Intergovernmental Agreement for Remedial Investigation and Source Control Measures

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Outfall Basin 44 Source Investigation Report

City of Portland Outfall Project ECSI No. 2425

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PREPARED BY



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Abbreviations and Acronyms

AOPC Area of Potential Concern BEHP bis(2-ethylhexyl)phthalate

BES Bureau of Environmental Services

City City of Portland

COI contaminant of interest

DDD dichlorodiphenyldichloroethane
DDE dichlorodiphenyldichloroethylene
DDT dichlorodiphenyltrichloroethane
DDx sum of DDD, DDE, and DDT

DEQ Oregon Department of Environmental Quality ECSI Environmental Cleanup Site Information

EPA Environmental Protection Agency

HYDRA Hydrological Data Retrieval and Alarm

JSCS Joint Source Control Strategy
LWG Lower Willamette Group

μ micron

μg/Kg microgram(s) per kilogram
 μg/L microgram(s) per liter
 MRL method reporting limit
 mg/Kg milligram(s) per kilogram

NFA No Further Action

NPDES National Pollutant Discharge Elimination System

PAH polycyclic aromatic hydrocarbon

PCB polychlorinated biphenyl PST Pacific Standard Time

QAPP Quality Assurance Project Plan

RM river mile

SAP sampling and analysis plan

SLV screening level value

SOP standard operating procedure SVOC semivolatile organic compound

TOC total organic carbon
TSS total suspended solids
VOC volatile organic compound

WPCL Water Pollution and Control Laboratory

Introduction

This report presents the results of the City of Portland (City) source investigation activities in Outfall Basin 44. Outfall 44 discharges to the east side of the Willamette River at river mile (RM) 11.2. The area of the river between RM 11 and 11.6 (referred to as RM 11E) has been targeted for focused inriver and upland investigations in response to detections of elevated concentrations of polychlorinated biphenyls (PCBs) and other contaminants in river sediment, water, and fish tissue samples from this area. The Oregon Department of Environmental Quality (DEQ) and the City Bureau of Environmental Services (BES) are collaborating on upland source control in this area consistent with the City's ongoing source control program described in the August 13, 2003, Intergovernmental Agreement between DEQ and the City. The source investigation described in this report was conducted in response to DEQ's correspondence dated August 13, 2008 (DEQ, 2008), requesting the City to investigate whether contaminant sources are discharging to RM 11E via Outfalls 43, 44, 44A, and 45.

The City's evaluation of this basin started with monitoring stormwater and solids as close to the outfall as possible (Phase 1). Draft data results indicated that there was a PCBs source(s) in the basin. Several properties were identified as potential sources based on the presence of erodible soils and current or historical operations at those sites. Additional stormwater, stormwater sediment, and erodible soils were collected (Phase 2) throughout the basin to evaluate each branch and the identified potential source areas to determine if there were current sources that needed to be addressed. The proximity of sampled locations with elevated PCBs concentrations to areas of documented PCB-contaminated surface soils adjacent to the Albina Substation blocks supported the need for source controls at the site. One other area within the basin had elevated PCBs concentrations in stormwater and solids, but after system cleanout and resampling, it was concluded that PCBs detected at this location likely represented localized legacy material and not current sources that needed to be controlled.

1.1 Objective and Scope

The purpose of the investigation described in this report is to conduct a stormwater pathway screening evaluation of Basin 44 in accordance with the Portland Harbor Joint Source Control Strategy (JSCS) (DEQ/EPA, 2005, as amended 2007) to determine whether Basin 44 is a significant pathway for contaminant discharges from upland sources to the river. The investigation includes stormwater and sediment trap results from basin-level screening to evaluate the potential for sources to be present in the basin (Phase 1), as well as results from stormwater, inline solids, and surface soil sampling at selected upgradient locations representative of specific sub-drainage areas within Basin 44 to further identify potential sources within the basin (Phase 2). The data are evaluated by comparison to JSCS screening level values and the ranges of concentrations detected in basins throughout Portland Harbor, and relative to known and suspected sources in the basin.

1.2 Report Organization

The remainder of this report is organized as follows:

- Section 2: Background Summarizes the context for the source investigation, conveyance system configuration and drainage basin setting, contaminants of interest, and potential upland sources.
- Section 3: Source Investigation Approach Describes the rationale, sequence, and chronology of the sampling and analytical activities conducted for this source investigation.
- Section 4: Stormwater Sampling and Analysis Describes the stormwater sampling locations, storm events sampled and analytical approach, and summarizes the stormwater analytical results.
- Section 5: Stormwater Solids Sampling and Analysis Describes the sediment trap, inline solids, and surface soils sampling and analyses, and summarizes the analytical results.
- Section 6: Data Evaluation Evaluates the results of the stormwater and solids sampling to assess whether there are significant current sources of contaminants in the basin.
- Section 7: Source Control Activities Summarizes source control actions completed by the City and others during the course of the source investigation.
- Section 8: Conclusions and Next Steps Summarizes the findings from the source investigation and identifies next steps that are needed in the basin.
- *Section 9: References*

Background

2.1 River Mile 11E

Inriver data (sediment, surface water, and tissue) collected by the Lower Willamette Group (LWG) indicates the presence of historical and potential current sources of contaminants to the east side of the river between RM 11 and 11.6. To assist the U.S. Environmental Protection Agency (EPA) and DEQ with the evaluation of data from this area, the LWG compiled background information on potential sources to the contaminated reach (LWG, 2007). Subsequently, EPA expanded the Portland Harbor Study Area to RM 11.8 and DEQ requested parties discharging to the RM 11E area to conduct investigations of potential sources to the river.

The City compiled background information on City basins discharging to RM 11E to support the source investigation approach and Sampling and Analysis Plan (SAP) for Basins 43, 44, and 44A (BES, 2008) and initiated source investigations in these basins in 2008. Additional inriver and upland data collection efforts have been conducted by the City and other parties in this area, which has been designated as Area of Potential Concern (AOPC) 25 by EPA (EPA, 2009). In addition to Outfall 44, three other City outfalls (Outfalls 43, 44A, and 45), one Oregon Department of Transportation outfall, and approximately 13 private industrial outfalls also discharge to AOPC 25.

2.2 Conveyance System Configuration and Drainage Basin

Outfall 44 is a 12-inch-diameter outfall that was constructed in approximately 1907. The outfall conveys stormwater draining from a 17-acre industrial area. Figure 1 depicts the configuration of the Outfall 44 conveyance system and the approximate basin boundary. In addition to the 12-inch-diameter line to the outfall, the conveyance system includes branches along N. River and N. Loring Streets and the intersecting streets between the river and N. Interstate Avenue. The City has updated the delineation of Basin 44 based on review of video records of the conveyance system, research on piped connections in some parts of the basin, and BES Industrial Stormwater Program site inspections. The updated delineation is shown on Figure 1.

