 5.06 | ug/Kg | | <MDL | 2.3 | 4.8 | ug/Kg |
| **M=OR SW-846 8151A GC/MS MODIFIED** | | | | | | | | | | |
| 2,4,5-T | | <MDL | 1.3 | 16.1 | ug/Kg | | <MDL | 1.3 | 15.2 | ug/Kg |
| 2,4,5-TP (Silvex) | | <MDL | 4.9 | 16.1 | ug/Kg | | <MDL | 4.6 | 15.2 | ug/Kg |
| 2,4-D | | <MDL | 1.8 | 16.1 | ug/Kg | | <MDL | 1.8 | 15.2 | ug/Kg |
| 2,4-DB | | <MDL | 3.9 | 16.1 | ug/Kg | | <MDL | 3.7 | 15.2 | ug/Kg |

# King County Environmental Laboratory Analytical Report

**Appendix A**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2006**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD805S | | | | | Locator: | BW3200N | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| Sampled: | Oct 10, 2006 | | | | | Sampled: | Oct 03, 2006 | | | |
| Lab ID: | L40539-10 | | | | | Lab ID: | L40539-11 | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | |
| % Solids: | 41.1 | | | | | % Solids: | 43.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | - Dry Weight Basis | | | | | - Dry Weight Basis | | | |
| Dalapon | | <MDL | 11 | 38.9 | ug/Kg | | <MDL | 11 | 39.3 | ug/Kg |
| Dicamba | | <MDL | 2.2 | 16.1 | ug/Kg | | <MDL | 2.1 | 15.2 | ug/Kg |
| Dichloroprop | | <MDL | 3.4 | 16.1 | ug/Kg | | <MDL | 3.2 | 15.2 | ug/Kg |
| Dinoseb | | <MDL | 5.4 | 38.9 | ug/Kg | | <MDL | 5.1 | 39.3 | ug/Kg |
| MCPA | | <MDL | 2.1 | 16.1 | ug/Kg | | <MDL | 2 | 15.2 | ug/Kg |
| MCPP | | <MDL | 2.4 | 16.1 | ug/Kg | | <MDL | 2.3 | 15.2 | ug/Kg |

* Not converted to dry weight basis for this parameter

# Appendix B
## Sediment Chemistry Analytical Results – October 2007

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BW805N | | | | Locator: | BW402N | | | | Locator: | BW605P | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 9, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-1 | | | | Lab ID: | L44148-2 | | | | Lab ID: | L44148-3 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 37.3 | | | | % Solids: | 39.8 | | | | % Solids: | 40.9 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| **M=ES NONE** | | | | | | | | | | | | | | | |
| Sampcoordx1 * | 1250836 | | | | ft | 1250849 | | | | ft | 1250952 | | | | ft |
| Sampcoordx2 * | 1250820 | | | | ft | 1250849 | | | | ft | 1250957 | | | | ft |
| Sampcoordx3 * | 1250796 | | | | ft | 1250865 | | | | ft | 1250932 | | | | ft |
| Sampcoordx4 * | | | | | | 1250865 | | | | ft | | | | | |
| Sampcoordy1 * | 288239 | | | | ft | 287880 | | | | ft | 287489 | | | | ft |
| Sampcoordy2 * | 288264 | | | | ft | 287880 | | | | ft | 287525 | | | | ft |
| Sampcoordy3 * | 288282 | | | | ft | 287867 | | | | ft | 287538 | | | | ft |
| Sampcoordy4 * | | | | | | 287867 | | | | ft | | | | | |
| Sample Depth * | 180 | | | | m | 181 | | | | m | 181 | | | | m |
| Sediment Sampling Depth * | 17 | | | | cm | 17 | | | | cm | 17 | | | | cm |
| Sediment Sampling Range * | 0-2 cm | | | | cm | 0-2 cm | | | | cm | 0-2 cm | | | | cm |
| Tidal Condition | E | | | | none | F | | | | none | S | | | | none |
| Tide Height * | 3.5 | | | | ft | 5.5 | | | | ft | 2.7 | | | | ft |
| **M=CV ASTM D422(03-02-005-001)** | | | | | | | | | | | | | | | |
| Fines * | 58.8 | | 0.5 | 1 | % | 54.2 | | 0.5 | 1 | % | 58.1 | | 0.5 | 1 | % |
| Clay * | 17.7 | | 0.5 | 1 | % | 16.9 | | 0.5 | 1 | % | 19.4 | | 0.5 | 1 | % |
| Silt * | 41 | | 0.5 | 1 | % | 37.4 | | 0.5 | 1 | % | 38.8 | | 0.5 | 1 | % |
| Sand * | 31.4 | | 0.1 | 1 | % | 37 | | 0.1 | 1 | % | 34.4 | | 0.1 | 1 | % |
| Gravel * | 0.2 | <RDL | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % |
| p-2.00(less than) * | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % |
| p-2.00 * | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % |
| p-1.00 * | 0.2 | <RDL | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % |
| p+0.00 * | 0.2 | <RDL | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % |
| p+1.00 * | 0.2 | <RDL | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % | 0.3 | <RDL | 0.1 | 1 | % |
| p+2.00 * | 0.9 | <RDL | 0.1 | 1 | % | 3.5 | | 0.1 | 1 | % | 1.5 | | 0.1 | 1 | % |
| p+3.00 * | 4.1 | | 0.1 | 1 | % | 4.7 | | 0.1 | 1 | % | 3.3 | | 0.1 | 1 | % |
| p+4.00 * | 26 | | 0.1 | 1 | % | 28.5 | | 0.1 | 1 | % | 29.1 | | 0.1 | 1 | % |
| p+5.00 * | 20 | | 0.5 | 1 | % | 15.7 | | 0.5 | 1 | % | 19.4 | | 0.5 | 1 | % |
| p+6.00 * | 5.5 | | 0.5 | 1 | % | 7.2 | | 0.5 | 1 | % | 5.2 | | 0.5 | 1 | % |
| p+7.00 * | 8.9 | | 0.5 | 1 | % | 8.4 | | 0.5 | 1 | % | 9 | | 0.5 | 1 | % |
| p+8.00 * | 6.7 | | 0.5 | 1 | % | 6 | | 0.5 | 1 | % | 5.2 | | 0.5 | 1 | % |
| p+9.00 * | 4.4 | | 0.5 | 1 | % | 2.4 | | 0.5 | 1 | % | 5.2 | | 0.5 | 1 | % |
| p+10.0(equal/more than) * | 13.3 | | 0.5 | 1 | % | 14.5 | | 0.5 | 1 | % | 14.2 | | 0.5 | 1 | % |
| **M=CV EPA 9030B (03-03-015-000)** | | | | | | | | | | | | | | | |
| Total Sulfide | 70.8 | G | 6.7 | 26.8 | mg/Kg | 244 | G | 13 | 50.3 | mg/Kg | 173 | G | 12 | 48.9 | mg/Kg |
| **M=CV EPA 9060-PSEP96(03-04-002-003)** | | | | | | | | | | | | | | | |
| Total Organic Carbon | 14700 | | 2200 | 4370 | mg/Kg | 13400 | | 1700 | 3390 | mg/Kg | 13500 | | 2000 | 4030 | mg/Kg |
| **M=CV SM2540-G (03-01-007-002)** | | | | | | | | | | | | | | | |
| Total Solids * | 37.3 | | 0.005 | 0.01 | % | 39.8 | | 0.005 | 0.01 | % | 40.9 | | 0.005 | 0.01 | % |
| **M=CV SM4500-NH3-G(03-03-014-001)KCL** | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | 14 | | 1.3 | 2.67 | mg/Kg | 10.5 | | 1.3 | 2.49 | mg/Kg | 11.1 | | 1.2 | 2.43 | mg/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | Locator: | BW805N | | | | Locator: | BW402N | | | | Locator: | BW605P | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 9, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-1 | | | | Lab ID: | L44148-2 | | | | Lab ID: | L44148-3 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 37.3 | | | | % Solids: | 39.8 | | | | % Solids: | 40.9 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| **M=MT EPA 7471A (06-01-004-003)** | | | | | | | | | | | | | | | |
| Mercury, Total, CVAA | 0.083 | <RDL | 0.013 | 0.131 | mg/Kg | 0.075 | <RDL | 0.012 | 0.121 | mg/Kg | 0.086 | <RDL | 0.012 | 0.12 | mg/Kg |
| **M=MT EPA3050B/6010B MOD(6-2-04-02)** | | | | | | | | | | | | | | | |
| Aluminum, Total, ICP | 16600 | | 13 | 66.2 | mg/Kg | 14500 | | 13 | 62.3 | mg/Kg | 15500 | | 12 | 62.1 | mg/Kg |
| Antimony, Total, ICP | | <MDL,G | 2 | 9.92 | mg/Kg | | <MDL,G | 1.9 | 9.35 | mg/Kg | | <MDL,G | 1.9 | 9.32 | mg/Kg |
| Arsenic, Total, ICP | 8 | <RDL | 3.2 | 16.5 | mg/Kg | 6.8 | <RDL | 3 | 15.6 | mg/Kg | 6.8 | <RDL | 3.2 | 15.5 | mg/Kg |
| Beryllium, Total, ICP | 0.43 | <RDL | 0.13 | 0.662 | mg/Kg | 0.38 | <RDL | 0.13 | 0.623 | mg/Kg | 0.39 | <RDL | 0.12 | 0.621 | mg/Kg |
| Cadmium, Total, ICP | 0.56 | <RDL | 0.27 | 1.32 | mg/Kg | 0.45 | <RDL | 0.25 | 1.24 | mg/Kg | 0.51 | <RDL | 0.24 | 1.24 | mg/Kg |
| Chromium, Total, ICP | 38.6 | | 0.4 | 1.99 | mg/Kg | 33.2 | | 0.38 | 1.87 | mg/Kg | 35.7 | | 0.37 | 1.86 | mg/Kg |
| Copper, Total, ICP | 29.2 | | 0.54 | 2.65 | mg/Kg | 25.1 | | 0.5 | 2.49 | mg/Kg | 27.1 | | 0.49 | 2.49 | mg/Kg |
| Iron, Total, ICP | 30000 | | 6.7 | 33 | mg/Kg | 26100 | | 6.3 | 31.2 | mg/Kg | 28100 | | 6.1 | 31.1 | mg/Kg |
| Lead, Total, ICP | 15.7 | | 2.7 | 13.2 | mg/Kg | 13.8 | | 2.5 | 12.4 | mg/Kg | 14.5 | | 2.4 | 12.4 | mg/Kg |
| Nickel, Total, ICP | 35.9 | | 0.67 | 3.3 | mg/Kg | 31.4 | | 0.63 | 3.12 | mg/Kg | 33 | | 0.61 | 3.11 | mg/Kg |
| Selenium, Total, ICP | | <MDL | 3.2 | 16.5 | mg/Kg | | <MDL | 3 | 15.6 | mg/Kg | | <MDL | 3.2 | 15.5 | mg/Kg |
| Silver, Total, ICP | 1.2 | <RDL | 0.54 | 2.65 | mg/Kg | 0.95 | <RDL | 0.5 | 2.49 | mg/Kg | 1.2 | <RDL | 0.49 | 2.49 | mg/Kg |
| Thallium, Total, ICP | | <MDL | 5.4 | 26.5 | mg/Kg | | <MDL | 5 | 24.9 | mg/Kg | | <MDL | 4.9 | 24.9 | mg/Kg |
| Zinc, Total, ICP | 91.7 | | 0.67 | 3.3 | mg/Kg | 78.1 | | 0.63 | 3.12 | mg/Kg | 83.6 | | 0.61 | 3.11 | mg/Kg |
| **M=OR EPA 3540C/8270C (7-3-04-001)** | | | | | | | | | | | | | | | |
| Chlorpyrifos | | <MDL | 140 | 287 | ug/Kg | | <MDL | 130 | 269 | ug/Kg | | <MDL | 130 | 262 | ug/Kg |
| Diazinon | | <MDL | 86 | 143 | ug/Kg | | <MDL | 80 | 134 | ug/Kg | | <MDL | 78 | 130 | ug/Kg |
| Disulfoton | | <MDL | 86 | 143 | ug/Kg | | <MDL | 80 | 134 | ug/Kg | | <MDL | 78 | 130 | ug/Kg |
| Malathion | | <MDL | 230 | 429 | ug/Kg | | <MDL | 210 | 402 | ug/Kg | | <MDL | 210 | 391 | ug/Kg |
| Parathion-Ethyl | | <MDL | 230 | 429 | ug/Kg | | <MDL | 210 | 402 | ug/Kg | | <MDL | 210 | 391 | ug/Kg |
| Parathion-Methyl | | <MDL | 230 | 429 | ug/Kg | | <MDL | 210 | 402 | ug/Kg | | <MDL | 210 | 391 | ug/Kg |
| Phorate | | <MDL | 140 | 287 | ug/Kg | | <MDL | 130 | 269 | ug/Kg | | <MDL | 130 | 262 | ug/Kg |
| **M=OR EPA 3550B (7-3-025-000)** | | | | | | | | | | | | | | | |
| DecaBDE-209 | 0.571 | E,TA | 0.27 | 0.536 | ug/Kg | 1.01 | E,TA | 0.25 | 0.503 | ug/Kg | 0.731 | E,TA | 0.24 | 0.489 | ug/Kg |
| HeptaBDE-183 | | <MDL | 0.054 | 0.107 | ug/Kg | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.049 | 0.0978 | ug/Kg |
| HeptaBDE-190 | | <MDL | 0.054 | 0.107 | ug/Kg | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.049 | 0.0978 | ug/Kg |
| HexaBDE-138 | | <MDL,TA | 0.054 | 0.107 | ug/Kg | | <MDL,TA | 0.05 | 0.101 | ug/Kg | | <MDL,TA | 0.049 | 0.0978 | ug/Kg |
| HexaBDE-153 | | <MDL | 0.054 | 0.107 | ug/Kg | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.049 | 0.0978 | ug/Kg |
| HexaBDE-154 | | <MDL | 0.054 | 0.107 | ug/Kg | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.049 | 0.0978 | ug/Kg |
| PentaBDE-100 | | <MDL | 0.054 | 0.107 | ug/Kg | 0.085 | <RDL | 0.05 | 0.101 | ug/Kg | 0.095 | <RDL | 0.049 | 0.0978 | ug/Kg |
| PentaBDE-85 | | <MDL | 0.054 | 0.107 | ug/Kg | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.049 | 0.0978 | ug/Kg |
| PentaBDE-99 | 0.1 | <RDL | 0.054 | 0.107 | ug/Kg | 0.214 | | 0.05 | 0.101 | ug/Kg | 0.262 | | 0.049 | 0.0978 | ug/Kg |
| TetraBDE-47 | 0.129 | E,TA | 0.054 | 0.107 | ug/Kg | 0.726 | E,TA | 0.05 | 0.101 | ug/Kg | 0.88 | E,TA | 0.049 | 0.0978 | ug/Kg |
| TetraBDE-71 | | <MDL,TA | 0.054 | 0.107 | ug/Kg | | <MDL,TA | 0.05 | 0.101 | ug/Kg | | <MDL,TA | 0.049 | 0.0978 | ug/Kg |
| TriBDE-17 | | <MDL | 0.054 | 0.107 | ug/Kg | | <MDL | 0.05 | 0.101 | ug/Kg | | <MDL | 0.049 | 0.0978 | ug/Kg |
| TriBDE-28 | | <MDL,TA | 0.054 | 0.107 | ug/Kg | | <MDL,TA | 0.05 | 0.101 | ug/Kg | | <MDL,TA | 0.049 | 0.0978 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BW805N | | | | Locator: | BW402N | | | | Locator: | BW605P | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 9, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-1 | | | | Lab ID: | L44148-2 | | | | Lab ID: | L44148-3 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 37.3 | | | | % Solids: | 39.8 | | | | % Solids: | 40.9 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| M=OR EPA 3550B/8270C (7-3-01-004) | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | <MDL | 0.27 | 0.536 | ug/Kg | | <MDL | 0.25 | 0.503 | ug/Kg | | <MDL | 0.24 | 0.489 | ug/Kg |
| 1,2-Dichlorobenzene | | <MDL | 0.54 | 1.07 | ug/Kg | | <MDL | 0.5 | 1.01 | ug/Kg | | <MDL | 0.49 | 0.978 | ug/Kg |
| 1,3-Dichlorobenzene | | <MDL | 0.54 | 1.07 | ug/Kg | | <MDL | 0.5 | 1.01 | ug/Kg | | <MDL | 0.49 | 0.978 | ug/Kg |
| 1,4-Dichlorobenzene | | <MDL | 0.54 | 1.07 | ug/Kg | | <MDL | 0.5 | 1.01 | ug/Kg | | <MDL | 0.49 | 0.978 | ug/Kg |
| 2,4-Dimethylphenol | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| 2-Methylnaphthalene | | <MDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| 2-Methylphenol | | <MDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| 4-Methylphenol | | <MDL | 11 | 21.4 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg | | <MDL | 9.8 | 19.6 | ug/Kg |
| Acenaphthene | | <MDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| Acenaphthylene | | <MDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| Anthracene | 6.7 | <RDL | 5.4 | 10.7 | ug/Kg | 11.2 | | 5 | 10.1 | ug/Kg | 6.1 | <RDL | 4.9 | 9.78 | ug/Kg |
| Benzo(a)anthracene | 23.2 | | 5.4 | 10.7 | ug/Kg | 24.6 | | 5 | 10.1 | ug/Kg | 20.4 | | 4.9 | 9.78 | ug/Kg |
| Benzo(a)pyrene | 36.5 | | 5.4 | 10.7 | ug/Kg | 36.4 | | 5 | 10.1 | ug/Kg | 28.9 | | 4.9 | 9.78 | ug/Kg |
| Benzo(b)fluoranthene | 14.2 | | 5.4 | 10.7 | ug/Kg | 16.4 | | 5 | 10.1 | ug/Kg | 9 | <RDL | 4.9 | 9.78 | ug/Kg |
| Benzo(g,h,i)perylene | 18.9 | | 5.4 | 10.7 | ug/Kg | 19.3 | | 5 | 10.1 | ug/Kg | 12.3 | | 4.9 | 9.78 | ug/Kg |
| Benzo(k)fluoranthene | 30.3 | | 5.4 | 10.7 | ug/Kg | 24.6 | | 5 | 10.1 | ug/Kg | 24.7 | | 4.9 | 9.78 | ug/Kg |
| Benzoic Acid | 263 | | 27 | 53.6 | ug/Kg | 248 | | 25 | 50.3 | ug/Kg | 206 | | 24 | 48.9 | ug/Kg |
| Benzyl Alcohol | | <MDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| Benzyl Butyl Phthalate | | <MDL | 2.7 | 5.36 | ug/Kg | 55.3 | | 2.5 | 5.03 | ug/Kg | 55.7 | | 2.4 | 4.89 | ug/Kg |
| Bis(2-Ethylhexyl)Phthalate | 61.7 | B | 11 | 21.4 | ug/Kg | 63.1 | B | 10 | 20.1 | ug/Kg | 60.4 | B | 9.8 | 19.6 | ug/Kg |
| Caffeine | | <MDL | 11 | 21.4 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg | | <MDL | 9.8 | 19.6 | ug/Kg |
| Carbazole | | <MDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| Chrysene | 24 | | 5.4 | 10.7 | ug/Kg | 24.3 | | 5 | 10.1 | ug/Kg | 17.9 | | 4.9 | 9.78 | ug/Kg |
| Coprostanol | | <MDL | 110 | 214 | ug/Kg | | <MDL | 100 | 201 | ug/Kg | | <MDL | 98 | 196 | ug/Kg |
| Dibenzo(a,h)anthracene | 7.2 | <RDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| Dibenzofuran | | <MDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| Diethyl Phthalate | | <MDL | 11 | 21.4 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg | | <MDL | 9.8 | 19.6 | ug/Kg |
| Dimethyl Phthalate | | <MDL | 11 | 21.4 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg | | <MDL | 9.8 | 19.6 | ug/Kg |
| Di-N-Butyl Phthalate | 33.8 | B | 11 | 21.4 | ug/Kg | 29.1 | B | 10 | 20.1 | ug/Kg | 30.3 | B | 9.8 | 19.6 | ug/Kg |
| Di-N-Octyl Phthalate | 84.7 | B | 11 | 21.4 | ug/Kg | 73.6 | B | 10 | 20.1 | ug/Kg | | <MDL,B | 9.8 | 19.6 | ug/Kg |
| Fluoranthene | 38.1 | | 5.4 | 10.7 | ug/Kg | 45.5 | | 5 | 10.1 | ug/Kg | 37.9 | | 4.9 | 9.78 | ug/Kg |
| Fluorene | 5.9 | <RDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| Hexachlorobenzene | | <MDL | 0.27 | 0.536 | ug/Kg | | <MDL | 0.25 | 0.503 | ug/Kg | | <MDL | 0.24 | 0.489 | ug/Kg |
| Hexachlorobutadiene | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Hexachloroethane | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| Indeno(1,2,3-Cd)Pyrene | 17.4 | | 5.4 | 10.7 | ug/Kg | 17.6 | | 5 | 10.1 | ug/Kg | 11.9 | | 4.9 | 9.78 | ug/Kg |
| Naphthalene | | <MDL | 5.4 | 10.7 | ug/Kg | | <MDL | 5 | 10.1 | ug/Kg | | <MDL | 4.9 | 9.78 | ug/Kg |
| N-Nitrosodiphenylamine | | <MDL | 11 | 21.4 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg | | <MDL | 9.8 | 19.6 | ug/Kg |
| Pentachlorophenol | | <MDL | 27 | 53.6 | ug/Kg | | <MDL | 25 | 50.3 | ug/Kg | | <MDL | 24 | 48.9 | ug/Kg |
| Phenanthrene | 24.7 | | 5.4 | 10.7 | ug/Kg | 25.6 | | 5 | 10.1 | ug/Kg | 27.9 | | 4.9 | 9.78 | ug/Kg |
| Phenol | | <MDL | 11 | 21.4 | ug/Kg | | <MDL | 10 | 20.1 | ug/Kg | | <MDL | 9.8 | 19.6 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BW805N | | | | Locator: | BW402N | | | | Locator: | BW605P | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 9, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-1 | | | | Lab ID: | L44148-2 | | | | Lab ID: | L44148-3 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 37.3 | | | | % Solids: | 39.8 | | | | % Solids: | 40.9 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| Pyrene | 36.5 | | 5.4 | 10.7 | ug/Kg | 49.7 | | 5 | 10.1 | ug/Kg | 33.7 | | 4.9 | 9.78 | ug/Kg |
| Total 4-Nonylphenol | | <MDL | 13 | 26.8 | ug/Kg | | <MDL | 13 | 25.1 | ug/Kg | | <MDL | 12 | 24.4 | ug/Kg |