2.3 Contaminants of Interest

During development of the SAP for Basin 44, available RM 11E sediment data were reviewed to identify contaminants of interest (COI) for the basin source investigation (BES, 2008). Elevated

¹ Private industrial outfalls serve: Sakrete of Pacific Northwest, Inc. (outfalls WR-282, WR-283, and WR-291); Glacier Northwest, Inc. (WR-350, WR-351, WR-352, WR-353, and WR-354); and Cargill Inc. (WR-341, WR-342, WR-343, WR-344, and WR-401).

levels of PCBs, polycyclic aromatic hydrocarbons (PAHs), and DDT² (and its breakdown products) were observed in the area, though spatial distributions did not point to a single source. Based on this review, PCBs were identified as the primary COI for the basin investigation.

2.4 Potential Upland Sources

Upland facilities identified as potential sources to the Basin 44 conveyance system include DEQ Cleanup Program sites as listed in DEQ's Environmental Cleanup Site Information (ECSI) database, and facilities permitted by DEQ under the National Pollutant Discharge Elimination System (NPDES) industrial stormwater discharge permit program due to stormwater exposures to industrial operations (see Table 1). The locations of ECSI sites and NPDES permittees within Basin 44 are shown on Figure 1. Information for these sites is summarized below.

• PacifiCorp Albina Riverlots (ECSI #5117): This designated ECSI number includes several individual properties currently or formerly owned or leased by PacifiCorp in the vicinity of N. River Avenue and N. Loring Street. Albina Riverlots properties that are within or partially within the current boundaries of Basin 44 are described below by block number, based on information provided in PacifiCorp's Final Preliminary Assessment Report for the Albina Area Properties (Bridgewater, 2009). The block numbers are shown on Figure 1.

Current PacifiCorp Properties

- o *Block 71 (Albina Substation 115kV Yard)*: The substation was built in 1949. Prior uses of this property included log and pole storage. This parcel has no known direct piped connection to the Basin 44 stormwater conveyance system, but catch basins connected to the system are located adjacent to the site. Surface soil samples collected by PacifiCorp during 2001 along the former northeastern part of the property (now part of N. Railroad St.) contained diesel, heavy oil, and PCBs (up to 2,000 micrograms/kilogram [μg/Kg] Aroclor 1260) (Bridgewater, 2009). PacifiCorp conducted further investigation and source control activities on this property in 2010, as discussed in Section 7.
- O Block 81 (Albina Substation 69kV Yard): PacifiCorp has operated a substation on this block since 1949. Prior uses of this property included shipyard operations, lumber/wood storage, Orchard Spray Company operations, and machine works. Though the site has no known direct piped stormwater connection to Basin 44, video surveys in the adjacent City storm lines identified lateral connections that are currently being investigated by PacifiCorp. Soil data from a 2008/2009 transformer replacement project on this block indicate PCB-impacted soil was present throughout the northeastern part of the block, at concentrations up to 655 μg/Kg (Aroclor 1260). Approximately 963 tons of impacted soil (to depths of 36 to 44 inches below ground surface) were excavated from this area and disposed (Bridgewater,

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² The presence of non-target halogenated compounds can result in reported organochlorine compounds concentrations that are biased high or false positives. Some samples with elevated pesticides detections were reanalyzed using a method that minimized this bias; reanalyses confirmed matrix interference. These results will be included in a report expected to be produced in the summer of 2011.

- 2009). PacifiCorp conducted further investigation and source control activities on this property in 2010, as discussed in Section 7.
- O Block 82 (Albina Substation 11kV yard): PacifiCorp has operated a substation on this block since 1949. Other uses of this property have included shipyard operations, lumber/wood storage, steel shop and plate bending facility, electrical equipment storage, engine fabrication, vehicle parking. One catch basin on this parcel discharges to Basin 44. Historically, PCBs were detected at elevated concentrations in soil samples collected in association with a 1988 insulating oil spill (Aroclor "1254/60" concentrations up to 7,900 μg/Kg) (Bridgewater, 2009). PCBs also were detected at concentrations up to 2,070 μg/Kg in shallow surface soil samples collected in 2000 in conjunction with the planned construction of the N. Tillamook Street on-ramp (aka Interstate Overpass). PacifiCorp conducted further investigation and source control activities on this property in 2010, as discussed in Section 7.

Former PacifiCorp Properties

- o *Block 69 (Current Use: Ostrom Glass & Metal)*: PacifiCorp used a portion of this block for vehicle parking (garage) and maintenance from about 1947 to 1981. Other industrial/commercial uses of this property include piano refurbishing and (currently) production of glass and metal commercial art. The site is entirely occupied by a single building. No known hazardous substance releases have occurred and no sampling or remedial investigations have been conducted on this property (Bridgewater, 2009).
- Block 79 (Current Use: Cloudburst Recycling): PacifiCorp used this block from 1953 to 1991 for treated utility pole storage, electrical equipment storage, office, and vehicle parking and maintenance, print/sign shop. Other industrial/commercial uses of this property included operations affiliated with shipyards, wood storage, print and sign making. Currently, a garbage and recycling collection business operates at the site; no collected materials are stored on site. Site operations include an office, truck parking, and storage of empty collection barrels and bins. The majority of the site is unpaved. PCBs were detected at a concentration of 800 µg/Kg in a surface soil sample collected in April 1990 from a former used oil storage area during an investigation related to a property transaction (Bridgewater, 2009). A City spill record from 2005 confirms a release to the Basin 44 stormwater conveyance system from an illicit connection of a wash sink to an onsite storm line. Oregon Biodiesel was operating on a portion of the site at the time and released greasy wash water to the storm system. Plumbing records and dye tests confirm at least one connection to Basin 44 from this block. Drainage areas affiliated with this connection and the possibility of other connections are not known.
- o *Block 80 (Current Use: General Automotive Supply)*: PacifiCorp used this block from 1948 to 1992 for radio repair, vehicle parking, and outdoor electrical equipment storage. Other industrial/commercial uses of this property include operations affiliated with shipyards, a lumber yard, feed mill, sulfur grinding facility, carpet cleaning, pipe yard, sheet metal storage, pickling, cable storage, machine shop, and offices; and (currently) an automotive supply business. The block is currently occupied by a single building, built in 1996, and a small parking area. PCBs were