| Total HPAHS | 246 | | 5.4 | 10.7 | ug/Kg | 259 | | 5 | 10.1 | ug/Kg | 197 | | 4.9 | 9.78 | ug/Kg |
| Total LPAHs | 37.5 | | 5.4 | 10.7 | ug/Kg | 41.2 | | 5 | 10.1 | ug/Kg | 37.9 | | 4.9 | 9.78 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-03-002)** | | | | | | | | | | | | | | | |
| 4,4'-DDD | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| 4,4'-DDE | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| 4,4'-DDT | | <MDL,L | 2.7 | 5.36 | ug/Kg | | <MDL,L | 2.5 | 5.03 | ug/Kg | | <MDL,L | 2.4 | 4.89 | ug/Kg |
| Aldrin | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| Alpha-BHC | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Alpha-Chlordane | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Beta-BHC | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Delta-BHC | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Dieldrin | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| Endosulfan I | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| Endosulfan II | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| Endosulfan Sulfate | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| Endrin | | <MDL | 2.7 | 5.36 | ug/Kg | | <MDL | 2.5 | 5.03 | ug/Kg | | <MDL | 2.4 | 4.89 | ug/Kg |
| Endrin Aldehyde | | <MDL,X | 2.7 | 5.36 | ug/Kg | | <MDL,X | 2.5 | 5.03 | ug/Kg | | <MDL,X | 2.4 | 4.89 | ug/Kg |
| Gamma-BHC (Lindane) | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Gamma-Chlordane | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Heptachlor | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Heptachlor Epoxide | | <MDL | 1.3 | 2.68 | ug/Kg | | <MDL | 1.3 | 2.51 | ug/Kg | | <MDL | 1.2 | 2.44 | ug/Kg |
| Methoxychlor | | <MDL | 13 | 26.8 | ug/Kg | | <MDL | 13 | 25.1 | ug/Kg | | <MDL | 12 | 24.4 | ug/Kg |
| Toxaphene | | <MDL | 27 | 53.6 | ug/Kg | | <MDL | 25 | 50.3 | ug/Kg | | <MDL | 24 | 48.9 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-103-000)** | | | | | | | | | | | | | | | |
| Aroclor 1016 | | <MDL | 3.5 | 6.7 | ug/Kg | | <MDL | 3.3 | 6.28 | ug/Kg | | <MDL | 3.2 | 6.11 | ug/Kg |
| Aroclor 1221 | | <MDL | 6.7 | 13.4 | ug/Kg | | <MDL | 6.3 | 12.6 | ug/Kg | | <MDL | 6.1 | 12.2 | ug/Kg |
| Aroclor 1232 | | <MDL | 6.7 | 13.4 | ug/Kg | | <MDL | 6.3 | 12.6 | ug/Kg | | <MDL | 6.1 | 12.2 | ug/Kg |
| Aroclor 1242 | | <MDL | 3.5 | 6.7 | ug/Kg | | <MDL | 3.3 | 6.28 | ug/Kg | | <MDL | 3.2 | 6.11 | ug/Kg |
| Aroclor 1248 | | <MDL | 3.5 | 6.7 | ug/Kg | | <MDL | 3.3 | 6.28 | ug/Kg | | <MDL | 3.2 | 6.11 | ug/Kg |
| Aroclor 1254 | | <MDL | 3.5 | 6.7 | ug/Kg | 8.84 | | 3.3 | 6.28 | ug/Kg | | <MDL | 3.2 | 6.11 | ug/Kg |
| Aroclor 1260 | | <MDL | 3.5 | 6.7 | ug/Kg | | <MDL | 3.3 | 6.28 | ug/Kg | | <MDL | 3.2 | 6.11 | ug/Kg |
| **M=OR KRONE 1989 (07-03-026-000)** | | | | | | | | | | | | | | | |
| Di-n-Butyltin (as dibutyltin ion) | | <MDL,H | 9.4 | 18.8 | ug/Kg | | <MDL,H | 8.8 | 17.6 | ug/Kg | | <MDL,H | 8.6 | 17.1 | ug/Kg |
| Mono-n-Butyltin (as monobutyltin ion) | | <MDL,H | 46 | 90.3 | ug/Kg | | <MDL,H | 43 | 84.7 | ug/Kg | | <MDL,H | 42 | 82.4 | ug/Kg |
| Tetra-n-Butyltin (as tetrabutyltin) | | <MDL,H | 11 | 21.5 | ug/Kg | | <MDL,H | 10 | 20.1 | ug/Kg | | <MDL,H | 9.8 | 19.6 | ug/Kg |
| Tri-n-Butyltin (as tributyltin ion) | | <MDL,H | 5.6 | 11.1 | ug/Kg | | <MDL,H | 5.3 | 10.4 | ug/Kg | | <MDL,H | 5.1 | 10.1 | ug/Kg |
| **M=OR SW-846 8151A GC/MS MODIFIED** | | | | | | | | | | | | | | | |
| 2,4,5-T | | <MDL | 1.4 | 16.9 | ug/Kg | | <MDL | 1.3 | 15.8 | ug/Kg | | <MDL | 1.3 | 15.6 | ug/Kg |
| 2,4,5-TP (Silvex) | | <MDL | 5.1 | 16.9 | ug/Kg | | <MDL | 4.8 | 15.8 | ug/Kg | | <MDL | 4.6 | 15.6 | ug/Kg |
| 2,4-D | | <MDL | 2 | 16.9 | ug/Kg | | <MDL | 1.9 | 15.8 | ug/Kg | | <MDL | 1.8 | 15.6 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BW805N | | | | Locator: | BW402N | | | | Locator: | BW605P | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 9, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-1 | | | | Lab ID: | L44148-2 | | | | Lab ID: | L44148-3 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 37.3 | | | | % Solids: | 39.8 | | | | % Solids: | 40.9 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | | |
| 2,4-DB | | <MDL | 4 | 16.9 | ug/Kg | | <MDL | 3.8 | 15.8 | ug/Kg | | <MDL | 3.7 | 15.6 | ug/Kg |
| Dalapon | | <MDL | 12 | 42.9 | ug/Kg | | <MDL | 11 | 40.2 | ug/Kg | | <MDL | 11 | 39.1 | ug/Kg |
| Dicamba | | <MDL | 2.3 | 16.9 | ug/Kg | | <MDL | 2.2 | 15.8 | ug/Kg | | <MDL | 2.1 | 15.6 | ug/Kg |
| Dichloroprop | | <MDL | 3.8 | 16.9 | ug/Kg | | <MDL | 3.5 | 15.8 | ug/Kg | | <MDL | 3.4 | 15.6 | ug/Kg |
| Dinoseb | | <MDL | 5.9 | 42.9 | ug/Kg | | <MDL | 5.5 | 40.2 | ug/Kg | | <MDL | 5.4 | 39.1 | ug/Kg |
| MCPA | | <MDL | 2.2 | 16.9 | ug/Kg | | <MDL | 2.1 | 15.8 | ug/Kg | | <MDL | 2 | 15.6 | ug/Kg |
| MCPP | | <MDL | 2.6 | 16.9 | ug/Kg | | <MDL | 2.4 | 15.8 | ug/Kg | | <MDL | 2.3 | 15.6 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | Locator: | BW402S | | | | | Locator: | BW805S | | | | | Locator: | BWD805N | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | |
| | Sampled: | Oct 11, 2007 | | | | | Sampled: | Oct 9, 2007 | | | | | Sampled: | Oct 9, 2007 | | | | |
| | Lab ID: | L44148-4 | | | | | Lab ID: | L44148-5 | | | | | Lab ID: | L44148-6 | | | | |
| | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | |
| | % Solids: | 43 | | | | | % Solids: | 42.6 | | | | | % Solids: | 40.3 | | | | |
| | Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units | |
| | | | Dry Weight Basis | | | | | | Dry Weight Basis | | | | | | Dry Weight Basis | | | |
| **M=ES NONE** | | | | | | | | | | | | | | | | | | |
| Sampcoordx1 * | 1250976 | | | | ft | | 1251070 | | | | ft | | 1251163 | | | | ft | |
| Sampcoordx2 * | 1250976 | | | | ft | | 1251083 | | | | ft | | 1251163 | | | | ft | |
| Sampcoordx3 * | 1250972 | | | | ft | | 1251042 | | | | ft | | 1251101 | | | | ft | |
| Sampcoordx4 * | 1250972 | | | | ft | | 1251042 | | | | ft | | 1251101 | | | | ft | |
| Sampcoordy1 * | 287081 | | | | ft | | 286671 | | | | ft | | 288360 | | | | ft | |
| Sampcoordy2 * | 287081 | | | | ft | | 286683 | | | | ft | | 288360 | | | | ft | |
| Sampcoordy3 * | 287081 | | | | ft | | 286678 | | | | ft | | 288337 | | | | ft | |
| Sampcoordy4 * | 287081 | | | | ft | | 286678 | | | | ft | | 288337 | | | | ft | |
| Sample Depth * | 183 | | | | m | | 185 | | | | m | | 182 | | | | m | |
| Sediment Sampling Depth * | 15 | | | | cm | | 17 | | | | cm | | 17 | | | | cm | |
| Sediment Sampling Range * | 0-2 cm | | | | cm | | 0-2 cm | | | | cm | | 0-2 cm | | | | cm | |
| Tidal Condition | E | | | | none | | F | | | | none | | F | | | | none | |
| Tide Height * | 6 | | | | ft | | 3.5 | | | | ft | | 8 | | | | ft | |
| **M=CV ASTM D422(03-02-005-001)** | | | | | | | | | | | | | | | | | | |
| Fines * | 54.6 | | 0.5 | 1 | % | | 54.1 | | 0.5 | 1 | % | | 52.6 | | 0.5 | 1 | % | |
| Clay * | 21.8 | | 0.5 | 1 | % | | 18.8 | | 0.5 | 1 | % | | 18.7 | | 0.5 | 1 | % | |
| Silt * | 32.8 | | 0.5 | 1 | % | | 35.3 | | 0.5 | 1 | % | | 33.9 | | 0.5 | 1 | % | |
| Sand * | 36.5 | | 0.1 | 1 | % | | 37.3 | | 0.1 | 1 | % | | 38.2 | | 0.1 | 1 | % | |
| Gravel * | 0.2 | <RDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | |
| p-2.00(less than) * | 0.1 | <RDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | |
| p-2.00 * | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | |
| p-1.00 * | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | |
| p+0.00 * | 0.2 | <RDL | 0.1 | 1 | % | | 0.1 | <RDL | 0.1 | 1 | % | | | <MDL | 0.1 | 1 | % | |
| p+1.00 * | 0.4 | <RDL | 0.1 | 1 | % | | 0.3 | <RDL | 0.1 | 1 | % | | 0.4 | <RDL | 0.1 | 1 | % | |
| p+2.00 * | 4.2 | | 0.1 | 1 | % | | 2.7 | | 0.1 | 1 | % | | 2.5 | | 0.1 | 1 | % | |
| p+3.00 * | 2.2 | | 0.1 | 1 | % | | 7.2 | | 0.1 | 1 | % | | 6.7 | | 0.1 | 1 | % | |
| p+4.00 * | 29.5 | | 0.1 | 1 | % | | 26.9 | | 0.1 | 1 | % | | 28.5 | | 0.1 | 1 | % | |
| p+5.00 * | 10.9 | | 0.5 | 1 | % | | 16.5 | | 0.5 | 1 | % | | 15.2 | | 0.5 | 1 | % | |
| p+6.00 * | 8.5 | | 0.5 | 1 | % | | 8.8 | | 0.5 | 1 | % | | 7 | | 0.5 | 1 | % | |
| p+7.00 * | 7.3 | | 0.5 | 1 | % | | 5.5 | | 0.5 | 1 | % | | 5.8 | | 0.5 | 1 | % | |
| p+8.00 * | 6.1 | | 0.5 | 1 | % | | 4.4 | | 0.5 | 1 | % | | 5.8 | | 0.5 | 1 | % | |
| p+9.00 * | 6.1 | | 0.5 | 1 | % | | 5.5 | | 0.5 | 1 | % | | 4.7 | | 0.5 | 1 | % | |
| p+10.0(equal/more than) * | 15.8 | | 0.5 | 1 | % | | 13.2 | | 0.5 | 1 | % | | 14 | | 0.5 | 1 | % | |
| **M=CV EPA 9030B (03-03-015-000)** | | | | | | | | | | | | | | | | | | |
| Total Sulfide | 57 | G | 5.8 | 23.3 | mg/Kg | | 38 | G | 2.3 | 9.39 | mg/Kg | | 84.1 | G | 6.2 | 24.8 | mg/Kg | |
| **M=CV EPA 9060-PSEP96(03-04-002-003)** | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | 13400 | | 1900 | 3840 | mg/Kg | | 13800 | | 1900 | 3870 | mg/Kg | | 14000 | | 1900 | 3900 | mg/Kg | |
| **M=CV SM2540-G (03-01-007-002)** | | | | | | | | | | | | | | | | | | |
| Total Solids * | 43 | | 0.005 | 0.01 | % | | 42.6 | | 0.005 | 0.01 | % | | 40.3 | | 0.005 | 0.01 | % | |
| **M=CV SM4500-NH3-G(03-03-014-001)KCL** | | | | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | 9.84 | | 1.2 | 2.31 | mg/Kg | | 8.8 | | 0.23 | 0.455 | mg/Kg | | 12.5 | | 1.2 | 2.4 | mg/Kg | |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | Locator: | BW402S | | | | Locator: | BW805S | | | | Locator: | BWD805N | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-4 | | | | Lab ID: | L44148-5 | | | | Lab ID: | L44148-6 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 43 | | | | % Solids: | 42.6 | | | | % Solids: | 40.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| **M=MT EPA 7471A (06-01-004-003)** | | | | | | | | | | | | | | | |
| Mercury, Total, CVAA | 0.088 | <RDL | 0.012 | 0.117 | mg/Kg | 0.075 | <RDL | 0.012 | 0.118 | mg/Kg | 0.089 | <RDL | 0.013 | 0.126 | mg/Kg |
| **M=MT EPA3050B/6010B MOD(6-2-04-02)** | | | | | | | | | | | | | | | |
| Aluminum, Total, ICP | 15400 | | 12 | 58.4 | mg/Kg | 14900 | | 12 | 58.7 | mg/Kg | 15300 | | 13 | 63.3 | mg/Kg |
| Antimony, Total, ICP | | <MDL,G | 1.7 | 8.74 | mg/Kg | | <MDL,G | 1.8 | 8.78 | mg/Kg | | <MDL,G | 1.9 | 9.48 | mg/Kg |
| Arsenic, Total, ICP | 6.7 | <RDL | 3 | 14.6 | mg/Kg | 8.2 | <RDL | 2.8 | 14.6 | mg/Kg | 7.2 | <RDL | 3.2 | 15.8 | mg/Kg |
| Beryllium, Total, ICP | 0.4 | <RDL | 0.12 | 0.584 | mg/Kg | 0.38 | <RDL | 0.12 | 0.587 | mg/Kg | 0.4 | <RDL | 0.13 | 0.633 | mg/Kg |
| Cadmium, Total, ICP | 0.51 | <RDL | 0.23 | 1.17 | mg/Kg | 0.49 | <RDL | 0.23 | 1.17 | mg/Kg | 0.52 | <RDL | 0.25 | 1.27 | mg/Kg |
| Chromium, Total, ICP | 35.1 | | 0.35 | 1.75 | mg/Kg | 34.5 | | 0.35 | 1.76 | mg/Kg | 35.5 | | 0.37 | 1.9 | mg/Kg |
| Copper, Total, ICP | 26.5 | | 0.47 | 2.33 | mg/Kg | 26.1 | | 0.47 | 2.34 | mg/Kg | 27 | | 0.5 | 2.53 | mg/Kg |
| Iron, Total, ICP | 27400 | | 5.8 | 29.1 | mg/Kg | 27000 | | 5.9 | 29.3 | mg/Kg | 27800 | | 6.2 | 31.5 | mg/Kg |
| Lead, Total, ICP | 14.9 | | 2.3 | 11.7 | mg/Kg | 14.1 | | 2.3 | 11.7 | mg/Kg | 14.8 | | 2.5 | 12.7 | mg/Kg |
| Nickel, Total, ICP | 32.6 | | 0.58 | 2.91 | mg/Kg | 31.7 | | 0.59 | 2.93 | mg/Kg | 33.7 | | 0.62 | 3.15 | mg/Kg |
| Selenium, Total, ICP | | <MDL | 3 | 14.6 | mg/Kg | | <MDL | 2.8 | 14.6 | mg/Kg | | <MDL | 3.2 | 15.8 | mg/Kg |
| Silver, Total, ICP | 1.2 | <RDL | 0.47 | 2.33 | mg/Kg | 1.1 | <RDL | 0.47 | 2.34 | mg/Kg | 1.1 | <RDL | 0.5 | 2.53 | mg/Kg |
| Thallium, Total, ICP | | <MDL | 4.7 | 23.3 | mg/Kg | | <MDL | 4.7 | 23.4 | mg/Kg | | <MDL | 5 | 25.3 | mg/Kg |
| Zinc, Total, ICP | 83 | | 0.58 | 2.91 | mg/Kg | 81 | | 0.59 | 2.93 | mg/Kg | 83.4 | | 0.62 | 3.15 | mg/Kg |
| **M=OR EPA 3540C/8270C (7-3-04-001)** | | | | | | | | | | | | | | | |
| Chlorpyrifos | | <MDL | 120 | 249 | ug/Kg | | <MDL | 120 | 251 | ug/Kg | | <MDL | 130 | 266 | ug/Kg |
| Diazinon | | <MDL | 74 | 124 | ug/Kg | | <MDL | 75 | 125 | ug/Kg | | <MDL | 79 | 132 | ug/Kg |
| Disulfoton | | <MDL | 74 | 124 | ug/Kg | | <MDL | 75 | 125 | ug/Kg | | <MDL | 79 | 132 | ug/Kg |
| Malathion | | <MDL | 200 | 372 | ug/Kg | | <MDL | 200 | 376 | ug/Kg | | <MDL | 210 | 397 | ug/Kg |
| Parathion-Ethyl | | <MDL | 200 | 372 | ug/Kg | | <MDL | 200 | 376 | ug/Kg | | <MDL | 210 | 397 | ug/Kg |
| Parathion-Methyl | | <MDL | 200 | 372 | ug/Kg | | <MDL | 200 | 376 | ug/Kg | | <MDL | 210 | 397 | ug/Kg |
| Phorate | | <MDL | 120 | 249 | ug/Kg | | <MDL | 120 | 251 | ug/Kg | | <MDL | 130 | 266 | ug/Kg |
| **M=OR EPA 3550B (7-3-025-000)** | | | | | | | | | | | | | | | |
| DecaBDE-209 | 1.34 | E,TA | 0.23 | 0.465 | ug/Kg | 0.791 | E,TA | 0.23 | 0.469 | ug/Kg | 0.685 | E,TA | 0.25 | 0.496 | ug/Kg |
| HeptaBDE-183 | | <MDL | 0.047 | 0.093 | ug/Kg | | <MDL | 0.047 | 0.0939 | ug/Kg | | <MDL | 0.05 | 0.0993 | ug/Kg |
| HeptaBDE-190 | 0.053 | <RDL | 0.047 | 0.093 | ug/Kg | | <MDL | 0.047 | 0.0939 | ug/Kg | | <MDL | 0.05 | 0.0993 | ug/Kg |
| HexaBDE-138 | 0.074 | <RDL,TA | 0.047 | 0.093 | ug/Kg | | <MDL,TA | 0.047 | 0.0939 | ug/Kg | | <MDL,TA | 0.05 | 0.0993 | ug/Kg |
| HexaBDE-153 | 0.398 | | 0.047 | 0.093 | ug/Kg | | <MDL | 0.047 | 0.0939 | ug/Kg | | <MDL | 0.05 | 0.0993 | ug/Kg |
| HexaBDE-154 | 0.342 | | 0.047 | 0.093 | ug/Kg | | <MDL | 0.047 | 0.0939 | ug/Kg | | <MDL | 0.05 | 0.0993 | ug/Kg |
| PentaBDE-100 | 0.616 | | 0.047 | 0.093 | ug/Kg | 0.061 | <RDL | 0.047 | 0.0939 | ug/Kg | | <MDL | 0.05 | 0.0993 | ug/Kg |
| PentaBDE-85 | 0.205 | | 0.047 | 0.093 | ug/Kg | | <MDL | 0.047 | 0.0939 | ug/Kg | | <MDL | 0.05 | 0.0993 | ug/Kg |
| PentaBDE-99 | 3.05 | | 0.047 | 0.093 | ug/Kg | 0.16 | | 0.047 | 0.0939 | ug/Kg | 0.108 | | 0.05 | 0.0993 | ug/Kg |
| TetraBDE-47 | 2.05 | E,TA | 0.047 | 0.093 | ug/Kg | 0.418 | E,TA | 0.047 | 0.0939 | ug/Kg | 0.308 | E,TA | 0.05 | 0.0993 | ug/Kg |
| TetraBDE-71 | 0.0974 | TA | 0.047 | 0.093 | ug/Kg | | <MDL,TA | 0.047 | 0.0939 | ug/Kg | | <MDL,TA | 0.05 | 0.0993 | ug/Kg |
| TriBDE-17 | | <MDL | 0.047 | 0.093 | ug/Kg | 0.0967 | | 0.047 | 0.0939 | ug/Kg | | <MDL | 0.05 | 0.0993 | ug/Kg |
| TriBDE-28 | | <MDL,TA | 0.047 | 0.093 | ug/Kg | | <MDL,TA | 0.047 | 0.0939 | ug/Kg | | <MDL,TA | 0.05 | 0.0993 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BW402S | | | | Locator: | BW805S | | | | Locator: | BWD805N | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-4 | | | | Lab ID: | L44148-5 | | | | Lab ID: | L44148-6 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 43 | | | | % Solids: | 42.6 | | | | % Solids: | 40.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| M=OR EPA 3550B/8270C (7-3-01-004) | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | <MDL | 0.23 | 0.465 | ug/Kg | | <MDL | 0.23 | 0.469 | ug/Kg | | <MDL | 0.25 | 0.496 | ug/Kg |