- detected in surface soils along the southeast side of the building during PacifiCorp's shallow soils investigation in 2009 (these soils subsequently were excavated and disposed as discussed in Section 7). No previous sampling or remedial investigations have been conducted on this property (Bridgewater, 2009).
- Valvoline (ECSI # 3215): Historical uses of the site include a resident and livery/feed stable (1889 to 1910), a foundry (1918 to 1923), and Valvoline oil blending facility (1931 2001). The City purchased the property in 2002 for construction of the Interstate Overpass but the alignment was changed to a different property. Contaminants detected in soil and/or groundwater samples collected during a site investigation conducted in 2001 included petroleum hydrocarbons, PAHs, metals, and volatile organic compounds (VOCs) related to spills around bulk fuel tanks (URS, 2001). The City remediated the site in 2002 2003 under a Prospective Purchaser Agreement with DEQ (URS, 2002). DEQ issued a No Further Action (NFA) determination for the site in 2003. The site is currently used by the City for interior storage of deicing material and for vehicle parking (BES, 2008).
- Vermiculite Northwest (ECSI # 2761): Little information is available for this site.
 According to DEQ's ECSI website (DEQ, 2000), "EPA Region 10 has added the site to
 CERCLIS as part of its nationwide investigation of former WR Grace facilities that
 handled asbestos-containing vermiculite. DEQ has not been involved in the
 investigation at this site, but will be tracking EPA's efforts to determine whether the past
 handling of asbestos-containing vermiculite presents any current threats to human
 health or the environment."
- Glacier Northwest (ECSI # 5449): This site is listed as a DEQ Cleanup site based on contamination identified at the site during a limited investigation and the potential for site contaminants associated with historical activities (including shipbuilding and fuel company operations) to impact the adjacent Willamette River (DEQ, 2010a). The northwestern portion of this ECSI site was occupied by the KF Jacobsen & Co. plant until 2010, when Glacier terminated the lease (see Figure 1). Until that time, runoff from the southeast portion of the KF Jacobsen operational area discharged to the Basin 44 stormwater conveyance system. As listed in Table 1, the KF Jacobsen facility has a current NPDES 1200-A permit, which applies only to mining and asphalt/concrete batch plants. Under the 1200-A permit, stormwater discharges from this facility must meet monitoring benchmarks for pH, total suspended solids (TSS), settleable solids, oil and grease, and turbidity. A stormwater source control evaluation is underway at the Glacier Northwest site. The work plan for this evaluation (ERM, 2011) indicates that previous investigations on this property did not detect PCBs in soil or groundwater samples from the northern parcel. The work plan also indicates the two catch basins in the northern portion of the site that currently drain to Basin 44 will be permanently rerouted to a non-City outfall (WR-350) (ERM, 2011).

A portion of the Tucker Building site (ECSI # 3036) historically discharged to Outfall 44 but currently discharges to Outfall 43. Information about this site will be included in the Outfall Basin 43 Source Investigation Report.

Source Investigation Approach

The City's investigation activities in Basin 44 were conducted in two phases, as presented in the project-specific SAP and SAP amendment (BES, 2008; BES, 2009a).³ In addition to the work described in the SAP and SAP amendment, supplemental stormwater and solids investigations were conducted as part of the Phase 2 investigation in Basin 44 as data were acquired and reviewed. This section summarizes the overall approach and timeline of the phased investigations. Descriptions of the sampling activities and analytical approach are provided in Section 4 (stormwater sampling) and Section 5 (stormwater solids sampling). During Phase 1 of the investigation, the City collected six events of stormwater grab samples and a concurrent inline sediment trap sample at a location representative of the majority of the basin, as a screening step to identify future source investigation priorities for the City outfall basins discharging to the RM 11E area. Subsequent stormwater drainage system information obtained from the KF Jacobsen facility during permit review and site inspection indicated that the portion of the facility discharging to Basin 44 connects to the basin downstream of the monitoring location utilized during Phase 1.4 The stormwater samples were collected during a total of six storm events between November 2008 and April 2009. The sediment trap was deployed in November 2008 and removed in May 2009.

Because early Phase 1 data indicated the presence of PCB sources in the basin, the City developed the Phase 2 SAP Amendment. The City conducted field inspections at several industrial sites within the basin, and evaluated conveyance system records to clarify locations of lateral connections. Phase 2 solids sampling activities were conducted at multiple locations in the basin (i.e., upgradient, adjacent, and downgradient of suspected source areas) for source tracing purposes; 26 inline solids samples and one composite surface soils sample were collected between March 2009 and January 2010. In conjunction with the sixth stormwater sampling event, stormwater grab samples were collected at 12 additional upgradient locations within Basin 44, in response to detection of PCBs at elevated concentrations in stormwater samples collected at the Phase 1 sampling location during the preceding events.

Sample collection and handling procedures were conducted using the applicable standard operating procedures (SOPs) in the City's *Amended Programmatic Sampling and Analysis Plan* (Programmatic SAP) (BES, 2007a) and in accordance with the *Amended Programmatic Quality Assurance Project Plan* (Programmatic QAPP) for the project (BES, 2007b). Sections 4 and 5 discuss the stormwater and solids investigation activities in more detail.

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³ The SAP was finalized in accordance with DEQ's comments and approval provided in a memorandum dated November 12, 2008.

⁴ No access point to Basin 44 exists at or downstream of this connection.

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Stormwater Sampling and Analysis

4.1 Field Activities

The City conducted the Phase 1 stormwater sampling activities in accordance with the SAP (BES, 2008). Manhole ABC352 (located in the 12-inch main line) (Figure 2) was chosen as the sampling location in Basin 44 because it is located downgradient of all connections to the basin conveyance system that were known at the time.⁵ The drainage area for this sampling location represents approximately 16 acres of the 17-acre total drainage area of Basin 44. Sampling objectives were to collect samples during four storm events, with the timing of two events slated to target "first-flush" conditions (broadly defined for the purposes of basin-level monitoring as being within the first 3 hours of observed runoff). Stormwater samples were collected during six storm events, three of which represented first-flush. For the sixth event, 12 additional upgradient locations within Basin 44 were sampled in accordance with the Phase 1 SAP procedures. Locations were selected based on stormwater flow observations and proximity to suspected source areas. Photographs of the sampling locations and stormwater flow conditions are provided in Appendix A. Field notes taken during stormwater sampling activities are provided in Appendix B.

4.2 Storm Events Sampled

The SAP identifies the following target storm event criteria (consistent with the JSCS) for stormwater sampling:

- Antecedent dry period of at least 24 hours (as defined by <0.1 inches of rainfall over the previous 24 hours);
- Minimum predicted rainfall volume of >0.2 inches for the storm event; and
- Expected duration of the storm event of at least 3 hours.

These criteria were developed as part of the JSCS for implementation by upland sites. For the purposes of the City's basin-scale source investigations, the criteria are used as general guidelines to determine if forecasted storms should be targeted for sampling. Project personnel worked directly with a weather service during storm event selection and sampling mobilization to target storms with stormwater runoff expected to be representative of runoff from the entire basin.