| 1,2-Dichlorobenzene | | <MDL | 0.47 | 0.93 | ug/Kg | | <MDL | 0.47 | 0.939 | ug/Kg | | <MDL | 0.5 | 0.993 | ug/Kg |
| 1,3-Dichlorobenzene | | <MDL | 0.47 | 0.93 | ug/Kg | | <MDL | 0.47 | 0.939 | ug/Kg | | <MDL | 0.5 | 0.993 | ug/Kg |
| 1,4-Dichlorobenzene | | <MDL | 0.47 | 0.93 | ug/Kg | | <MDL | 0.47 | 0.939 | ug/Kg | | <MDL | 0.5 | 0.993 | ug/Kg |
| 2,4-Dimethylphenol | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| 2-Methylnaphthalene | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| 2-Methylphenol | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| 4-Methylphenol | | <MDL | 9.3 | 18.6 | ug/Kg | | <MDL | 9.4 | 18.8 | ug/Kg | | <MDL | 9.9 | 19.9 | ug/Kg |
| Acenaphthene | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| Acenaphthylene | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| Anthracene | 6.7 | <RDL | 4.7 | 9.3 | ug/Kg | 6.3 | <RDL | 4.7 | 9.39 | ug/Kg | 12.6 | | 5 | 9.93 | ug/Kg |
| Benzo(a)anthracene | 19.8 | | 4.7 | 9.3 | ug/Kg | 21.2 | | 4.7 | 9.39 | ug/Kg | 28.3 | | 5 | 9.93 | ug/Kg |
| Benzo(a)pyrene | 27.9 | | 4.7 | 9.3 | ug/Kg | 30.8 | | 4.7 | 9.39 | ug/Kg | 38 | | 5 | 9.93 | ug/Kg |
| Benzo(b)fluoranthene | 8.1 | <RDL | 4.7 | 9.3 | ug/Kg | 10.2 | | 4.7 | 9.39 | ug/Kg | 15 | | 5 | 9.93 | ug/Kg |
| Benzo(g,h,i)perylene | 15.4 | | 4.7 | 9.3 | ug/Kg | 16.3 | | 4.7 | 9.39 | ug/Kg | 15.1 | | 5 | 9.93 | ug/Kg |
| Benzo(k)fluoranthene | 25.8 | | 4.7 | 9.3 | ug/Kg | 26.8 | | 4.7 | 9.39 | ug/Kg | 28 | | 5 | 9.93 | ug/Kg |
| Benzoic Acid | 231 | | 23 | 46.5 | ug/Kg | 251 | | 23 | 46.9 | ug/Kg | 201 | | 25 | 49.6 | ug/Kg |
| Benzyl Alcohol | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| Benzyl Butyl Phthalate | 51.9 | | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| Bis(2-Ethylhexyl)Phthalate | 54 | B | 9.3 | 18.6 | ug/Kg | 58 | B | 9.4 | 18.8 | ug/Kg | 66.5 | B | 9.9 | 19.9 | ug/Kg |
| Caffeine | | <MDL | 9.3 | 18.6 | ug/Kg | | <MDL | 9.4 | 18.8 | ug/Kg | | <MDL | 9.9 | 19.9 | ug/Kg |
| Carbazole | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| Chrysene | 20.6 | | 4.7 | 9.3 | ug/Kg | 22.7 | | 4.7 | 9.39 | ug/Kg | 40 | | 5 | 9.93 | ug/Kg |
| Coprostanol | | <MDL | 93 | 186 | ug/Kg | | <MDL | 94 | 188 | ug/Kg | | <MDL | 99 | 199 | ug/Kg |
| Dibenzo(a,h)anthracene | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| Dibenzofuran | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| Diethyl Phthalate | | <MDL | 9.3 | 18.6 | ug/Kg | | <MDL | 9.4 | 18.8 | ug/Kg | | <MDL | 9.9 | 19.9 | ug/Kg |
| Dimethyl Phthalate | | <MDL | 9.3 | 18.6 | ug/Kg | | <MDL | 9.4 | 18.8 | ug/Kg | | <MDL | 9.9 | 19.9 | ug/Kg |
| Di-N-Butyl Phthalate | 28.6 | B | 9.3 | 18.6 | ug/Kg | 29.3 | B | 9.4 | 18.8 | ug/Kg | 31.8 | B | 9.9 | 19.9 | ug/Kg |
| Di-N-Octyl Phthalate | 61.6 | B | 9.3 | 18.6 | ug/Kg | 69 | B | 9.4 | 18.8 | ug/Kg | 77.9 | B | 9.9 | 19.9 | ug/Kg |
| Fluoranthene | 36 | | 4.7 | 9.3 | ug/Kg | 39.7 | | 4.7 | 9.39 | ug/Kg | 54.3 | | 5 | 9.93 | ug/Kg |
| Fluorene | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| Hexachlorobenzene | | <MDL | 0.23 | 0.465 | ug/Kg | | <MDL | 0.23 | 0.469 | ug/Kg | | <MDL | 0.25 | 0.496 | ug/Kg |
| Hexachlorobutadiene | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Hexachloroethane | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| Indeno(1,2,3-Cd)Pyrene | 13.3 | | 4.7 | 9.3 | ug/Kg | 14 | | 4.7 | 9.39 | ug/Kg | 15.5 | | 5 | 9.93 | ug/Kg |
| Naphthalene | | <MDL | 4.7 | 9.3 | ug/Kg | | <MDL | 4.7 | 9.39 | ug/Kg | | <MDL | 5 | 9.93 | ug/Kg |
| N-Nitrosodiphenylamine | | <MDL | 9.3 | 18.6 | ug/Kg | | <MDL | 9.4 | 18.8 | ug/Kg | | <MDL | 9.9 | 19.9 | ug/Kg |
| Pentachlorophenol | | <MDL | 23 | 46.5 | ug/Kg | | <MDL | 23 | 46.9 | ug/Kg | | <MDL | 25 | 49.6 | ug/Kg |
| Phenanthrene | 22.1 | | 4.7 | 9.3 | ug/Kg | 26.1 | | 4.7 | 9.39 | ug/Kg | 37 | | 5 | 9.93 | ug/Kg |
| Phenol | | <MDL | 9.3 | 18.6 | ug/Kg | | <MDL | 9.4 | 18.8 | ug/Kg | | <MDL | 9.9 | 19.9 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BW402S | | | | Locator: | BW805S | | | | Locator: | BWD805N | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-4 | | | | Lab ID: | L44148-5 | | | | Lab ID: | L44148-6 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 43 | | | | % Solids: | 42.6 | | | | % Solids: | 40.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| Pyrene | 35.6 | | 4.7 | 9.3 | ug/Kg | 38.5 | | 4.7 | 9.39 | ug/Kg | 60.3 | | 5 | 9.93 | ug/Kg |
| Total 4-Nonylphenol | | <MDL | 12 | 23.3 | ug/Kg | | <MDL | 12 | 23.5 | ug/Kg | | <MDL | 12 | 24.8 | ug/Kg |
| Total HPAHS | 203 | | 4.7 | 9.3 | ug/Kg | 220 | | 4.7 | 9.39 | ug/Kg | 295 | | 5 | 9.93 | ug/Kg |
| Total LPAHs | 31.6 | | 4.7 | 9.3 | ug/Kg | 32.4 | | 4.7 | 9.39 | ug/Kg | 49.6 | | 5 | 9.93 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-03-002)** | | | | | | | | | | | | | | | |
| 4,4'-DDD | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| 4,4'-DDE | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| 4,4'-DDT | | <MDL,L | 2.3 | 4.65 | ug/Kg | | <MDL,L | 2.3 | 4.69 | ug/Kg | | <MDL,L | 2.5 | 4.96 | ug/Kg |
| Aldrin | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| Alpha-BHC | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Alpha-Chlordane | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Beta-BHC | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Delta-BHC | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Dieldrin | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| Endosulfan I | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| Endosulfan II | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| Endosulfan Sulfate | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| Endrin | | <MDL | 2.3 | 4.65 | ug/Kg | | <MDL | 2.3 | 4.69 | ug/Kg | | <MDL | 2.5 | 4.96 | ug/Kg |
| Endrin Aldehyde | | <MDL,X | 2.3 | 4.65 | ug/Kg | | <MDL,X | 2.3 | 4.69 | ug/Kg | | <MDL,X | 2.5 | 4.96 | ug/Kg |
| Gamma-BHC (Lindane) | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Gamma-Chlordane | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Heptachlor | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Heptachlor Epoxide | | <MDL | 1.2 | 2.33 | ug/Kg | | <MDL | 1.2 | 2.35 | ug/Kg | | <MDL | 1.2 | 2.48 | ug/Kg |
| Methoxychlor | | <MDL | 12 | 23.3 | ug/Kg | | <MDL | 12 | 23.5 | ug/Kg | | <MDL | 12 | 24.8 | ug/Kg |
| Toxaphene | | <MDL | 23 | 46.5 | ug/Kg | | <MDL | 23 | 46.9 | ug/Kg | | <MDL | 25 | 49.6 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-103-000)** | | | | | | | | | | | | | | | |
| Aroclor 1016 | | <MDL | 3 | 5.81 | ug/Kg | | <MDL | 3.1 | 5.87 | ug/Kg | | <MDL | 3.2 | 6.2 | ug/Kg |
| Aroclor 1221 | | <MDL | 5.8 | 11.6 | ug/Kg | | <MDL | 5.9 | 11.7 | ug/Kg | | <MDL | 6.2 | 12.4 | ug/Kg |
| Aroclor 1232 | | <MDL | 5.8 | 11.6 | ug/Kg | | <MDL | 5.9 | 11.7 | ug/Kg | | <MDL | 6.2 | 12.4 | ug/Kg |
| Aroclor 1242 | | <MDL | 3 | 5.81 | ug/Kg | | <MDL | 3.1 | 5.87 | ug/Kg | | <MDL | 3.2 | 6.2 | ug/Kg |
| Aroclor 1248 | | <MDL | 3 | 5.81 | ug/Kg | | <MDL | 3.1 | 5.87 | ug/Kg | | <MDL | 3.2 | 6.2 | ug/Kg |
| Aroclor 1254 | 5.1 | <RDL | 3 | 5.81 | ug/Kg | 5.2 | <RDL | 3.1 | 5.87 | ug/Kg | 5 | <RDL | 3.2 | 6.2 | ug/Kg |
| Aroclor 1260 | | <MDL | 3 | 5.81 | ug/Kg | | <MDL | 3.1 | 5.87 | ug/Kg | | <MDL | 3.2 | 6.2 | ug/Kg |
| **M=OR KRONE 1989 (07-03-026-000)** | | | | | | | | | | | | | | | |
| Di-n-Butyltin (as dibutyltin ion) | | <MDL,H | 8.1 | 16.3 | ug/Kg | | <MDL,H | 8.2 | 16.4 | ug/Kg | | <MDL,H | 8.7 | 17.4 | ug/Kg |
| Mono-n-Butyltin (as monobutyltin ion) | | <MDL,H | 40 | 78.4 | ug/Kg | | <MDL,H | 40 | 79.1 | ug/Kg | | <MDL,H | 42 | 83.6 | ug/Kg |
| Tetra-n-Butyltin (as tetrabutyltin) | | <MDL,H | 9.3 | 18.6 | ug/Kg | | <MDL,H | 9.4 | 18.8 | ug/Kg | | <MDL,H | 9.9 | 19.9 | ug/Kg |
| Tri-n-Butyltin (as tributyltin ion) | | <MDL,H | 4.9 | 9.65 | ug/Kg | | <MDL,H | 4.9 | 9.74 | ug/Kg | | <MDL,H | 5.2 | 10.3 | ug/Kg |
| **M=OR SW-846 8151A GC/MS MODIFIED** | | | | | | | | | | | | | | | |
| 2,4,5-T | | <MDL | 1.2 | 14.9 | ug/Kg | | <MDL | 1.2 | 14.6 | ug/Kg | | <MDL | 1.3 | 15.9 | ug/Kg |
| 2,4,5-TP (Silvex) | | <MDL | 4.7 | 14.9 | ug/Kg | | <MDL | 4.5 | 14.6 | ug/Kg | | <MDL | 5 | 15.9 | ug/Kg |
| 2,4-D | | <MDL | 1.7 | 14.9 | ug/Kg | | <MDL | 1.7 | 14.6 | ug/Kg | | <MDL | 1.9 | 15.9 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BW402S | | | | | Locator: | BW805S | | | | | Locator: | BWD805N | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | |
| Sampled: | Oct 11, 2007 | | | | | Sampled: | Oct 9, 2007 | | | | | Sampled: | Oct 9, 2007 | | |
| Lab ID: | L44148-4 | | | | | Lab ID: | L44148-5 | | | | | Lab ID: | L44148-6 | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | |
| % Solids: | 43 | | | | | % Solids: | 42.6 | | | | | % Solids: | 40.3 | | |
| Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units |
| | | Dry Weight Basis | | | | | | Dry Weight Basis | | | | | | Dry Weight Basis | | |
| 2,4-DB | | <MDL | 3.5 | 14.9 | ug/Kg | | | <MDL | 3.5 | 14.6 | ug/Kg | | | <MDL | 3.7 | 15.9 | ug/Kg |
| Dalapon | | <MDL | 10 | 37.2 | ug/Kg | | | <MDL | 10 | 37.6 | ug/Kg | | | <MDL | 11 | 39.7 | ug/Kg |
| Dicamba | | <MDL | 2 | 14.9 | ug/Kg | | | <MDL | 2 | 14.6 | ug/Kg | | | <MDL | 2.2 | 15.9 | ug/Kg |
| Dichloroprop | | <MDL | 3.3 | 14.9 | ug/Kg | | | <MDL | 3.3 | 14.6 | ug/Kg | | | <MDL | 3.5 | 15.9 | ug/Kg |
| Dinoseb | | <MDL | 5.1 | 37.2 | ug/Kg | | | <MDL | 4.9 | 37.6 | ug/Kg | | | <MDL | 5.5 | 39.7 | ug/Kg |
| MCPA | | <MDL | 1.9 | 14.9 | ug/Kg | | | <MDL | 1.9 | 14.6 | ug/Kg | | | <MDL | 2.1 | 15.9 | ug/Kg |
| MCPP | | <MDL | 2.3 | 14.9 | ug/Kg | | | <MDL | 2.2 | 14.6 | ug/Kg | | | <MDL | 2.4 | 15.9 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | Locator: | BWD402N | | | | Locator: | BW605D | | | | Locator: | BWD402S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | |
| | Lab ID: | L44148-7 | | | | Lab ID: | L44148-8 | | | | Lab ID: | L44148-9 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 40.1 | | | | % Solids: | 42 | | | | % Solids: | 45.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| **M=ES NONE** | | | | | | | | | | | | | | | |
| Sampcoordx1 * | 1251207 | | | | ft | 1251267 | | | | ft | 1251334 | | | | ft |
| Sampcoordx2 * | 1251207 | | | | ft | 1251267 | | | | ft | 1251334 | | | | ft |
| Sampcoordx3 * | 1251207 | | | | ft | 1251271 | | | | ft | 1251334 | | | | ft |
| Sampcoordx4 * | 1251207 | | | | ft | 1251271 | | | | ft | 1251334 | | | | ft |
| Sampcoordy1 * | 287946 | | | | ft | 287476 | | | | ft | 287128 | | | | ft |
| Sampcoordy2 * | 287946 | | | | ft | 287476 | | | | ft | 287128 | | | | ft |
| Sampcoordy3 * | 287915 | | | | ft | 287470 | | | | ft | 287134 | | | | ft |
| Sampcoordy4 * | 287915 | | | | ft | 287470 | | | | ft | 287134 | | | | ft |
| Sample Depth * | 181 | | | | m | 181 | | | | m | 183 | | | | m |
| Sediment Sampling Depth * | 17 | | | | cm | 14 | | | | cm | 13 | | | | cm |
| Sediment Sampling Range * | 0-2 cm | | | | cm | 0-2 cm | | | | cm | 0-2 cm | | | | cm |
| Tidal Condition | F | | | | none | S | | | | none | E | | | | none |
| Tide Height * | 5 | | | | ft | 4.4 | | | | ft | 5 | | | | ft |
| **M=CV ASTM D422(03-02-005-001)** | | | | | | | | | | | | | | | |
| Fines * | 54.7 | | 0.5 | 1 | % | 55.1 | | 0.5 | 1 | % | 58.6 | | 0.5 | 1 | % |
| Clay * | 19.5 | | 0.5 | 1 | % | 17.7 | | 0.5 | 1 | % | 20.3 | | 0.5 | 1 | % |
| Silt * | 35.3 | | 0.5 | 1 | % | 37.5 | | 0.5 | 1 | % | 38.4 | | 0.5 | 1 | % |
| Sand * | 35.8 | | 0.1 | 1 | % | 33.9 | | 0.1 | 1 | % | 31.3 | | 0.1 | 1 | % |
| Gravel * | 0.2 | <RDL | 0.1 | 1 | % | 1.3 | | 0.1 | 1 | % | 1.1 | | 0.1 | 1 | % |
| p-2.00(less than) * | 0.1 | <RDL | 0.1 | 1 | % | 0.6 | <RDL | 0.1 | 1 | % | 0.5 | <RDL | 0.1 | 1 | % |
| p-2.00 * | | <MDL | 0.1 | 1 | % | 0.4 | <RDL | 0.1 | 1 | % | 0.3 | <RDL | 0.1 | 1 | % |
| p-1.00 * | | <MDL | 0.1 | 1 | % | 0.4 | <RDL | 0.1 | 1 | % | 0.4 | <RDL | 0.1 | 1 | % |
| p+0.00 * | | <MDL | 0.1 | 1 | % | 0.5 | <RDL | 0.1 | 1 | % | 0.6 | <RDL | 0.1 | 1 | % |
| p+1.00 * | 0.3 | <RDL | 0.1 | 1 | % | 0.5 | <RDL | 0.1 | 1 | % | 0.9 | <RDL | 0.1 | 1 | % |
| p+2.00 * | 2.4 | | 0.1 | 1 | % | 1.9 | | 0.1 | 1 | % | 2.4 | | 0.1 | 1 | % |
| p+3.00 * | 6 | | 0.1 | 1 | % | 5.2 | | 0.1 | 1 | % | 4.9 | | 0.1 | 1 | % |
| p+4.00 * | 27.1 | | 0.1 | 1 | % | 25.8 | | 0.1 | 1 | % | 22.6 | | 0.1 | 1 | % |
| p+5.00 * | 20.7 | | 0.5 | 1 | % | 20.8 | | 0.5 | 1 | % | 18.1 | | 0.5 | 1 | % |
| p+6.00 * | 6.1 | | 0.5 | 1 | % | 4.2 | | 0.5 | 1 | % | 7.5 | | 0.5 | 1 | % |
| p+7.00 * | 3.7 | | 0.5 | 1 | % | 9.4 | | 0.5 | 1 | % | 6.4 | | 0.5 | 1 | % |
| p+8.00 * | 4.9 | | 0.5 | 1 | % | 3.1 | | 0.5 | 1 | % | 6.4 | | 0.5 | 1 | % |
| p+9.00 * | 6.1 | | 0.5 | 1 | % | 5.2 | | 0.5 | 1 | % | 6.4 | | 0.5 | 1 | % |
| p+10.0(equal/more than) * | 13.4 | | 0.5 | 1 | % | 12.5 | | 0.5 | 1 | % | 13.9 | | 0.5 | 1 | % |
| **M=CV EPA 9030B (03-03-015-000)** | | | | | | | | | | | | | | | |
| Total Sulfide | 32.4 | G | 1.2 | 4.99 | mg/Kg | 288 | G | 12 | 47.6 | mg/Kg | 426 | G | 22 | 88.3 | mg/Kg |
| **M=CV EPA 9060-PSEP96(03-04-002-003)** | | | | | | | | | | | | | | | |
| Total Organic Carbon | 14000 | | 1800 | 3570 | mg/Kg | 13700 | | 1800 | 3690 | mg/Kg | 13900 | | 2000 | 3970 | mg/Kg |
| **M=CV SM2540-G (03-01-007-002)** | | | | | | | | | | | | | | | |
| Total Solids * | 40.1 | | 0.005 | 0.01 | % | 42 | | 0.005 | 0.01 | % | 45.3 | | 0.005 | 0.01 | % |
| **M=CV SM4500-NH3-G(03-03-014-001)KCL** | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | 10.5 | | 1.2 | 2.49 | mg/Kg | 9 | | 1.2 | 2.34 | mg/Kg | 7.68 | | 0.21 | 0.419 | mg/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | Locator: | BWD402N | | | | Locator: | BW605D | | | | Locator: | BWD402S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | |
| | Lab ID: | L44148-7 | | | | Lab ID: | L44148-8 | | | | Lab ID: | L44148-9 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 40.1 | | | | % Solids: | 42 | | | | % Solids: | 45.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| **M=MT EPA 7471A (06-01-004-003)** | | | | | | | | | | | | | | | |
| Mercury, Total, CVAA | 0.075 | <RDL | 0.013 | 0.126 | mg/Kg | 0.076 | <RDL | 0.012 | 0.116 | mg/Kg | 0.073 | <RDL | 0.011 | 0.109 | mg/Kg |
| **M=MT EPA3050B/6010B MOD(6-2-04-02)** | | | | | | | | | | | | | | | |
| Aluminum, Total, ICP | 14400 | | 13 | 63.1 | mg/Kg | 15000 | | 12 | 60 | mg/Kg | 15200 | | 11 | 55 | mg/Kg |
| Antimony, Total, ICP | | <MDL,G | 1.9 | 9.45 | mg/Kg | | <MDL,G | 1.8 | 9 | mg/Kg | | <MDL,G | 1.7 | 8.23 | mg/Kg |
| Arsenic, Total, ICP | 6.7 | <RDL | 3.2 | 15.8 | mg/Kg | 7.4 | <RDL | 3.1 | 15 | mg/Kg | 7.9 | <RDL | 2.6 | 13.7 | mg/Kg |
| Beryllium, Total, ICP | 0.37 | <RDL | 0.13 | 0.631 | mg/Kg | 0.38 | <RDL | 0.12 | 0.6 | mg/Kg | 0.4 | <RDL | 0.11 | 0.55 | mg/Kg |
| Cadmium, Total, ICP | 0.47 | <RDL | 0.25 | 1.26 | mg/Kg | 0.48 | <RDL | 0.24 | 1.2 | mg/Kg | 0.49 | <RDL | 0.22 | 1.1 | mg/Kg |
| Chromium, Total, ICP | 33.7 | | 0.37 | 1.89 | mg/Kg | 35 | | 0.36 | 1.8 | mg/Kg | 35.5 | | 0.33 | 1.65 | mg/Kg |
| Copper, Total, ICP | 26.2 | | 0.5 | 2.52 | mg/Kg | 26 | | 0.48 | 2.4 | mg/Kg | 27.6 | | 0.44 | 2.19 | mg/Kg |
| Iron, Total, ICP | 26400 | | 6.2 | 31.4 | mg/Kg | 26900 | | 6 | 30 | mg/Kg | 27200 | | 5.5 | 27.4 | mg/Kg |
| Lead, Total, ICP | 13.7 | | 2.5 | 12.6 | mg/Kg | 14.2 | | 2.4 | 12 | mg/Kg | 14.4 | | 2.2 | 11 | mg/Kg |
| Nickel, Total, ICP | 31.7 | | 0.62 | 3.14 | mg/Kg | 33.1 | | 0.6 | 3 | mg/Kg | 33.1 | | 0.55 | 2.74 | mg/Kg |
| Selenium, Total, ICP | | <MDL | 3.2 | 15.8 | mg/Kg | | <MDL | 3.1 | 15 | mg/Kg | | <MDL | 2.6 | 13.7 | mg/Kg |
| Silver, Total, ICP | 0.92 | <RDL | 0.5 | 2.52 | mg/Kg | 1 | <RDL | 0.48 | 2.4 | mg/Kg | 0.99 | <RDL | 0.44 | 2.19 | mg/Kg |
| Thallium, Total, ICP | | <MDL | 5 | 25.2 | mg/Kg | | <MDL | 4.8 | 24 | mg/Kg | | <MDL | 4.4 | 21.9 | mg/Kg |
| Zinc, Total, ICP | 78.8 | | 0.62 | 3.14 | mg/Kg | 80.7 | | 0.6 | 3 | mg/Kg | 82.3 | | 0.55 | 2.74 | mg/Kg |
| **M=OR EPA 3540C/8270C (7-3-04-001)** | | | | | | | | | | | | | | | |
| Chlorpyrifos | | <MDL | 130 | 267 | ug/Kg | | <MDL | 130 | 255 | ug/Kg | | <MDL | 120 | 236 | ug/Kg |
| Diazinon | | <MDL | 80 | 133 | ug/Kg | | <MDL | 76 | 127 | ug/Kg | | <MDL | 71 | 118 | ug/Kg |
| Disulfoton | | <MDL | 80 | 133 | ug/Kg | | <MDL | 76 | 127 | ug/Kg | | <MDL | 71 | 118 | ug/Kg |
| Malathion | | <MDL | 210 | 399 | ug/Kg | | <MDL | 200 | 381 | ug/Kg | | <MDL | 190 | 353 | ug/Kg |
| Parathion-Ethyl | | <MDL | 210 | 399 | ug/Kg | | <MDL | 200 | 381 | ug/Kg | | <MDL | 190 | 353 | ug/Kg |
| Parathion-Methyl | | <MDL | 210 | 399 | ug/Kg | | <MDL | 200 | 381 | ug/Kg | | <MDL | 190 | 353 | ug/Kg |
| Phorate | | <MDL | 130 | 267 | ug/Kg | | <MDL | 130 | 255 | ug/Kg | | <MDL | 120 | 236 | ug/Kg |
| **M=OR EPA 3550B (7-3-025-000)** | | | | | | | | | | | | | | | |
| DecaBDE-209 | 0.858 | E,TA | 0.25 | 0.499 | ug/Kg | 0.783 | E,TA | 0.24 | 0.476 | ug/Kg | 0.649 | E,TA | 0.22 | 0.442 | ug/Kg |
| HeptaBDE-183 | | <MDL | 0.05 | 0.0998 | ug/Kg | | <MDL | 0.048 | 0.0952 | ug/Kg | | <MDL | 0.044 | 0.0883 | ug/Kg |
| HeptaBDE-190 | | <MDL | 0.05 | 0.0998 | ug/Kg | | <MDL | 0.048 | 0.0952 | ug/Kg | | <MDL | 0.044 | 0.0883 | ug/Kg |
| HexaBDE-138 | | <MDL,TA | 0.05 | 0.0998 | ug/Kg | | <MDL,TA | 0.048 | 0.0952 | ug/Kg | | <MDL,TA | 0.044 | 0.0883 | ug/Kg |
| HexaBDE-153 | 0.065 | <RDL | 0.05 | 0.0998 | ug/Kg | 0.05 | <RDL | 0.048 | 0.0952 | ug/Kg | | <MDL | 0.044 | 0.0883 | ug/Kg |
| HexaBDE-154 | | <MDL | 0.05 | 0.0998 | ug/Kg | 0.052 | <RDL | 0.048 | 0.0952 | ug/Kg | | <MDL | 0.044 | 0.0883 | ug/Kg |
| PentaBDE-100 | 0.06 | <RDL | 0.05 | 0.0998 | ug/Kg | 0.0995 | | 0.048 | 0.0952 | ug/Kg | | <MDL | 0.044 | 0.0883 | ug/Kg |
| PentaBDE-85 | | <MDL | 0.05 | 0.0998 | ug/Kg | | <MDL | 0.048 | 0.0952 | ug/Kg | | <MDL | 0.044 | 0.0883 | ug/Kg |
| PentaBDE-99 | 0.178 | | 0.05 | 0.0998 | ug/Kg | 0.445 | | 0.048 | 0.0952 | ug/Kg | 0.0914 | | 0.044 | 0.0883 | ug/Kg |
| TetraBDE-47 | 0.471 | E,TA | 0.05 | 0.0998 | ug/Kg | 0.264 | E,TA | 0.048 | 0.0952 | ug/Kg | 0.154 | E,TA | 0.044 | 0.0883 | ug/Kg |
| TetraBDE-71 | | <MDL,TA | 0.05 | 0.0998 | ug/Kg | | <MDL,TA | 0.048 | 0.0952 | ug/Kg | | <MDL,TA | 0.044 | 0.0883 | ug/Kg |
| TriBDE-17 | | <MDL | 0.05 | 0.0998 | ug/Kg | | <MDL | 0.048 | 0.0952 | ug/Kg | | <MDL | 0.044 | 0.0883 | ug/Kg |
| TriBDE-28 | | <MDL,TA | 0.05 | 0.0998 | ug/Kg | | <MDL,TA | 0.048 | 0.0952 | ug/Kg | | <MDL,TA | 0.044 | 0.0883 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
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**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BWD402N | | | | Locator: | BW605D | | | | Locator: | BWD402S | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | |
| | Lab ID: | L44148-7 | | | | Lab ID: | L44148-8 | | | | Lab ID: | L44148-9 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 40.1 | | | | % Solids: | 42 | | | | % Solids: | 45.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| M=OR EPA 3550B/8270C (7-3-01-004) | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | <MDL | 0.25 | 0.499 | ug/Kg | | <MDL | 0.24 | 0.476 | ug/Kg | | <MDL | 0.22 | 0.442 | ug/Kg |
| 1,2-Dichlorobenzene | | <MDL | 0.5 | 0.998 | ug/Kg | | <MDL | 0.48 | 0.952 | ug/Kg | | <MDL | 0.44 | 0.883 | ug/Kg |
| 1,3-Dichlorobenzene | | <MDL | 0.5 | 0.998 | ug/Kg | | <MDL | 0.48 | 0.952 | ug/Kg | | <MDL | 0.44 | 0.883 | ug/Kg |
| 1,4-Dichlorobenzene | | <MDL | 0.5 | 0.998 | ug/Kg | | <MDL | 0.48 | 0.952 | ug/Kg | | <MDL | 0.44 | 0.883 | ug/Kg |
| 2,4-Dimethylphenol | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| 2-Methylnaphthalene | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| 2-Methylphenol | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| 4-Methylphenol | | <MDL | 10 | 20 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 8.8 | 17.7 | ug/Kg |
| Acenaphthene | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| Acenaphthylene | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| Anthracene | 6.5 | <RDL | 5 | 9.98 | ug/Kg | 6.9 | <RDL | 4.8 | 9.52 | ug/Kg | 6.4 | <RDL | 4.4 | 8.83 | ug/Kg |
| Benzo(a)anthracene | 27.9 | | 5 | 9.98 | ug/Kg | 28.6 | | 4.8 | 9.52 | ug/Kg | 23.2 | | 4.4 | 8.83 | ug/Kg |
| Benzo(a)pyrene | 33.7 | | 5 | 9.98 | ug/Kg | 33.1 | | 4.8 | 9.52 | ug/Kg | 32.9 | | 4.4 | 8.83 | ug/Kg |
| Benzo(b)fluoranthene | 11.2 | | 5 | 9.98 | ug/Kg | 14.3 | | 4.8 | 9.52 | ug/Kg | 12.6 | | 4.4 | 8.83 | ug/Kg |
| Benzo(g,h,i)perylene | 23 | | 5 | 9.98 | ug/Kg | 19.7 | | 4.8 | 9.52 | ug/Kg | 18.8 | | 4.4 | 8.83 | ug/Kg |
| Benzo(k)fluoranthene | 34.7 | | 5 | 9.98 | ug/Kg | 29 | | 4.8 | 9.52 | ug/Kg | 26 | | 4.4 | 8.83 | ug/Kg |
| Benzoic Acid | 267 | | 25 | 49.9 | ug/Kg | 183 | | 24 | 47.6 | ug/Kg | 173 | | 22 | 44.2 | ug/Kg |
| Benzyl Alcohol | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| Benzyl Butyl Phthalate | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | 49 | | 2.2 | 4.42 | ug/Kg |
| Bis(2-Ethylhexyl)Phthalate | 72.6 | B | 10 | 20 | ug/Kg | 56.9 | B | 9.5 | 19 | ug/Kg | 59.4 | B | 8.8 | 17.7 | ug/Kg |
| Caffeine | | <MDL | 10 | 20 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 8.8 | 17.7 | ug/Kg |
| Carbazole | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| Chrysene | 35.4 | | 5 | 9.98 | ug/Kg | 26.4 | | 4.8 | 9.52 | ug/Kg | 21 | | 4.4 | 8.83 | ug/Kg |
| Coprostanol | | <MDL | 100 | 200 | ug/Kg | | <MDL | 95 | 190 | ug/Kg | | <MDL | 88 | 177 | ug/Kg |
| Dibenzo(a,h)anthracene | 7.5 | <RDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | 7.7 | <RDL | 4.4 | 8.83 | ug/Kg |
| Dibenzofuran | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| Diethyl Phthalate | | <MDL | 10 | 20 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg | 9.5 | <RDL | 8.8 | 17.7 | ug/Kg |
| Dimethyl Phthalate | | <MDL | 10 | 20 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 8.8 | 17.7 | ug/Kg |
| Di-N-Butyl Phthalate | 31.2 | B | 10 | 20 | ug/Kg | 30.5 | B | 9.5 | 19 | ug/Kg | 28.3 | B | 8.8 | 17.7 | ug/Kg |
| Di-N-Octyl Phthalate | 74.1 | B | 10 | 20 | ug/Kg | 68.1 | B | 9.5 | 19 | ug/Kg | 65.1 | B | 8.8 | 17.7 | ug/Kg |
| Fluoranthene | 42.6 | | 5 | 9.98 | ug/Kg | 40.7 | | 4.8 | 9.52 | ug/Kg | 38.9 | | 4.4 | 8.83 | ug/Kg |
| Fluorene | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| Hexachlorobenzene | | <MDL | 0.25 | 0.499 | ug/Kg | | <MDL | 0.24 | 0.476 | ug/Kg | | <MDL | 0.22 | 0.442 | ug/Kg |
| Hexachlorobutadiene | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Hexachloroethane | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| Indeno(1,2,3-Cd)Pyrene | 18.9 | | 5 | 9.98 | ug/Kg | 16 | | 4.8 | 9.52 | ug/Kg | 15.7 | | 4.4 | 8.83 | ug/Kg |
| Naphthalene | | <MDL | 5 | 9.98 | ug/Kg | | <MDL | 4.8 | 9.52 | ug/Kg | | <MDL | 4.4 | 8.83 | ug/Kg |
| N-Nitrosodiphenylamine | | <MDL | 10 | 20 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 8.8 | 17.7 | ug/Kg |
| Pentachlorophenol | | <MDL | 25 | 49.9 | ug/Kg | | <MDL | 24 | 47.6 | ug/Kg | | <MDL | 22 | 44.2 | ug/Kg |
| Phenanthrene | 31.9 | | 5 | 9.98 | ug/Kg | 20.4 | | 4.8 | 9.52 | ug/Kg | 21.9 | | 4.4 | 8.83 | ug/Kg |
| Phenol | | <MDL | 10 | 20 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg | | <MDL | 8.8 | 17.7 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | Locator: | BWD402N | | | | Locator: | BW605D | | | | Locator: | BWD402S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | |
| | Lab ID: | L44148-7 | | | | Lab ID: | L44148-8 | | | | Lab ID: | L44148-9 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 40.1 | | | | % Solids: | 42 | | | | % Solids: | 45.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| Pyrene | 43.9 | | 5 | 9.98 | ug/Kg | 52.4 | | 4.8 | 9.52 | ug/Kg | 45.5 | | 4.4 | 8.83 | ug/Kg |
| Total 4-Nonylphenol | | <MDL | 12 | 24.9 | ug/Kg | | <MDL | 12 | 23.8 | ug/Kg | | <MDL | 11 | 22.1 | ug/Kg |
| Total HPAHS | 279 | | 5 | 9.98 | ug/Kg | 260 | | 4.8 | 9.52 | ug/Kg | 243 | | 4.4 | 8.83 | ug/Kg |
| Total LPAHs | 40.4 | | 5 | 9.98 | ug/Kg | 27.1 | | 4.8 | 9.52 | ug/Kg | 31.3 | | 4.4 | 8.83 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-03-002)** | | | | | | | | | | | | | | | |
| 4,4'-DDD | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| 4,4'-DDE | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| 4,4'-DDT | | <MDL,L | 2.5 | 4.99 | ug/Kg | | <MDL,L | 2.4 | 4.76 | ug/Kg | | <MDL,L | 2.2 | 4.42 | ug/Kg |
| Aldrin | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| Alpha-BHC | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Alpha-Chlordane | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Beta-BHC | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Delta-BHC | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Dieldrin | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| Endosulfan I | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| Endosulfan II | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| Endosulfan Sulfate | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| Endrin | | <MDL | 2.5 | 4.99 | ug/Kg | | <MDL | 2.4 | 4.76 | ug/Kg | | <MDL | 2.2 | 4.42 | ug/Kg |
| Endrin Aldehyde | | <MDL,X | 2.5 | 4.99 | ug/Kg | | <MDL,X | 2.4 | 4.76 | ug/Kg | | <MDL,X | 2.2 | 4.42 | ug/Kg |
| Gamma-BHC (Lindane) | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Gamma-Chlordane | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Heptachlor | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Heptachlor Epoxide | | <MDL | 1.2 | 2.49 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg | | <MDL | 1.1 | 2.21 | ug/Kg |
| Methoxychlor | | <MDL | 12 | 24.9 | ug/Kg | | <MDL | 12 | 23.8 | ug/Kg | | <MDL | 11 | 22.1 | ug/Kg |
| Toxaphene | | <MDL | 25 | 49.9 | ug/Kg | | <MDL | 24 | 47.6 | ug/Kg | | <MDL | 22 | 44.2 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-103-000)** | | | | | | | | | | | | | | | |
| Aroclor 1016 | | <MDL | 3.2 | 6.23 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg | | <MDL | 2.9 | 5.52 | ug/Kg |
| Aroclor 1221 | | <MDL | 6.2 | 12.5 | ug/Kg | | <MDL | 6 | 11.9 | ug/Kg | | <MDL | 5.5 | 11 | ug/Kg |
| Aroclor 1232 | | <MDL | 6.2 | 12.5 | ug/Kg | | <MDL | 6 | 11.9 | ug/Kg | | <MDL | 5.5 | 11 | ug/Kg |
| Aroclor 1242 | | <MDL | 3.2 | 6.23 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg | | <MDL | 2.9 | 5.52 | ug/Kg |
| Aroclor 1248 | | <MDL | 3.2 | 6.23 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg | | <MDL | 2.9 | 5.52 | ug/Kg |
| Aroclor 1254 | 5 | <RDL | 3.2 | 6.23 | ug/Kg | 4.5 | <RDL | 3.1 | 5.95 | ug/Kg | 4 | <RDL | 2.9 | 5.52 | ug/Kg |
| Aroclor 1260 | | <MDL | 3.2 | 6.23 | ug/Kg | | <MDL | 3.1 | 5.95 | ug/Kg | | <MDL | 2.9 | 5.52 | ug/Kg |
| **M=OR KRONE 1989 (07-03-026-000)** | | | | | | | | | | | | | | | |
| Di-n-Butyltin (as dibutyltin ion) | | <MDL,G,H | 8.7 | 17.5 | ug/Kg | | <MDL,H | 8.3 | 16.7 | ug/Kg | | <MDL,H | 7.7 | 15.5 | ug/Kg |
| Mono-n-Butyltin (as monobutyltin ion) | | <MDL,G,H | 42 | 84 | ug/Kg | | <MDL,H | 40 | 80.2 | ug/Kg | | <MDL,H | 38 | 74.4 | ug/Kg |
| Tetra-n-Butyltin (as tetrabutyltin) | | <MDL,G,H | 10 | 20 | ug/Kg | | <MDL,H | 9.5 | 19.1 | ug/Kg | | <MDL,H | 8.8 | 17.7 | ug/Kg |
| Tri-n-Butyltin (as tributyltin ion) | | <MDL,G,H | 5.2 | 10.3 | ug/Kg | | <MDL,H | 5 | 9.88 | ug/Kg | | <MDL,H | 4.6 | 9.16 | ug/Kg |
| **M=OR SW-846 8151A GC/MS MODIFIED** | | | | | | | | | | | | | | | |
| 2,4,5-T | | <MDL | 1.3 | 16 | ug/Kg | | <MDL | 1.3 | 15 | ug/Kg | | <MDL | 1.2 | 14.1 | ug/Kg |
| 2,4,5-TP (Silvex) | | <MDL | 5 | 16 | ug/Kg | | <MDL | 4.5 | 15 | ug/Kg | | <MDL | 4.4 | 14.1 | ug/Kg |
| 2,4-D | | <MDL | 1.9 | 16 | ug/Kg | | <MDL | 1.8 | 15 | ug/Kg | | <MDL | 1.7 | 14.1 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BWD402N | | | | Locator: | BW605D | | | | Locator: | BWD402S | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 11, 2007 | | | |
| | Lab ID: | L44148-7 | | | | Lab ID: | L44148-8 | | | | Lab ID: | L44148-9 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 40.1 | | | | % Solids: | 42 | | | | % Solids: | 45.3 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| 2,4-DB | | <MDL | 3.7 | 16 | ug/Kg | | <MDL | 3.6 | 15 | ug/Kg | | <MDL | 3.3 | 14.1 | ug/Kg |
| Dalapon | | <MDL | 11 | 39.9 | ug/Kg | | <MDL | 10 | 38.1 | ug/Kg | | <MDL | 9.7 | 35.3 | ug/Kg |
| Dicamba | | <MDL | 2.2 | 16 | ug/Kg | | <MDL | 2.1 | 15 | ug/Kg | | <MDL | 1.9 | 14.1 | ug/Kg |
| Dichloroprop | | <MDL | 3.5 | 16 | ug/Kg | | <MDL | 3.3 | 15 | ug/Kg | | <MDL | 3.1 | 14.1 | ug/Kg |
| Dinoseb | | <MDL | 5.5 | 39.9 | ug/Kg | | <MDL | 5.2 | 38.1 | ug/Kg | | <MDL | 4.9 | 35.3 | ug/Kg |