Samples were defined as meeting or not meeting "first-flush" conditions based on the rain gage data, field observations, and the timing of sample collection during the storm event. Table 2 includes a summary of the characteristics of each sampling event and designates those events that have been determined to meet "first-flush" criteria. Precipitation graphs for each event

⁵ The KF Jacobsen leasehold on the Glacier site subsequently was identified as connecting to Basin 44 downgradient of the sample location at manhole ABC352.

from data collected at the Albina rain gage (located at 2920 N Larrabee Ave.)⁶ are shown on Figure 3. Brief descriptions of the storm events sampled are provided below. As described below, the target JSCS criteria for stormwater sampling were met for all six sampling events.

- November 20, 2008 (Event 1): No rainfall was recorded at the Albina rain gage for the 6 days preceding this event. The minimum forecasted rainfall for this event was 0.29 inches. Rainfall began on November 20th between 6:00 and 7:00 a.m., Pacific Standard Time (PST), and the Basin 44 sample was collected at 9:41 a.m. By the time of sampling, 0.25 inches of rainfall had been recorded by the Albina rain gage; a total of 0.52 inches was recorded by the time the storm event ended between 7:00 p.m. and 8:00 p.m. that evening. The sample from this event is not considered to reflect first-flush conditions.
- December 12, 2008 (Event 2): No rainfall was recorded at the Albina rain gage for the 3 days preceding this event. The minimum forecasted rainfall for this event was 0.52 inches. Rainfall began between 10:00 and 11:00 a.m. PST, and the sample was collected at 11:44 a.m. By the time of sampling, 0.11 inches of rainfall had been recorded; a total of 0.44 inches was recorded by the time the event ended between at approximately midnight on December 12th. The sample from this event is considered to reflect first-flush conditions.
- February 8, 2009 (Event 3): Less than 0.1 inches of precipitation were recorded in the 2 days preceding this event. The minimum forecasted rainfall for this event was 0.21 inches. The first rainfall was recorded between 4:00 p.m. and 5:00 p.m. PST on February 8th, and the sample was collected at 5:20 p.m. The total storm size was 0.08 inches and lasted for approximately 2 hours. The rain stopped during collection of the sample from the Outfall 44 sampling location; however, based on field observations of stormwater flows, the sample from this basin was determined to be representative of stormwater discharges from the target drainage area and was retained for analysis. The sample from this event is considered to reflect first-flush conditions.
- February 23, 2009 (Event 4): No rainfall was recorded at the Albina rain gage for the 7 days preceding this event. The minimum forecasted rainfall for this event was 0.37 inches. The first rainfall was recorded between 8:00 and 9:00 a.m. PST on February 23rd, and the sample was collected at 2:28 p.m. By the conclusion of the storm event, 0.38 inches of rainfall had been recorded, with more than half of this volume occurring during the two hours preceding sample collection. It rained a total of 0.48 inches on February 23rd and continued raining periodically over the next three days. The February 23rd sample is not considered to reflect first-flush conditions.
- *March* 23, 2009 (*Event* 5): Less than 0.1 inches of precipitation were recorded in the 5 days preceding this event. The minimum forecasted rainfall for this event was 0.21 inches. Rainfall began between 12:00 p.m. and 1:00 p.m. PST and peaked in intensity between 3:00 p.m. and 4:00 p.m. The sample was collected at 2:02 p.m. Approximately 0.02 inches of rainfall had been recorded at the time of sampling. The rain event ended shortly after midnight on March 23rd; at that time a total of 0.16 inches of precipitation had been recorded by the Albina rain gage. The sample from this event is considered to reflect first-flush conditions. The total precipitation amount for the March 23, 2009,

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⁶ Station #117 in the City's Hydrological Data Retrieval and Alarm (HYDRA) system rain gage network.

- event was less than the targeted 0.2-inch minimum, but the predicted precipitation was within the targeted amount, and field observations at the time of sampling indicated the sampled flow represented stormwater discharge. However, because the sample was collected after only a relatively small amount of rainfall had occurred (approximately 0.02 inches), the sample may not be representative of discharges from the entire basin.
- April 1, 2009 (Event 6): Less than 0.1 inches of precipitation per day occurred in the 3 days preceding this event. The minimum forecasted rainfall for this event was 0.31 inches. Rainfall began between 5:00 a.m. and 6:00 a.m. PST, peaked in intensity between 10:00 a.m. and 11:00 a.m. PST, and continued through the sampling event. Samples were collected at the Phase 1 monitoring location and 12 additional Basin 44 locations to support Phase 2 source tracing efforts. The samples were collected between 12:16 p.m. and 5:12 p.m. PST. Approximately 0.30 inches of rainfall had been recorded by the conclusion of the sampling period. The samples are not considered to represent first-flush conditions.

Based on these sampling conditions, the six stormwater samples collected at manhole ABC352 are considered to meet the Basin 44 sampling objectives. The stormwater samples collected at the 12 upgradient locations throughout the basin during Event 6 are considered representative of runoff from each of the targeted subbasins.

4.3 Analytical Approach

Stormwater samples from Events 1 through 5 were analyzed for PCB congeners, organochlorine pesticides, semivolatile VOCs (SVOCs) (including PAHs and phthalates), total metals, and TSS by the BES Water Pollution and Control Laboratory (WPCL) or subcontracted laboratories in accordance with the SAP. The stormwater samples collected for source tracing (Event 6) were analyzed for PCB congeners, TSS and total organic carbon (TOC).

4.4 Summary of Results

PCB congeners were detected in all of the whole-basin stormwater samples and in 11 of the 12 upgradient sample locations. Metals, pesticides, PAHs, and phthalates were detected at low concentrations in one or more of the stormwater samples. Tables 3 through 5 summarize the laboratory analytical results for the stormwater samples and include the JSCS screening level values (SLVs) for reference. The total PCB congeners concentrations are displayed on Figure 4. The laboratory reports and data review memoranda for the samples were previously submitted to DEQ (BES, 2009b, 2009c, 2009d) and are included for reference in Appendix C. The stormwater data, together with the inline solids data, are evaluated in Section 6.

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Stormwater Solids Sampling and Analysis

The City collected stormwater solids during Phase 1 and Phase 2 investigations. During Phase 1, a sediment trap was deployed at the most downstream stormwater sampling location to collect a concurrent integrated solids sample for basin-level source screening. Following a preliminary review of basin stormwater data, the City researched potential sources of PCBs to the basin and selected solids sampling locations in each branch of the basin and in the vicinity of suspected sources. A total of 26 inline solids samples and one composite surface soil sample subsequently were collected during Phase 2 to identify specific source areas within the basin. The field activities, analytical approach, and results for the solids sampling are described below.

5.1 Field Activities

5.1.1 Sediment Trap Sampling (Phase 1)

Sediment trap deployment and sampling procedures during Phase 1 were conducted in accordance with the SAP (BES, 2008), with one exception. Because of the small size of the main line (12-inch diameter), it was possible to install only one of the two sediment traps specified in the SAP. The sediment trap was installed immediately downstream of manhole ABC352 (see Figure 2) in the 12-inch-diameter main line on November 17, 2008. The sediment trap was inspected periodically, and based on an inspection conducted on January 8, 2009, the sediment trap bottle was removed to archive collected solids. The bottle was replaced with a new bottle for further solids collection. The second bottle was removed on May 27, 2009. Approximately 0.6 and 0.3 inches of solids had accumulated in the first and second bottles, respectively. In accordance with the BES SOP 5.01b, "Sampling Stormwater Solids Using Inline Sediment Traps," field personnel filtered sediment bottle contents to remove the solids fraction and composited the samples to generate the final solids sample for laboratory analyses. Selected photographs of the sediment trap in its installed location are provided in Appendix A. Field notes taken during sediment trap installation, monitoring, removal, and sample processing activities are provided in Appendix B.

5.1.2 Inline Solids Sampling (Phase 2)

Phase 2 inline solids sampling was conducted between January 2009 and April 2010. With the exception of the sieving activities described below, the inline solids samples were collected in accordance with the SAP (BES, 2008) and SAP amendment (BES, 2009a) at the locations shown on Figure 2. Samples listed as "sieved" were homogenized and sieved at WPCL using a #10 sieve that separates solids into two fractions [i.e., < 2000 microns (μ) and \geq 2000 μ); the sieved portions of the samples (i.e., < 2000 μ) were submitted for analysis. This approach was developed during an inline solids pilot study to segregate road-deicing aggregate material (gravel) applied to the rights-of-way in December 2008 (BES, 2009c) following a major icing event. Specific inline solids (and surface sediment) sampling events conducted in Basin 44 are described below. Selected photographs of the inline solids sampling activities are provided in Appendix A. Field notes taken during sample collection are included in Appendix B.

5.1.2.1 March 2009 Pilot Event

During basin reconnaissance in January 2009 to select sampling locations, significant accumulations of coarse gravels were observed in and around catch basins targeted for Phase 2 sampling. The City reviewed aggregate material specifications to determine an appropriate sieve size to segregate new clean gravels, associated with recent emergency road maintenance during a snow event, from erodible soils discharging to the system from suspected source areas. In advance of implementing the SAP Amendment for Basins 43, 44, and 44A, field crews conducted a sieving analysis on one inline solids sample⁷ to evaluate whether processing the sample to segregate and analyze the finer fraction of solids would best meet sampling objectives. Sieved and unsieved fractions of the sample were submitted for laboratory analysis. While contaminant concentrations were low in both samples, detected concentrations of PCBs and PAHs were higher in the sample of material that had passed through the sieve. Therefore, as sample volumes permitted and at those locations where coarse gravels were observed, the City proceeded with sieving the samples and submitting the smaller fraction (i.e., < 2000 μ) for laboratory analyses.

5.1.2.2 March 2009 Surface Solids Sampling

A composite sample of surface soils was collected on March 26, 2009, from the N. Loring Street right-of-way in the immediate vicinity of catch basin APL246, which receives runoff from the northwestern portion of Block 81 (PacifiCorp substation 69kV Yard). This catch basin, located on the southwest corner of N. Loring Street at N. Harding Avenue, discharges to manhole ABC348. The sample was collected in response to City observations of offsite migration of erodible soils in the vicinity of construction activities at the adjacent PacifiCorp facility.

5.1.2.3 April 2009 Inline Solids Sampling

Based on observations of sampleable solids in target portions of the Basin 44 conveyance system, ten samples were collected in Basin 44 on April 7 and 8, 2009. The samples were homogenized and sieved at WPCL using a #10 sieve; the sieved portions of the samples were submitted for analysis, in accordance with the approach developed during the pilot study. These inline solids sampling locations were consistent with those specified in the SAP Amendment with the following exceptions:

- Manhole ABC341 was not found; solids were collected from an alternate location (manhole ABC345) to represent contributions from this branch.
- The proposed unmapped catch basin location on N. Harding Avenue was found to be a depression in the pavement, and not a connection to the Basin 44 conveyance system. As an alternate location to represent discharges from this area, field crews inspected the most proximal catch basin (APL245 at the northeast corner of the N. Harding Avenue and N. Loring Street intersection); sufficient solids were not present for sample collection. Sufficient solids also were not present at manhole ABC259 or adjacent catch basin APG313. At this location, field crews collected solids only from adjacent catch basin APG312.

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⁷ Sample collected on March 9, 2009, from manhole ABC278, where four catch basins convey runoff from the N. Tillamook overpass to Basin 44 and where substantial gravel accumulations were observed.

• Based on field observations in the vicinity of the current PacifiCorp properties, solids samples were collected on April 8, 2009, from two additional catch basins on N. Loring Street (catch basins APL246 and APL235).

Following a preliminary review of the Event 6 stormwater data, five additional inline solids samples were collected from Basin 44 on April 29, 2009, to supplement the Event 6 stormwater dataset and to identify contaminant sources in this basin. These samples also were sieved, with one exception; due to insufficient sample volume, the sample collected from the incoming north lateral to manhole ABC355 was not sieved prior to analysis.

5.1.2.4 October 2009 Inline Solids Sampling

One inline solids sample was collected on October 6, 2009, and submitted for analyses. This sample was collected from sedimentation manhole AMQ287, located in N. Loring Street adjacent to the PacifiCorp Albina Substation (see Figure 2). During the April 2009 solids sampling, samples were collected from this manhole, from catch basins discharging to it, and from an up-the-pipe location on the east side of the rail corridor. Analytical results indicated a potential PCBs source discharging to catch basin APG312, located east of the rail corridor. However, elevated concentrations were not observed in the April 2009 downgradient sedimentation manhole (manhole AMQ287) sample. Because high organic content in the sample collected from manhole AMQ287 interfered with sample processing (i.e., sieving), the resulting sample may not have been representative of the finer-grained material accumulated in the sedimentation manhole. Additional data were needed to confirm that PCBs were not elevated at this location, so sedimentation manhole AMQ287 was resampled. Due to the lack of heavy gravels in this sample, this solids sample was not sieved and was submitted as a whole sample for analysis.

5.1.2.5 January 2010 Inline Solids Sampling

Based on previous detections of PCBs in solids in catch basin APG312 and stormwater from the downgradient manhole ABC259, additional source investigation activities were conducted to identify potential PCBs sources in the area between the railroad corridor and N. Interstate Avenue (see Figure 2). Catch basins and associated lateral lines discharging to manholes ABC259, ABC335, and ABC261 were cleaned on November 19, 2009, and catch basin filters were installed at all five catch basins to trap solids contributions to the basin via these inlets. Field crews inspected catch basin filters periodically to ensure that street flooding was not occurring and to assess solids accumulation. By late January, sufficient solids had accumulated in the filters for sampling. Five catch basin solids samples and one duplicate sample were collected on January 28, 2010, from solids overlying the catch basin filters. A significant amount of rain (more than 13 inches total) fell during numerous storm events that occurred during the period that catch basin filters were deployed.