| MCPA | | <MDL | 2.1 | 16 | ug/Kg | | <MDL | 2 | 15 | ug/Kg | | <MDL | 1.8 | 14.1 | ug/Kg |
| MCPP | | <MDL | 2.4 | 16 | ug/Kg | | <MDL | 2.3 | 15 | ug/Kg | | <MDL | 2.1 | 14.1 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD805S | | | | | Locator: | BW3200N | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| Sampled: | Oct 11, 2007 | | | | | Sampled: | Oct 9, 2007 | | | |
| Lab ID: | L44148-10 | | | | | Lab ID: | L44148-11 | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | |
| % Solids: | 40.7 | | | | | % Solids: | 42.1 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| **M=ES NONE** | | | | | | | | | | |
| Sampcoordx1 * | 1251379 | | | | ft | 1250666 | | | | ft |
| Sampcoordx2 * | 1251379 | | | | ft | 1250702 | | | | ft |
| Sampcoordx3 * | 1251379 | | | | ft | 1250669 | | | | ft |
| Sampcoordx4 * | 1251379 | | | | ft | | | | | |
| Sampcoordy1 * | 286744 | | | | ft | 290699 | | | | ft |
| Sampcoordy2 * | 286744 | | | | ft | 290680 | | | | ft |
| Sampcoordy3 * | 286738 | | | | ft | 290681 | | | | ft |
| Sampcoordy4 * | 286738 | | | | ft | | | | | |
| Sample Depth * | 186 | | | | m | 186 | | | | m |
| Sediment Sampling Depth * | 17 | | | | cm | 17 | | | | cm |
| Sediment Sampling Range * | 0-2 cm | | | | cm | 0-2 cm | | | | cm |
| Tidal Condition | E | | | | none | F | | | | none |
| Tide Height * | 7 | | | | ft | 5 | | | | ft |
| **M=CV ASTM D422(03-02-005-001)** | | | | | | | | | | |
| Fines * | 51.7 | | 0.5 | 1 | % | 50.3 | | 0.5 | 1 | % |
| Clay * | 17.6 | | 0.5 | 1 | % | 17.4 | | 0.5 | 1 | % |
| Silt * | 34.1 | | 0.5 | 1 | % | 32.8 | | 0.5 | 1 | % |
| Sand * | 38.6 | | 0.1 | 1 | % | 40.3 | | 0.1 | 1 | % |
| Gravel * | 0.2 | <RDL | 0.1 | 1 | % | 0.2 | <RDL | 0.1 | 1 | % |
| p-2.00(less than) * | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % |
| p-2.00 * | | <MDL | 0.1 | 1 | % | | <MDL | 0.1 | 1 | % |
| p-1.00 * | 0.2 | <RDL | 0.1 | 1 | % | 0.1 | <RDL | 0.1 | 1 | % |
| p+0.00 * | 0.3 | <RDL | 0.1 | 1 | % | 0.4 | <RDL | 0.1 | 1 | % |
| p+1.00 * | 0.5 | <RDL | 0.1 | 1 | % | 0.4 | <RDL | 0.1 | 1 | % |
| p+2.00 * | 3.8 | | 0.1 | 1 | % | 2.5 | | 0.1 | 1 | % |
| p+3.00 * | 8.6 | | 0.1 | 1 | % | 7.4 | | 0.1 | 1 | % |
| p+4.00 * | 25.4 | | 0.1 | 1 | % | 29.6 | | 0.1 | 1 | % |
| p+5.00 * | 16.5 | | 0.5 | 1 | % | 13.3 | | 0.5 | 1 | % |
| p+6.00 * | 5.5 | | 0.5 | 1 | % | 6.2 | | 0.5 | 1 | % |
| p+7.00 * | 7.7 | | 0.5 | 1 | % | 8.2 | | 0.5 | 1 | % |
| p+8.00 * | 4.4 | | 0.5 | 1 | % | 5.1 | | 0.5 | 1 | % |
| p+9.00 * | 4.4 | | 0.5 | 1 | % | 4.1 | | 0.5 | 1 | % |
| p+10.0(equal/more than) * | 13.2 | | 0.5 | 1 | % | 13.3 | | 0.5 | 1 | % |
| **M=CV EPA 9030B (03-03-015-000)** | | | | | | | | | | |
| Total Sulfide | 191 | G | 12 | 49.1 | mg/Kg | 78.6 | G | 5.9 | 23.8 | mg/Kg |
| **M=CV EPA 9060-PSEP96(03-04-002-003)** | | | | | | | | | | |
| Total Organic Carbon | 13800 | | 1700 | 3440 | mg/Kg | 13500 | | 1900 | 3780 | mg/Kg |
| **M=CV SM2540-G (03-01-007-002)** | | | | | | | | | | |
| Total Solids * | 40.7 | | 0.005 | 0.01 | % | 42.1 | | 0.005 | 0.01 | % |
| **M=CV SM4500-NH3-G(03-03-014-001)KCL** | | | | | | | | | | |
| Ammonia Nitrogen | 9.02 | | 0.25 | 0.501 | mg/Kg | 10.9 | | 1.2 | 2.34 | mg/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | Locator: | BWD805S | | | | | Locator: | BW3200N | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-10 | | | | | Lab ID: | L44148-11 | | | |
| | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 40.7 | | | | | % Solids: | 42.1 | | | |
| | Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | | Dry Weight Basis | | |
| **M=MT EPA 7471A (06-01-004-003)** | | | | | | | | | | | |
| Mercury, Total, CVAA | 0.081 | <RDL | 0.013 | 0.125 | mg/Kg | | 0.069 | <RDL | 0.012 | 0.119 | mg/Kg |
| **M=MT EPA3050B/6010B MOD(6-2-04-02)** | | | | | | | | | | | |
| Aluminum, Total, ICP | 15400 | | 12 | 61.7 | mg/Kg | | 14300 | | 12 | 61 | mg/Kg |
| Antimony, Total, ICP | | <MDL,G | 1.8 | 9.26 | mg/Kg | | | <MDL,G | 1.8 | 9.17 | mg/Kg |
| Arsenic, Total, ICP | 7.6 | <RDL | 3.2 | 15.4 | mg/Kg | | 7.1 | <RDL | 3.1 | 15.3 | mg/Kg |
| Beryllium, Total, ICP | 0.39 | <RDL | 0.12 | 0.617 | mg/Kg | | 0.36 | <RDL | 0.12 | 0.61 | mg/Kg |
| Cadmium, Total, ICP | 0.49 | <RDL | 0.25 | 1.24 | mg/Kg | | 0.45 | <RDL | 0.24 | 1.22 | mg/Kg |
| Chromium, Total, ICP | 35.4 | | 0.37 | 1.85 | mg/Kg | | 33.3 | | 0.36 | 1.83 | mg/Kg |
| Copper, Total, ICP | 27 | | 0.49 | 2.48 | mg/Kg | | 24.2 | | 0.5 | 2.45 | mg/Kg |
| Iron, Total, ICP | 28000 | | 6.1 | 31 | mg/Kg | | 26100 | | 6.2 | 30.6 | mg/Kg |
| Lead, Total, ICP | 14.3 | | 2.5 | 12.4 | mg/Kg | | 13 | | 2.4 | 12.2 | mg/Kg |
| Nickel, Total, ICP | 33.2 | | 0.61 | 3.1 | mg/Kg | | 31.6 | | 0.62 | 3.06 | mg/Kg |
| Selenium, Total, ICP | | <MDL | 3.2 | 15.4 | mg/Kg | | | <MDL | 3.1 | 15.3 | mg/Kg |
| Silver, Total, ICP | 1 | <RDL | 0.49 | 2.48 | mg/Kg | | 0.97 | <RDL | 0.5 | 2.45 | mg/Kg |
| Thallium, Total, ICP | | <MDL | 4.9 | 24.8 | mg/Kg | | | <MDL | 5 | 24.5 | mg/Kg |
| Zinc, Total, ICP | 81.6 | | 0.61 | 3.1 | mg/Kg | | 77 | | 0.62 | 3.06 | mg/Kg |
| **M=OR EPA 3540C/8270C (7-3-04-001)** | | | | | | | | | | | |
| Chlorpyrifos | | <MDL | 130 | 263 | ug/Kg | | | <MDL,G | 130 | 254 | ug/Kg |
| Diazinon | | <MDL | 79 | 131 | ug/Kg | | | <MDL,G | 76 | 127 | ug/Kg |
| Disulfoton | | <MDL | 79 | 131 | ug/Kg | | | <MDL,G | 76 | 127 | ug/Kg |
| Malathion | | <MDL | 210 | 393 | ug/Kg | | | <MDL,G | 200 | 380 | ug/Kg |
| Parathion-Ethyl | | <MDL | 210 | 393 | ug/Kg | | | <MDL,G | 200 | 380 | ug/Kg |
| Parathion-Methyl | | <MDL | 210 | 393 | ug/Kg | | | <MDL,G | 200 | 380 | ug/Kg |
| Phorate | | <MDL | 130 | 263 | ug/Kg | | | <MDL,G | 130 | 254 | ug/Kg |
| **M=OR EPA 3550B (7-3-025-000)** | | | | | | | | | | | |
| DecaBDE-209 | 0.83 | E,TA | 0.25 | 0.491 | ug/Kg | | 0.675 | E,TA | 0.24 | 0.475 | ug/Kg |
| HeptaBDE-183 | | <MDL | 0.049 | 0.0983 | ug/Kg | | | <MDL | 0.048 | 0.095 | ug/Kg |
| HeptaBDE-190 | 0.069 | <RDL | 0.049 | 0.0983 | ug/Kg | | | <MDL | 0.048 | 0.095 | ug/Kg |
| HexaBDE-138 | | <MDL,TA | 0.049 | 0.0983 | ug/Kg | | | <MDL,TA | 0.048 | 0.095 | ug/Kg |
| HexaBDE-153 | | <MDL | 0.049 | 0.0983 | ug/Kg | | | <MDL | 0.048 | 0.095 | ug/Kg |
| HexaBDE-154 | | <MDL | 0.049 | 0.0983 | ug/Kg | | | <MDL | 0.048 | 0.095 | ug/Kg |
| PentaBDE-100 | | <MDL | 0.049 | 0.0983 | ug/Kg | | | <MDL | 0.048 | 0.095 | ug/Kg |
| PentaBDE-85 | | <MDL | 0.049 | 0.0983 | ug/Kg | | | <MDL | 0.048 | 0.095 | ug/Kg |
| PentaBDE-99 | 0.0995 | | 0.049 | 0.0983 | ug/Kg | | 0.134 | | 0.048 | 0.095 | ug/Kg |
| TetraBDE-47 | 0.244 | E,TA | 0.049 | 0.0983 | ug/Kg | | 0.532 | E,TA | 0.048 | 0.095 | ug/Kg |
| TetraBDE-71 | | <MDL,TA | 0.049 | 0.0983 | ug/Kg | | | <MDL,TA | 0.048 | 0.095 | ug/Kg |
| TriBDE-17 | | <MDL | 0.049 | 0.0983 | ug/Kg | | | <MDL | 0.048 | 0.095 | ug/Kg |
| TriBDE-28 | | <MDL,TA | 0.049 | 0.0983 | ug/Kg | | | <MDL,TA | 0.048 | 0.095 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Locator: | BWD805S | | | | | Locator: | BW3200N | | | |
| Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| Sampled: | Oct 11, 2007 | | | | | Sampled: | Oct 9, 2007 | | | |
| Lab ID: | L44148-10 | | | | | Lab ID: | L44148-11 | | | |
| Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | |
| % Solids: | 40.7 | | | | | % Solids: | 42.1 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| **M=OR EPA 3550B/8270C (7-3-01-004)** | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | <MDL | 0.25 | 0.491 | ug/Kg | | <MDL | 0.24 | 0.475 | ug/Kg |
| 1,2-Dichlorobenzene | | <MDL | 0.49 | 0.983 | ug/Kg | | <MDL | 0.48 | 0.95 | ug/Kg |
| 1,3-Dichlorobenzene | | <MDL | 0.49 | 0.983 | ug/Kg | | <MDL | 0.48 | 0.95 | ug/Kg |
| 1,4-Dichlorobenzene | | <MDL | 0.49 | 0.983 | ug/Kg | | <MDL | 0.48 | 0.95 | ug/Kg |
| 2,4-Dimethylphenol | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| 2-Methylnaphthalene | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| 2-Methylphenol | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| 4-Methylphenol | | <MDL | 9.8 | 19.7 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Acenaphthene | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| Acenaphthylene | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| Anthracene | 8.4 | <RDL | 4.9 | 9.83 | ug/Kg | 7.4 | <RDL | 4.8 | 9.5 | ug/Kg |
| Benzo(a)anthracene | 20.9 | | 4.9 | 9.83 | ug/Kg | 24.2 | | 4.8 | 9.5 | ug/Kg |
| Benzo(a)pyrene | 29.2 | | 4.9 | 9.83 | ug/Kg | 28.5 | | 4.8 | 9.5 | ug/Kg |
| Benzo(b)fluoranthene | 10.3 | | 4.9 | 9.83 | ug/Kg | 8.8 | <RDL | 4.8 | 9.5 | ug/Kg |
| Benzo(g,h,i)perylene | 15.6 | | 4.9 | 9.83 | ug/Kg | 14.8 | | 4.8 | 9.5 | ug/Kg |
| Benzo(k)fluoranthene | 26.5 | | 4.9 | 9.83 | ug/Kg | 27.6 | | 4.8 | 9.5 | ug/Kg |
| Benzoic Acid | 203 | | 25 | 49.1 | ug/Kg | 209 | | 24 | 47.5 | ug/Kg |
| Benzyl Alcohol | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| Benzyl Butyl Phthalate | 56 | | 2.5 | 4.91 | ug/Kg | 51.1 | | 2.4 | 4.75 | ug/Kg |
| Bis(2-Ethylhexyl)Phthalate | 62.7 | B | 9.8 | 19.7 | ug/Kg | 60.8 | B | 9.5 | 19 | ug/Kg |
| Caffeine | | <MDL | 9.8 | 19.7 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Carbazole | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| Chrysene | 19.5 | | 4.9 | 9.83 | ug/Kg | 20.1 | | 4.8 | 9.5 | ug/Kg |
| Coprostanol | | <MDL | 98 | 197 | ug/Kg | | <MDL | 95 | 190 | ug/Kg |
| Dibenzo(a,h)anthracene | 6.1 | <RDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| Dibenzofuran | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| Diethyl Phthalate | | <MDL | 9.8 | 19.7 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Dimethyl Phthalate | | <MDL | 9.8 | 19.7 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Di-N-Butyl Phthalate | 30.5 | B | 9.8 | 19.7 | ug/Kg | 28.5 | B | 9.5 | 19 | ug/Kg |
| Di-N-Octyl Phthalate | | <MDL,B | 9.8 | 19.7 | ug/Kg | 74.6 | B | 9.5 | 19 | ug/Kg |
| Fluoranthene | 35.4 | | 4.9 | 9.83 | ug/Kg | 41.6 | | 4.8 | 9.5 | ug/Kg |
| Fluorene | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| Hexachlorobenzene | | <MDL | 0.25 | 0.491 | ug/Kg | | <MDL | 0.24 | 0.475 | ug/Kg |
| Hexachlorobutadiene | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Hexachloroethane | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| Indeno(1,2,3-Cd)Pyrene | 14.9 | | 4.9 | 9.83 | ug/Kg | 14 | | 4.8 | 9.5 | ug/Kg |
| Naphthalene | | <MDL | 4.9 | 9.83 | ug/Kg | | <MDL | 4.8 | 9.5 | ug/Kg |
| N-Nitrosodiphenylamine | | <MDL | 9.8 | 19.7 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |
| Pentachlorophenol | | <MDL | 25 | 49.1 | ug/Kg | | <MDL | 24 | 47.5 | ug/Kg |
| Phenanthrene | 26.8 | | 4.9 | 9.83 | ug/Kg | 29.2 | | 4.8 | 9.5 | ug/Kg |
| Phenol | | <MDL | 9.8 | 19.7 | ug/Kg | | <MDL | 9.5 | 19 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BWD805S | | | | Locator: | BW3200N | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-10 | | | | Lab ID: | L44148-11 | | | |
| | Matrix: | SALTWTRSED | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 40.7 | | | | % Solids: | 42.1 | | | |
| | Value | Qual | MDL | RDL | Units | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | Dry Weight Basis | | |
| Pyrene | 36.6 | | 4.9 | 9.83 | ug/Kg | 42.8 | | 4.8 | 9.5 | ug/Kg |
| Total 4-Nonylphenol | | <MDL | 12 | 24.6 | ug/Kg | | <MDL | 12 | 23.8 | ug/Kg |
| Total HPAHS | 215 | | 4.9 | 9.83 | ug/Kg | 222 | | 4.8 | 9.5 | ug/Kg |
| Total LPAHs | 36.1 | | 4.9 | 9.83 | ug/Kg | 37.3 | | 4.8 | 9.5 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-03-002)** | | | | | | | | | | |
| 4,4'-DDD | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| 4,4'-DDE | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| 4,4'-DDT | | <MDL,L | 2.5 | 4.91 | ug/Kg | | <MDL,L | 2.4 | 4.75 | ug/Kg |
| Aldrin | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| Alpha-BHC | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Alpha-Chlordane | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Beta-BHC | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Delta-BHC | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Dieldrin | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| Endosulfan I | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| Endosulfan II | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| Endosulfan Sulfate | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| Endrin | | <MDL | 2.5 | 4.91 | ug/Kg | | <MDL | 2.4 | 4.75 | ug/Kg |
| Endrin Aldehyde | | <MDL,X | 2.5 | 4.91 | ug/Kg | | <MDL,X | 2.4 | 4.75 | ug/Kg |
| Gamma-BHC (Lindane) | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Gamma-Chlordane | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Heptachlor | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Heptachlor Epoxide | | <MDL | 1.2 | 2.46 | ug/Kg | | <MDL | 1.2 | 2.38 | ug/Kg |
| Methoxychlor | | <MDL | 12 | 24.6 | ug/Kg | | <MDL | 12 | 23.8 | ug/Kg |
| Toxaphene | | <MDL | 25 | 49.1 | ug/Kg | | <MDL | 24 | 47.5 | ug/Kg |
| **M=OR EPA 8081A/8082 (7-3-103-000)** | | | | | | | | | | |
| Aroclor 1016 | | <MDL | 3.2 | 6.14 | ug/Kg | | <MDL | 3.1 | 5.94 | ug/Kg |
| Aroclor 1221 | | <MDL | 6.1 | 12.3 | ug/Kg | | <MDL | 5.9 | 11.9 | ug/Kg |
| Aroclor 1232 | | <MDL | 6.1 | 12.3 | ug/Kg | | <MDL | 5.9 | 11.9 | ug/Kg |
| Aroclor 1242 | | <MDL | 3.2 | 6.14 | ug/Kg | | <MDL | 3.1 | 5.94 | ug/Kg |
| Aroclor 1248 | | <MDL | 3.2 | 6.14 | ug/Kg | | <MDL | 3.1 | 5.94 | ug/Kg |
| Aroclor 1254 | 4.7 | <RDL | 3.2 | 6.14 | ug/Kg | | <MDL | 3.1 | 5.94 | ug/Kg |
| Aroclor 1260 | | <MDL | 3.2 | 6.14 | ug/Kg | | <MDL | 3.1 | 5.94 | ug/Kg |
| **M=OR KRONE 1989 (07-03-026-000)** | | | | | | | | | | |
| Di-n-Butyltin (as dibutyltin ion) | | <MDL,G,H | 8.6 | 17.2 | ug/Kg | | <MDL,H | 8.3 | 16.6 | ug/Kg |
| Mono-n-Butyltin (as monobutyltin ion) | | <MDL,G,H | 42 | 82.8 | ug/Kg | | <MDL,H | 40 | 80 | ug/Kg |
| Tetra-n-Butyltin (as tetrabutyltin) | | <MDL,G,H | 9.8 | 19.7 | ug/Kg | | <MDL,H | 9.5 | 19 | ug/Kg |
| Tri-n-Butyltin (as tributyltin ion) | | <MDL,G,H | 5.2 | 10.2 | ug/Kg | | <MDL,H | 5 | 9.86 | ug/Kg |
| **M=OR SW-846 8151A GC/MS MODIFIED** | | | | | | | | | | |
| 2,4,5-T | | <MDL | 1.4 | 16 | ug/Kg | | <MDL | 1.3 | 15.7 | ug/Kg |
| 2,4,5-TP (Silvex) | | <MDL | 4.9 | 16 | ug/Kg | | <MDL | 4.8 | 15.7 | ug/Kg |
| 2,4-D | | <MDL | 1.9 | 16 | ug/Kg | | <MDL | 1.8 | 15.7 | ug/Kg |