5.1.2.6 April 2010 Inline Solids Sampling

During the PCB Aroclor analysis of the samples collected from manholes ABC343 and ABC345 in April 2009, the analytical laboratory reported the possible presence of chlordane. In response, these samples subsequently were analyzed for pesticides. Chlordane was detected in both samples and at an elevated concentration in the sample from manhole ABC343. The City cleaned this manhole, affiliated catch basins, and catch basin lateral lines on November 21, 2009,

to remove contaminated solids, then installed a low-flow dam in the outgoing line to trap solids discharging to this manhole. Solids were resampled at this location on April 28, 2010, to evaluate the potential presence of a current chlordane source. Numerous storm events occurred during the period in which the low-flow weir was installed, resulting in a significant amount of rainfall (approximately 20 inches total).

5.2 Analytical Approach

The stormwater solids collected during the various sampling activities in Basin 44 were analyzed by the WPCL or subcontracted laboratories in general accordance with the SAP and SAP amendment for the analytes listed in Tables 6 through 9. The volume of sample collected from the sediment trap was not sufficient to conduct all target laboratory analyses specified in the SAP. The sediment trap sample was analyzed for PCB Aroclors, pesticides, total solids and TOC based on inriver sediment data in the Albina Riverlots area and preliminary review of the colocated stormwater data. The remaining solids samples were submitted for all or some of the following analyses: PCB Aroclors, PCB congeners, total solids, grain size, TOC, metals, pesticides, and SVOCs (including PAHs, and phthalates).

5.3 Summary of Results

PCBs were detected in most of the solids samples, at concentrations ranging from low to significantly elevated. Other constituents detected in one or more samples include pesticides, metals, and SVOCs; of these, only chlordane and bis(2-ethylhexyl)phthalate (BEHP) were detected at elevated concentrations in any of the samples. Tables 6 through 9 summarize the laboratory analytical results for the solids samples and include the JSCS SLVs for reference. The total PCBs concentrations are displayed on Figure 5. The laboratory reports and data review memoranda for the solids samples were previously submitted to DEQ (BES, 2009e, 2009f, 2009g, 2010a, 2010b, 2010c) and are included for reference in Appendix C. Solids data are evaluated along with the stormwater data in Section 6.

Data Evaluation

The objectives of the Basin 44 investigation were to evaluate whether the basin is a significant pathway for contaminant discharges to the river (Phase 1) and to identify significant sources in the basin that warrant additional investigation under DEQ and/or City authorities (Phase 2). Because the JSCS SLVs are conservative screening values selected to be protective of inriver receptors, exceedances of SLVs in in-pipe media (e.g., stormwater and stormwater solids) do not necessarily indicate the presence of significant sources warranting additional source tracing or source control. For example, some SLVs are below estimated background concentrations, some SLVs are below NPDES permit benchmarks (e.g., 1200-Z permit benchmarks for metals are one to two orders-of-magnitude higher than the surface water SLVs), and even undeveloped natural areas can yield samples with analyte concentrations exceeding one or more SLVs. Therefore, to assess if the data indicate sources to the stormwater pathway, the City evaluated the Basin 44 data set against SLVs and the harborwide data collected by the City and other parties, to provide references for interpreting the potential significance of the source investigation results.

6.1 Basin-Level Screening

6.1.1 Stormwater Data

The basin-level stormwater data indicated that sources of PCBs needed to be identified; this process was completed in Phase 2. The remainder of the data are evaluated here to determine if source investigation is needed for other analytes. Stormwater data for all analytes for which one or more stormwater sample concentrations exceeded the applicable JSCS SLVs are shown in Tables 3 and 4. This evaluation was conducted on the geometric mean⁸ of the concentrations to account for the inherent variability in stormwater data. The geometric mean concentrations were first compared to the applicable JSCS SLVs. Analytes for which the geometric mean concentrations are less than the SLVs were not carried forward for further assessment. Analytes for which the geometric mean concentrations are greater than the SLVs were compared to the following additional screening factors, as applicable: DEQ default background concentrations (DEQ, 2002), the harborwide source tracing categories developed as part of the *Stormwater Evaluation Report* (BES, 2010d), NPDES 1200-Z permit benchmarks, and magnitude of exceedance. The results of this screening are presented in Table 10.

The development of the harborwide source tracing categories in the *Stormwater Evaluation Report* (BES, 2010d) consisted of a statistical analysis of stormwater data collected by the City, the LWG, and others from City and non-City outfall basins within Portland Harbor. The harborwide analyses resulted in the sorting of analytes by basin into one of three source tracing

⁸ Use of the geometric mean is consistent with DEQ's use of the annual geometric mean concentration as a protective compliance limit in the City's Underground Injection Control permit (DEQ, 2005), DEQ-issued NPDES 1200-Z permits (DEQ, 2006), and DEQ's Industrial Stormwater Advisory Committee discussions regarding monitoring approaches under DEQ's NPDES program (DEQ 2009a, 2009b, and 2009c).

categories (i.e., "1-lower", "2- moderate", and "3-higher") relative to harborwide distribution of stormwater concentration levels. These categories were then used as the basis for identifying which analytes should be evaluated further, in the context of known and suspected sources, to determine if additional source investigation was needed in City outfall basins. As suggested by DEQ, for the purpose of evaluating the Basin 44 data, a simplified approach was used to generate conservative geomean concentrations for comparison purposes, rather than regenerating the statistical analyses.⁹

As discussed below, further source tracing for non-PCB analytes is not warranted in Basin 44. Table 10 provides a summary of the evaluation for all stormwater analytes.

- Metals: The basin geometric mean concentrations of arsenic, cadmium, copper, lead and zinc exceed the applicable JSCS SLVs. However, the geometric mean concentrations of arsenic and cadmium are less than DEQ estimated background concentrations and the mean concentrations of copper, lead, and zinc fall into the lowest harborwide source tracing category ("1-lower"; BES, 2010d) and are all well below NPDES permit benchmarks.
- *PAHs*: The basin geometric mean concentrations for the individual PAHs listed are all less than the applicable SLVs and/or are low relative to the range of harborwide values. In addition, the geometric mean concentration for total PAHs falls into the lowest source tracing category.
- *BEHP*: The geometric mean concentration is less than the JSCS SLV.
- 2-Methylnapthalene: The geometric mean concentration is less than the JSCS SLV.
- For those analytes listed in Table 10 for which the basin geometric mean concentration exceeds the applicable SLV and for which no source tracing category is available (i.e., pesticides and pentachlorophenol)¹⁰, further evaluation of the data indicates overall concentrations for the basin are low (e.g., the geometric mean only slightly exceeds the JSCS SLV, detections were few, and/or the data are qualified).