# King County Environmental Lab Analytical Report

**Appendix B**
**Complete Sediment Chemistry Data**
**Brightwater Treatment System**
**Marine Outfall**
**Baseline Sediment Characterization**
**Outfall Diffuser - October 2007**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Locator: | BWD805S | | | | | Locator: | BW3200N | | | |
| | Descrip: | Brightwater Outfall Diffuser | | | | | Descrip: | Brightwater Outfall Diffuser | | | |
| | Sampled: | Oct 11, 2007 | | | | | Sampled: | Oct 9, 2007 | | | |
| | Lab ID: | L44148-10 | | | | | Lab ID: | L44148-11 | | | |
| | Matrix: | SALTWTRSED | | | | | Matrix: | SALTWTRSED | | | |
| | % Solids: | 40.7 | | | | | % Solids: | 42.1 | | | |
| | Value | Qual | MDL | RDL | Units | | Value | Qual | MDL | RDL | Units |
| | | | Dry Weight Basis | | | | | | Dry Weight Basis | | |
| 2,4-DB | | <MDL | 3.9 | 16 | ug/Kg | | | <MDL | 3.8 | 15.7 | ug/Kg |
| Dalapon | | <MDL | 11 | 39.3 | ug/Kg | | | <MDL | 11 | 40.4 | ug/Kg |
| Dicamba | | <MDL | 2.2 | 16 | ug/Kg | | | <MDL | 2.1 | 15.7 | ug/Kg |
| Dichloroprop | | <MDL | 3.4 | 16 | ug/Kg | | | <MDL | 3.3 | 15.7 | ug/Kg |
| Dinoseb | | <MDL | 5.4 | 39.3 | ug/Kg | | | <MDL | 5.2 | 40.4 | ug/Kg |
| MCPA | | <MDL | 2.1 | 16 | ug/Kg | | | <MDL | 2 | 15.7 | ug/Kg |
| MCPP | | <MDL | 2.4 | 16 | ug/Kg | | | <MDL | 2.4 | 15.7 | ug/Kg |

# Appendix C
## Benthic Taxonomy and Biomass Data – October 2006

# Appendix C

## Benthic Taxonomy and Biomass Data - October 2006

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| Station | BW605P | | | BW805N | | | BW805S | | | BW3200N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Replicate** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** |
| ***ANNELIDA*** | | | | | | | | | | | | |
| Ampharete cf crassiseta | | 2 | | | | | | | | | | |
| Ampharete finmarchica | | | | 1 | | | | | | | 1 | 1 |
| Ampharete sp juv | | 1 | 1 | | 2 | | | | 2 | | | 1 |
| Ampharetidae juv | | | | | | | 1 | | 1 | | | |
| Artacama coniferi | | | | | | | | | | | 1 | |
| Asabellides lineata | | | | | | | | | | 1 | | |
| Brada sacchalina | 2 | | | 1 | | | 3 | | | | 1 | 1 |
| Cossura pygodactylata | | | | | 1 | | | | | | | |
| Diopatra sp juv | 1 | | | | | | | | | | | |
| Dipolydora brachycephala | 2 | | | | | 21 | 11 | | 9 | | | |
| Galathowenia oculata | 1 | | | | | | | | | | | |
| Glycera nana | 2 | | 2 | | 2 | 1 | | 1 | 1 | 3 | 1 | 1 |
| Glycinde armigera | | 1 | 2 | 1 | 1 | | | 2 | | | | |
| Goniada brunnea | | | | | | | | | | 1 | | 1 |
| Heteromastus filobranchus | | 1 | | | | | 1 | 2 | 1 | 1 | | 2 |
| Lepidasthenia longicirrata | | | | | 1 | | | | | | | |
| Levinsenia gracilis | | | | | | | 3 | | 1 | 1 | | |
| Levinsenia oculata | | 4 | 1 | | 4 | 6 | | 1 | 1 | | | |
| Lumbrineris californiensis | | | | | | | | | | 1 | | |
| Malmgreniella bansei | 1 | | 1 | | | | 3 | | | | 1 | |
| Malmgreniella sp | | | | | 1 | | | | | | | |
| Mediomastus californiensis | | | 2 | | | 2 | 2 | | 2 | | | |
| Nephtys caeca | | | | | | | | | 1 | | | |
| Nephtys caecoides | 1 | | | | | | | | | | | |
| Nephtys cornuta | 1 | | 1 | 1 | | 1 | 2 | | 2 | 1 | | |
| Nephtys ferruginea | | 1 | | | | | 2 | | | | | 1 |
| Notomastus hemipodus | 2 | 9 | | 2 | 2 | 10 | 12 | | 4 | 11 | | 6 |
| Notomastus sp | 5 | 1 | | | | 2 | 4 | 1 | 3 | | 4 | |
| Onuphis iridescens | | 1 | | 1 | 3 | | 1 | 3 | | | 2 | 1 |
| Ophelina acuminata | | 2 | | 1 | | | 1 | | | | | |
| Owenia johnsoni | | | | | | | | | 1 | 1 | | |
| Paraprionospio pinnata | 1 | | | | | | | | | 1 | | |
| Pectinaria californiensis | 17 | 18 | 17 | 14 | 25 | | 30 | 15 | 21 | 12 | 20 | |
| Pectinaria granulata | | | | | | 16 | | | | | | 11 |
| Pholoe minuta | | 4 | | | 1 | | 1 | | | 1 | 1 | |
| Podarkeopsis glabrus | | 2 | | | | | 1 | | | | | |
| Polycirrus sp | | 1 | | | | | | | | | | 1 |
| Praxillella pacifica | 3 | | 1 | 1 | 1 | | 3 | | 1 | | 3 | 1 |

# Appendix C

## Benthic Taxonomy and Biomass Data - October 2006

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| Station | BW605P | | | BW805N | | | BW805S | | | BW3200N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Replicate** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** |
| Prionospio lighti | | 2 | 2 | 2 | 8 | 1 | 2 | 3 | 2 | 2 | 15 | |
| Prionospio multibranchiata | | | | | | 1 | | | | | | |
| Prionospio steenstrupi | 1 | 1 | 1 | | 2 | | | 1 | | | | |
| Sigambra bassi | | | | 3 | | 1 | 1 | | | | 1 | |
| Sphaerodoropsis sphaerulifer | | | | | | | | | 1 | 1 | | |
| Spiophanes berkeleyorum | 14 | 5 | 8 | 3 | 11 | | 10 | 10 | 18 | 4 | 4 | 7 |
| Sthenelais berkeleyi | | | | | | 7 | | | | | | |
| Tenonia priops | | | | | | 1 | 1 | | | | | |
| **Annelida Abundance** | **54** | **56** | **39** | **31** | **65** | **70** | **95** | **39** | **72** | **42** | **55** | **35** |
| **Annelida Richness** | **15** | **17** | **12** | **12** | **15** | **13** | **21** | **10** | **18** | **15** | **13** | **13** |
| **Annelida Biomass** | **4.60** | **0.93** | **1.59** | **1.13** | **3.36** | **0.59** | **4.33** | **1.38** | **2.74** | **1.64** | **3.62** | **2.08** |
| ***CRUSTACEA*** | | | | | | | | | | | | |
| Acanthaxius spinulicauda | | | | | 1 | | | | | | | 1 |
| Americhelidium shoemakeri | | | | | | | | | 1 | | | |
| Americhelidium variabilum | | | | | | 1 | 1 | | 1 | | 1 | |
| Bruzelia tuberculata | | 2 | 1 | | 1 | | 3 | | 4 | | | |
| Calliopiidae sp. | | 1 | | | | | | | 2 | | | |
| Calliopius columbianus | | | | | | | | | | | | 1 |
| Crangonidae sp. | | 1 | | | | | | | | | | |
| Cylindroleberididae | | | | | | | 2 | | 3 | 1 | | |
| Cyphocaris challengeri | 1 | 2 | 2 | | | | | | 4 | | | 5 |
| Desdimelita desdichada | 2 | | | 1 | | | | | | | | |
| Diastylis pellucida | 7 | 2 | 3 | | 1 | 3 | 5 | 1 | 6 | 3 | 2 | 7 |
| Dyopedos sp. | | | 1 | | | | | | 1 | | | |
| Eualus sp. juvenile | | | | | | | 1 | | | | | |
| Eudorella pacifica | 6 | 4 | 1 | 1 | 6 | 8 | 4 | 2 | 3 | 6 | 1 | |
| Euphilomedes producta | 34 | 62 | 58 | 60 | 69 | 59 | 99 | 42 | 110 | 75 | 73 | 35 |
| Eusirus columbianus | | | | | | | | | | | | 1 |
| Foxiphalus similis | | | | | | 1 | | | | | | |
| Gammaropsis thompsoni | | | | | 1 | | | | | | | |
| Guernea reduncans | | | | | | | 1 | | | | | |
| Harpiniopsis fulgens | 4 | 5 | 2 | 7 | 4 | 16 | 4 | 2 | 10 | 5 | 1 | 3 |
| Heterophoxus affinis | | | 1 | | | | 5 | 3 | 2 | | | 1 |
| Idoteidae sp. | | | | | | | | | | | 1 | |
| Leptostylis sp. | | | | | | 1 | | | | | | |
| Leucon sp. | 1 | | | | | | | | 3 | 1 | | |
| Metaphoxus frequens | | | | | | | | | | | 1 | |
| Orchomene pacificus | | 6 | 4 | 1 | 9 | 2 | 4 | | 6 | 2 | 1 | 1 |
| Paraphoxus sp. | 3 | 1 | | | 18 | | | | | 5 | | 1 |

# Appendix C

## Benthic Taxonomy and Biomass Data - October 2006

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| Station | BW605P | | | BW805N | | | BW805S | | | BW3200N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Replicate** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** |
| Photis lacia | | 1 | 3 | | | 1 | | | | | 1 | |
| Photis spp. | | 1 | | | 1 | | 1 | | | 2 | | |
| Pinnixa occidentalis | 10 | 1 | 4 | 2 | 1 | 4 | 8 | 8 | 7 | 1 | 7 | 3 |
| Pinnixa sp. | 1 | | | | 4 | | | | 1 | | | |
| Pinnotheridae spp. juveniles | | | | | | | 1 | | | | | |
| Protomedeia grandimana | | | | | | | | | | 1 | | |
| Protomedeia prudens | 2 | 1 | | | 3 | 2 | 1 | 1 | 1 | | | |
| Pseudomma sp. | | 1 | 1 | | | | 1 | | 1 | | | |
| Rhacotropis barnardi | | | | | | | | | 1 | | | |
| Rhacotropis oculata | | | | | | | | | 1 | | | |
| Rhepoxynius bicuspidatus | | | | 1 | | | | 1 | | | 2 | 1 |
| Spirontocaris holmesi | | | | 1 | | | | | | | | |
| Stenothoidae sp. | | | | | 1 | | | | | | | |
| Themisto pacifica | | 1 | 1 | | | | | | 1 | | | |
| Westwoodilla caecula | | | | | | | | 1 | | | | |
| **Crustacea Abundance** | **71** | **92** | **82** | **74** | **120** | **98** | **141** | **61** | **169** | **102** | **91** | **60** |
| **Crustacea Richness** | **11** | **16** | **13** | **8** | **14** | **11** | **16** | **9** | **21** | **11** | **11** | **12** |
| **Crustacea Biomass** | **0.46** | **0.10** | **0.24** | **0.24** | **9.54** | **0.19** | **0.35** | **0.27** | **0.43** | **0.11** | **0.29** | **0.28** |
| ***MOLLUSCA*** | | | | | | | | | | | | |
| Acila castrensis | 1 | 3 | 3 | | 2 | 4 | 3 | 1 | 2 | 1 | 2 | 1 |
| Adontorhina cyclia | | 1 | | | | | | | | | | |
| Alvania rosana | | | | | | | | | | 1 | | |
| Axinopsida serricata | 35 | 36 | 28 | 32 | 39 | 15 | 44 | 37 | 38 | 24 | 22 | 17 |
| Bittium eschrichtii | 2 | 6 | 5 | 6 | 4 | 7 | 6 | 10 | 9 | 1 | 5 | 2 |
| Compsomyax subdiaphana | 2 | | 1 | 3 | | 1 | 1 | | | | 1 | 2 |
| Corambe pacifica | 1 | | | | | | 1 | | | | | 2 |
| Ennucula tenuis | 1 | | 3 | 4 | 1 | 2 | 1 | 1 | 2 | | 2 | 1 |
| Hiatella arctica | | | | | 1 | | | | | | | |
| Lucinoma annulatum | 1 | | | | | | 1 | | 1 | | 1 | |
| Macoma carlottensis | 282 | 457 | 276 | 301 | 477 | 354 | 368 | 227 | 344 | 398 | 318 | 251 |
| Macoma elimata | | | | | | 1 | | | 1 | | 3 | |
| Macoma sp. juv. | | | | | 1 | | | | | | | |
| Macoma yoldiformis | 1 | | | | | | 2 | | | 1 | | |
| Nemocardium centifilosum | | | | | | | | 1 | 1 | | | |
| Nuculana minuta | | | | | 1 | | | | | | | |
| Odostomia sp. | | | 1 | 1 | | | | | | | | |
| Parvilucina tenuisculpta | 17 | 20 | 17 | 7 | 11 | 4 | 16 | 12 | 17 | 20 | 24 | 17 |
| Pulsellum salishorum | 1 | | 1 | | 2 | 2 | | 1 | 4 | | | |
| Rochefortia tumida | 3 | 6 | 7 | 5 | 10 | 5 | 9 | 3 | 7 | 6 | 9 | 2 |