In addition, DEQ has compiled and graphed concentrations of selected contaminants¹¹ detected in stormwater (and solids) from a larger number of industrial sites throughout the Portland Harbor and has provided the graphs in its *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ, 2010b) to assist with data evaluation. Except for total PCBs, the geometric

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⁹ Geometric mean values were calculated using the following conventions: (1) averaging the concentrations (for each analyte) for the primary and duplicate samples to calculate a single concentration (for each analyte) for each event (i.e., Events 3, 4, 5, and 6) prior to calculating the overall geometric mean concentration; and (2) setting the value for concentrations reported as below the laboratory method reporting limit (MRL) to 1/2 the value of the laboratory MRL; 1/2 the value of the highest MRL is used in the case of non-detect results for summed analytes (e.g., total PCBs).

¹⁰ Based on a lack of sufficient harborwide data to conduct a robust statistical analysis (BES, 2010d), source tracing categories were not developed for all analytes.

¹¹ Reference graphs are compiled for arsenic, BEHP, cadmium, chromium, copper, lead, mercury, nickel, silver, total PAHs, total PCBs, TSS, and zinc (DEQ, 2010b).

mean concentrations for these contaminants in Basin 44 stormwater are not elevated relative to the range compiled by DEQ.

6.1.2 Sediment Trap Data

Due to the small sample volume, sediment trap contaminant analyses were limited to PCB Aroclors and pesticides. The total PCB Aroclors concentration in the sediment trap sample does not exceed the JSCS Toxicity SLV, but it is moderately elevated relative to the range of concentrations detected in stormwater solids included in DEQ's data compilation (DEQ, 2010b). This finding confirmed the likely presence of one or more significant PCBs sources in the basin.

Pesticides were detected in the sediment trap sample at concentrations exceeding the JSCS Toxicity SLVs. These concentrations were within an order-of-magnitude of the SLVs, and most of the exceedances were slight (less than 2 times the Toxicity SLV) (see Table 6).

6.2 Source Tracing

Evaluation of total PCB congeners at the 12 upgradient stormwater sampling locations in Basin 44 (see Figure 4) indicate discrete sampling locations are associated with significantly higher total PCBs concentrations within the dataset for the basin. Among the results for the upgradient sampling locations, the highest total PCBs concentration in stormwater (0.755 micrograms/liter [μ g/L]) was detected in the sample collected in catch basin APL246, indicating the potential presence of a significant PCBs source in the immediate vicinity. This catch basin is located in N. Loring Street at N. Harding Avenue, adjacent to the active Albina Substation property.

Stormwater samples from three other locations had total PCBs concentrations of $0.1~\mu g/liter$ [$\mu g/L$] or greater (see Figure 4). Two of these locations (catch basin APL236 and manhole ABC355) convey discharges from the active Albina Substation properties. The third location (manhole ABC259) is in N. Clark Avenue just northeast of the railroad tracks. Solids data were also collected from all areas where elevated PCBs were observed in stormwater, as discussed below.

Based on the solids sampling results presented in Tables 6 through 9, PCBs, chlordane, and BEHP are locally present at elevated levels in inline solids within the Basin 44 conveyance system. The highest total PCBs concentrations (1,183 – 4,390 μ g/Kg) were observed adjacent to the Albina Substation (north corner of Block 81) and at a N. Clark Avenue catch basin discharging to manhole ABC259. The Clark Avenue catch basin was also the location of the highest BEHP concentration (59,900 μ g/Kg). Elevated chlordane (300 μ g/Kg) was observed in manhole ABC343 at the intersection of N. Randolph and N. Loring. Results for these constituents are discussed in Section 6.3. Detected concentrations of metals, individual and total PAHs, phthalates (other than BEHP), and SVOCs are low relative to the JSCS SLVs (i.e., less than the SLVs or low factors of exceedance) and/or relative to the range of data compiled by DEQ (DEQ, 2010b), where applicable.

6.3 Evaluation of Potential Upland Sources

The results of the Basin 44 stormwater and solids sampling are discussed below in terms of possible sources within the basin. Because the data collected during this investigation do not

represent contributions from the approximate 1 acre of the Glacier Northwest site (KF Jacobsen operation) within the basin, the data do not reflect possible contributions from this site to Basin 44 discharges. However, as noted in Section 2.4, the site will no longer discharge to Basin 44 following the planned permanent rerouting of the discharges to a non-City outfall. PCBs, chlordane, and BEHP are discussed below because they were detected locally at elevated levels in inline solids within the Basin 44 conveyance system.

6.3.1 PCBs

The highest total PCBs concentration in the basin-level stormwater samples was detected in February 2009, during the time that the 2008/2009 transformer replacement project was in progress at the PacifiCorp Albina Substation, Block 81. Additionally, the solids sample with the highest PCBs concentration was from a catch basin that the City observed to be capturing erodible soils migrating offsite from the vicinity of the transformer replacement project. Based on these results and the spatial pattern of PCBs concentrations observed throughout the basin for the stormwater samples collected on April 1, 2009 (see Figure 4), the active substation site was determined to be a significant source of elevated PCBs detected in samples from the basinscale monitoring location (manhole ABC352). These sample results supported DEQ's request for PacifiCorp to enter the DEQ Voluntary Cleanup Program. PacifiCorp's subsequent investigations in the vicinity of the active Albina Substation properties identified the presence of PCBs in erodible soils at and adjacent to the active substation (i.e., Blocks 79, 81, and 82) and former substation property on Block 80 (Bridgewater, 2010a, 2010b). While the historical and current offsite migration pathways are in the process of being evaluated, PacifiCorp has indicated that the conceptual model for the release of PCBs to stormwater includes the disturbance of PCB-contaminated soils during the 2008-2009 transformer replacement project (Bridgewater, 2010a). As with the City's stormwater solids samples, PCB Aroclor 1260 is the primary component of the PCBs detected in PacifiCorp's onsite and offsite samples.

The other area associated with elevated PCB levels is located at the upper end of the N. Clark Avenue stormwater line, on the northeast side of the railroad tracks. Total PCBs were elevated in solids collected from catch basin APG312 and in stormwater collected from manhole ABC259 in April 2009. While PCBs were elevated at this location, concentrations in downgradient solids and water samples from this branch were low, indicating that PCBs likely had not migrated from this localized area to the outfall at significant concentrations¹². Currently the drainage area for manhole ABC259 is confined to the northeast side of the tracks, and vehicle traffic is restricted from crossing the tracks by concrete barriers that were placed sometime after 2001, once the Interstate Overpass construction was completed and access points across the tracks were no longer necessary. Adjacent properties on N. Clark Avenue have current and historical stormwater discharges to this manhole. The property on the west side of N. Clark does not have any outdoor activities and stormwater contributions are believed to be limited to roof drainage. The property on the east side of N. Clark is an inactive ECSI site (Valvoline, ECSI #3215). PCBs were not known to be used the facility and were not identified as a contaminant

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¹² Concurrent solids data collected downgradient at this location include a sample from a sedimentation manhole on N. Loring Street. This structure captures solids from the portion of the drainage system that includes N. Clark Avenue.

of interest for the site. Remediation at this property was completed by the City in 2003 at which time DEQ issued an NFA.