# Appendix C

## Benthic Taxonomy and Biomass Data - October 2006

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| **Station** | **BW605P** | | | **BW805N** | | | **BW805S** | | | **BW3200N** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Replicate** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** |
| Solen sicarius | | | | | | | | 1 | | | | |
| Tellina modesta | | | | | | | 1 | 2 | | 1 | | |
| Turbonilla sp. | 1 | | 1 | | | 1 | | | | | | |
| Yoldia seminuda | | | | | | | 1 | | 1 | | | |
| **Mollusca Abundance** | **348** | **529** | **343** | **359** | **549** | **396** | **454** | **296** | **427** | **453** | **387** | **295** |
| **Mollusca Richness** | **13** | **7** | **11** | **8** | **11** | **11** | **13** | **11** | **12** | **9** | **10** | **9** |
| **Mollusca Biomass** | **8.41** | **10.41** | **7.83** | **11.97** | **10.74** | **6.14** | **8.63** | **7.75** | **8.38** | **9.29** | **11.10** | **5.17** |
| ***MISCELLANEOUS TAXA*** | | | | | | | | | | | | |
| Amphiodia sp. | | | | 1 | | | | | 1 | | 1 | |
| Cerebratulus sp. | | | 1 | 1 | | 1 | 1 | 1 | | | | |
| Golfingiidae sp. | | | | 1 | | | | | | | | |
| Hoplonemertea spp. | 1 | | 1 | 2 | | | | | 1 | | 1 | |
| Kaburakia excelsa | | | | 1 | | | | | | | | |
| Leptoplanidae spp. | 1 | | | | | | | | | | | 2 |
| Lineidae spp. | | | | 1 | | | | | | | | |
| Molpadia intermedia | 1 | | | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | |
| Nematoda sp. | | | | 2 | | | | | | | | |
| Ophiurida spp. | | | | | | 1 | | | | | | |
| Pentamera spp. | | | | | | | | | | | 1 | |
| **Miscellaneous Taxa Abundance** | **3** | **0** | **2** | **10** | **1** | **4** | **2** | **2** | **3** | **1** | **4** | **2** |
| **Miscellaneous Taxa Richness** | **3** | **0** | **2** | **8** | **1** | **3** | **2** | **2** | **3** | **1** | **4** | **1** |
| **Miscellaneous Taxa Biomass** | **72.91** | **0.00** | **3.63** | **60.83** | **67.19** | **137.99** | **45.08** | **73.25** | **60.70** | **76.92** | **44.52** | **<0.01** |

# Appendix D
## Benthic Taxonomy and Biomass Data – October 2007

# Appendix D

## Benthic Taxonomy and Biomass Data - October 2007

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| Station | BW605P | | | BW805N | | | BW805S | | | BW3200N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Replicate** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **2** |
| **ANNELIDA** | | | | | | | | | | | | |
| Ampharete acutifrons | 3 | 4 | 8 | 1 | 2 | 2 | 5 | 5 | 2 | 4 | 6 | 7 |
| Aricidea lopezi | | | | | | | | 1 | | | | 1 |
| Barantolla americana | 4 | 21 | 7 | | 1 | 1 | 7 | 10 | 3 | 2 | | 1 |
| Brada sachalina | | | | 1 | 1 | | | | | 3 | 1 | |
| Cirratulidae | | | 1 | 1 | | | | | | 1 | | |
| Cossura pygodactylata | | 2 | 1 | 1 | | 1 | 4 | 1 | 1 | 4 | 1 | 2 |
| Galathowenia oculata | | | | | | | | 3 | | 1 | | |
| Glycera americana | | | | | | | | | | 1 | | |
| Glycera nana | 6 | 6 | 6 | 5 | | 2 | 6 | 8 | 8 | 9 | 6 | 4 |
| Glycinde armigera | 1 | 1 | | | | 2 | 1 | 1 | | | | 1 |
| Glycinde picta | | | | | | | 1 | | | | | |
| Goniada brunnea | | | | | | | 1 | | | | | |
| Heteromastus filobranchus | | 4 | | 3 | 2 | | 1 | | 1 | 4 | 3 | 3 |
| Levinsenia gracilis | 6 | 5 | 4 | 9 | 1 | 2 | 17 | 3 | 11 | | 1 | 4 |
| Maldanidae juv | | | | | | | | | 1 | | | |
| Malmgreniella sp. indet. | | 1 | | 3 | | | | | 1 | 1 | | |
| Mediomastus sp. indet. | 4 | 2 | | 4 | 1 | 1 | 3 | 2 | 1 | 3 | 5 | 4 |
| Nephtys cornuta | 3 | 2 | 6 | 3 | 1 | 1 | 7 | 1 | 7 | 6 | 8 | |
| Nephtys ferruginea | 2 | 4 | 4 | 1 | 1 | 4 | | 4 | 2 | 2 | 1 | 1 |
| Nephtys punctata | | | | | | 1 | | | | | | |
| Oligochaeta | | 1 | | | | | | | | | | |
| Onuphis iridescens | 1 | | | 1 | 2 | | 2 | 1 | | 1 | | 4 |
| Owenia johnsoni | | | | | 1 | | | | | 1 | | |
| Paraprionospio pinnata | | | | | | 1 | | | | 1 | 1 | 1 |
| Pectinaria californiensis | 17 | 11 | 14 | 16 | 19 | 9 | 21 | 16 | 12 | 12 | 8 | 13 |
| Pholoe sp. indet. | 1 | | | | | 2 | 1 | | 1 | | | 1 |
| Phyllodoce groenlandica | | | 1 | | | | 2 | | 1 | | | |
| Phyllodoce sp juv | | | | | | | 1 | | | | | 1 |
| Podarkeopsis glabrus | | 1 | | 1 | | | 1 | | 1 | 2 | | 1 |
| Polycirrus sp | | | 1 | | | | | | 1 | | | |
| Polydora caulleryi | | 29 | 21 | | | | | | | 4 | | |
| Polynoidae | | | | | | | 1 | | | | | |
| Praxillella pacifica | 1 | 1 | 2 | 1 | | | | | 2 | 1 | 2 | 1 |
| Prionospio lighti | 3 | 5 | 9 | 5 | 3 | 1 | 3 | | 4 | 4 | 11 | 4 |
| Prionospio steenstrupi | 2 | 1 | 1 | 2 | | 1 | | 1 | 3 | | 7 | |
| Scoletoma luti | | | | | | | | | | | | 1 |
| Sigambra bassi | | | | 1 | 2 | 1 | 6 | | | | | |
| Sphaerodoropsis sphaerulifer | 1 | | | | | | | 2 | | | | 2 |

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## Benthic Taxonomy and Biomass Data - October 2007

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| Station | BW605P | | | BW805N | | | BW805S | | | BW3200N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Replicate** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **2** |
| Spiophanes berkeleyorum | | 3 | 3 | | 3 | 1 | 5 | 2 | 1 | 4 | 1 | 1 |
| Spiophanes bombyx | | | | | | | | | | | 1 | |
| Travisia pupa | | | | | | 1 | | | | | | 1 |
| **Annelida Abundance** | **55** | **104** | **89** | **59** | **40** | **34** | **96** | **61** | **64** | **71** | **63** | **59** |
| **Annelida Richness** | **15** | **19** | **16** | **18** | **14** | **18** | **21** | **16** | **20** | **22** | **16** | **22** |
| **Annelida Biomass** | **1.70** | **3.11** | **1.17** | **1.29** | **1.28** | **13.47** | **1.90** | **1.48** | **2.89** | **7.39** | **1.65** | **8.13** |
| **CRUSTACEA** | | | | | | | | | | | | |
| Acanthaxius spinulicauda | | 1 | | | | | | | | | | |
| Americhelidium shoemakeri | | 5 | | 6 | 1 | 2 | 6 | | 2 | 2 | | 1 |
| Americhelidium variabilum | 1 | | | | | | | | | | | |
| Argissa hamatipes | | | | | | 1 | | | | | | |
| Bathymedon pumilis | | 1 | | | | | | | | | | |
| Bruzelia tuberculata | | 3 | 8 | 8 | | 2 | 5 | 6 | 3 | | 1 | |
| Calliopius columbianus | | | | 1 | | | | | 1 | | | 1 |
| Cylindroleberididae | 3 | | 3 | 3 | 1 | 3 | 6 | | | 1 | 1 | 1 |
| Cyphocaris challengeri | | | | | 1 | | | 2 | | | | |
| Desdimelita desdichada | | | | 1 | | 1 | | | | | | |
| Diastylis pellucida | 5 | 2 | 2 | 6 | | 2 | 6 | 6 | 3 | 2 | 4 | 1 |
| Dyopedos sp. | 2 | 14 | 22 | 6 | 5 | 3 | 29 | 12 | 16 | 3 | 2 | 5 |
| Eualus sp. juvenile | | | | | 1 | | | | | | | |
| Eudorella pacifica | 21 | 15 | 31 | 24 | 10 | 6 | 28 | 10 | 23 | 10 | 15 | 11 |
| Euphilomedes carcharodonta | | | | 1 | | | | | 1 | | | |
| Euphilomedes producta | 97 | 84 | 88 | 74 | 64 | 71 | 106 | 123 | 98 | 94 | 73 | 112 |
| Guernea reduncans | | | | | | | | | | | | 1 |
| Harpiniopsis fulgens | 12 | 12 | 21 | 13 | 14 | 3 | 25 | 12 | 19 | 9 | 15 | 10 |
| Heterophoxus affinis | | | | | | | 6 | 1 | 1 | 3 | | |
| Heterophoxus sp. | | | 1 | 1 | | | | | | | | |
| Leptostylis sp. | | | | | | | | 1 | 2 | | | |
| Leucon sp. | | | | | | | | | 1 | | | |
| Melphidippidae | | | | | | | 1 | | | 1 | 1 | 1 |
| Munnopsurus sp. | | 1 | | | | | 1 | | | | | |
| Orchomene pacificus | 8 | 10 | 15 | 8 | 5 | 4 | 21 | 11 | 12 | 12 | 13 | 12 |
| Pachynus barnardi | | | | 1 | | | | | | | | |
| Paraphoxus sp. | | | | 1 | | | 4 | | | | | |
| Photis bifurcata | | | | | | | | | | 1 | | |
| Photis lacia | 2 | 3 | 3 | | | 2 | 6 | 2 | 3 | 4 | 5 | 1 |
| Photis spp. | 1 | | | | 1 | | | | 1 | | 1 | 3 |
| Pinnixa occidentalis complex | 5 | 24 | 23 | 19 | 10 | 28 | 12 | | 18 | 6 | 12 | 8 |
| Pinnixa sp. | | | | | | | | | | 1 | | |

# Appendix D

## Benthic Taxonomy and Biomass Data - October 2007

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| Station | BW605P | | | BW805N | | | BW805S | | | BW3200N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Replicate** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **2** |
| Pleusymtes sp. | | | 1 | | | | | | | | 1 | |
| Protomedeia prudens | 2 | 3 | 3 | 4 | 1 | 3 | 4 | 1 | | 9 | 4 | 1 |
| Pseudomma sp. | | 3 | | | | 1 | 2 | 2 | 1 | 1 | | |
| Rhepoxynius abronius | | | | 1 | | | | | | | | |
| Rhepoxynius bicuspidatus | | 2 | 2 | | 1 | | 1 | 3 | 1 | 6 | 2 | 2 |
| Stenothoides sp. | | | | | | | 1 | | 2 | | 1 | |
| Themisto pacifica | | | | 1 | | | | | | | | |
| Westwoodilla tone | 1 | | 2 | 2 | | | | | | | | |
| **Crustacea Abundance** | **160** | **183** | **225** | **181** | **115** | **132** | **270** | **192** | **208** | **165** | **151** | **171** |
| **Crustacea Richness** | **13** | **16** | **15** | **20** | **13** | **15** | **19** | **14** | **19** | **17** | **16** | **16** |
| **Crustacea Biomass** | **0.28** | **1.41** | **0.51** | **0.61** | **0.25** | **0.78** | **0.69** | **0.68** | **0.44** | **0.25** | **0.55** | **0.36** |
| **MOLLUSCA** | | | | | | | | | | | | |
| Acila castrensis | 1 | 3 | 1 | | 1 | 1 | 1 | 1 | 5 | 1 | 1 | 2 |
| Alvania compacta | | | | | 1 | | 1 | | | | | |
| Astyris gausapata | | | | | | | | | | | | 1 |
| Axinopsida serricata | 31 | 24 | 34 | 17 | 22 | 25 | 23 | 34 | 44 | 21 | 25 | 33 |
| Cephalispidea sp. indet. | | | | 2 | | | | | | | | |
| Clinocardium sp. juv. | | | | | | | 1 | | | | | |
| Compsomyax subdiaphana | | | 1 | | 1 | | | | | 4 | 1 | |
| Corambe pacifica | | 2 | | 1 | | | | | | | | |
| Cyclostromella concordia | | | | | | | | 1 | | | | |
| Cylichna alba | | | | | | | | | | 1 | 1 | |
| Diaphana sp. | 1 | | | | 2 | | 1 | 1 | | 1 | 2 | 1 |
| Ennucula tenuis | 2 | 2 | 1 | | | | 2 | | | 1 | 2 | 1 |
| Lirobittium eschrichtii | 3 | 5 | 2 | 1 | 3 | 8 | 4 | 6 | 8 | 2 | 6 | 4 |
| Lucinoma annulatum | 2 | | 2 | | 1 | 2 | | 2 | 2 | | 1 | |
| Lyonsia californica | | 1 | 1 | | | | 1 | 4 | | | | |
| Macoma carlottensis | 1,186 | 1,071 | 1,203 | 1,036 | 1,090 | 1,146 | 1,248 | 1,347 | 1,310 | 1,342 | 1,572 | 1,506 |
| Macoma elimata | | | | 1 | | | | | | | | |
| Macoma nasuta | 1 | | | | | 3 | 2 | 3 | 1 | 1 | 4 | 2 |
| Mactridae sp. | | | | | 1 | | 1 | | | | | |
| Megayoldia thraeciaeformis | | | | | 1 | | | | | | | |
| Melanochlamys diomedea | | | 1 | | | 1 | | 1 | 1 | 1 | | 1 |
| Mya sp. juv. | | | | | | | | | | 1 | | |
| Mytilus sp. juv. | | | 1 | | | | | | | | | |
| Nemocardium centifilosum | 5 | 11 | 7 | 11 | 8 | 5 | 12 | 16 | 9 | 3 | 4 | 8 |
| Nutricola lordi | 1 | | 1 | | | | | | | | | |
| Odostomia spp. | | | | 2 | | | | 1 | | | | 1 |
| Parvilucina tenuisculpta | 29 | 27 | 37 | 25 | 21 | 14 | 40 | 35 | 36 | 34 | 38 | 41 |

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## Benthic Taxonomy and Biomass Data - October 2007

### Brightwater Treatment System Marine Outfall

### Baseline Sediment Characterization - Outfall Diffuser

| Station | BW605P | | | BW805N | | | BW805S | | | BW3200N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Replicate** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **2** |
| Rhabdus rectius | | 1 | 2 | | | 1 | | 3 | 2 | | | |
| Rochefortia tumida | 4 | 3 | 12 | 7 | 1 | 1 | | 5 | 6 | 2 | 6 | 4 |
| Solen sicarius | 1 | 1 | 1 | | 1 | | | | | 1 | | |
| Yoldia seminuda | | | 1 | | | | | 1 | | | | |
| **Mollusca Abundance** | **1,267** | **1,151** | **1,307** | **1,103** | **1,154** | **1,207** | **1,337** | **1,460** | **1,424** | **1,416** | **1,663** | **1,605** |
| **Mollusca Richness** | **13** | **12** | **17** | **10** | **14** | **11** | **13** | **16** | **11** | **15** | **13** | **13** |
| **Mollusca Biomass** | **3.61** | **4.13** | **38.02** | **3.67** | **3.81** | **3.80** | **3.65** | **8.04** | **4.44** | **48.16** | **52.50** | **4.19** |
| **MISCELLANEOUS** | | | | | | | | | | | | |
| Amphiodia spp. | 1 | 1 | | | 1 | 1 | 2 | | | 2 | | |
| Amphiporus spp. | 5 | 2 | 1 | 2 | | 1 | 6 | 3 | 3 | | | 1 |
| Cerebratulus spp. | 1 | | | 1 | | | 2 | 1 | | | 1 | |
| Lineidae spp. | | 2 | | | | | | | | | | |
| Molpadia intermedia | | | 1 | | 1 | 2 | | 1 | 1 | 1 | | |
| Nemertea sp. | | | | | | | | 1 | | | | |
| Ophiurida spp. | 1 | | 1 | | 1 | 2 | 1 | | | 2 | | |
| Polycladida spp. | | | | | | | | | 1 | | | |
| Tubulanus pellucidus/polymorphus | | 2 | | | | 2 | | 1 | 1 | 1 | 2 | |
| **Miscellaneous Taxa Abundance** | **8** | **7** | **3** | **3** | **3** | **8** | **11** | **7** | **6** | **6** | **3** | **1** |
| **Miscellaneous Taxa Richness** | **4** | **4** | **3** | **2** | **3** | **5** | **4** | **5** | **4** | **4** | **2** | **1** |
| **Miscellaneous Taxa Biomass** | **1.33** | **0.05** | **92.79** | **1.35** | **35.91** | **85.11** | **3.10** | **33.40** | **28.53** | **61.50** | **1.33** | **<0.01** |