PCBs in this location may be a result of a historical release; to confirm this, catch basins discharging to manhole ABC259 were resampled in January 2010 following catch basin and line cleanout (discussed in Section 7). Total PCBs concentrations were not significantly elevated. This indicates that the presence of PCBs at a high concentration in the April 2009 sample from this location is likely attributable to historical industrial activities in the basin and is not indicative of a significant current source.

Based on the data collected by the City and PacifiCorp, contaminated erodible soils at and adjacent to current and former Albina Substation properties have been identified as a current source of PCBs to Basin 44. Source control activities have been implemented to address this source, as described in Section 7.

6.3.2 Chlordane

Though stormwater data collected at the basin scale did not indicate a significant source of chlordane to the river, chlordane (a chemical widely used for termite control until it was banned in 1988) was detected at an elevated concentration in a solids sample collected from manhole ABC343 in early April 2009. To evaluate whether there was a current source to this manhole, the manhole and affiliated catch basins and catch basin lateral lines were cleaned in November 2009 (discussed in Section 7) and resampled. The chlordane concentration was relatively low in the sample collected from this manhole following cleaning. The source of chlordane detected in these samples is not readily apparent in the vicinity of this manhole, but the adjacent Cloudburst Recycling facility is a potential source of chlordane based on the piped connection from the facility to manhole ABC343, historical use for shipyard support activities, the extent of unpaved areas on site, the intensity of current trucking activities that could be mobilizing contaminants in erodible soils to onsite and offsite conveyance systems, and the fact that current operations include handling of a variety of waste materials from residential and non-residential properties. The Cloudburst Recycling facility may warrant further evaluation as a possible source of chlordane to the Basin 44 conveyance system so that appropriate source control measures can be identified and implemented, as needed.

6.3.3 BEHP

BEHP was detected at a number of locations in stormwater solids but the concentrations in stormwater were not significantly elevated. Catch basin APG312, at the upper end of the N. Clark Avenue line, is the only sampling location for which BEHP was detected in stormwater solids (Table 8) at a concentration that is considered moderately elevated relative to the range of concentrations compiled by DEQ (DEQ, 2010b). The City removed solids from this catch basin in conjunction with cleanout activities conducted in this area in November 2009 (as discussed in Section 7). Subsequent samples collected in this area were not analyzed for phthalates, but given that BEHP concentrations detected in the solids sample collected in April 2009 from downgradient sedimentation manhole AMQ287 were not significantly elevated, and the fact that overall BEHP concentrations in stormwater solids and stormwater from this basin are low, no additional source investigation or control related to BEHP is considered necessary.

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Source Control Activities

In response to Basin 44 source investigation findings, the City has completed the following source control activities:

- After initiating source investigation activities, BES Industrial Stormwater Program
 conducted site inspections at three sites in Basin 44. The inspections were conducted in
 June 2009 at Cloudburst Recycling, KF Jacobsen, and Glacier NW/Cal-Portland to
 inform the basin delineation and assessment of potential sources within the basin.
 Following the inspections, BES provided written technical assistance to these three sites
 on stormwater BMPs (BES, 2009h, 2009i, 2009j).
- In the drainage area between N. Interstate Avenue and the railroad corridor, the City cleaned manholes ABC259, ABC335, and ABC261 and all associated catch basins and catch basin laterals in November 2009, as shown on Figure 6. Following the cleaning, catch basin filters were installed to facilitate accumulation of solids for subsequent source investigation. Field crews sampled solids captured by the filters in January 2010 to evaluate the potential presence of current PCB sources in this area (see Section 5.1.2.5). Following sampling activities, catch basin filters and accumulated solids were removed to prevent inadvertent flooding of the rights-of-way where catch basins are located.
- In November 2009, manhole ABC343 and affiliated catch basins and catch basin lateral lines were cleaned to remove chlordane-contaminated solids (see Figure 6). Following the cleaning, the City installed a low-flow weir in the outgoing line from the manhole to trap solids for further investigation. Solids were resampled at this location in April 2010 to evaluate the potential presence of a current chlordane source in this area (see Section 5.1.2.6).

In addition, under DEQ oversight, PacifiCorp has completed a number of source control activities at and in the vicinity of the Albina Substation properties, as summarized below and shown on Figure 6.

- On January 7, 2010, a transformer fire occurred at the PacifiCorp Albina. During a
 related explosion, transformer oils were released at the site and to the N. Loring St.
 right-of-way. In coordination with the City and DEQ, PacifiCorp conducted cleanup
 activities in response to the fire and transformer explosion, including cleaning asphalt,
 sidewalks, impacted catch basins, and sedimentation manhole AMQ287. Due to
 pending removal actions of contaminated erodible soils in the area of the release,
 PacifiCorp placed clean gravels in the right-of-way as a temporary source control
 measure for contaminated erodible soils (PBS, 2010).
- PacifiCorp recently completed removal of PCB-contaminated erodible soils from the active Albina Substation properties, Block 80, and adjacent rights-of-way (see Figure 6).
 Pre-excavation surface and near subsurface soil characterization identified

concentrations of total PCBs ranging up to 31,350 μ g/Kg (Bridgewater, 2010a). The pre-excavation results for these PacifiCorp samples are shown in figures included in the memorandum attached as Appendix D.

Erosion control measures were installed in adjacent Basin 44 catch basins during soil removal activities. Post-excavation samples were collected by PacifiCorp and the City to ensure that remaining subsurface soils in the right-of-way met City clean fill policy requirements. PCBs were not detected in samples representing the post-removal, confirmation samples (Bridgewater, 2010b). The analytical results for the post-excavation samples collected by the City are included in Appendix D. Excavated areas were lined with filter fabric, filled with clean gravels, and graded to maximize onsite stormwater infiltration and to minimize overland discharge to Basin 44 inlets. Additionally, PacifiCorp repaved the access aprons to these areas and installed additional onsite berms to control stormwater runoff from the substation to adjacent catch basins in the rights-of-way. The work was conducted between June and early August 2010 (Bridgewater, 2010b).

- In August 2010, following completion of the soil removal activities, PacifiCorp cleaned catch basin inlets and connecting laterals in the vicinity of the Albina Substation and approximately 805 linear feet of City stormwater lines in the vicinity of the site, as shown on Figure 6 (Bridgewater, 2010b).
- In August 2010, PacifiCorp also installed a temporary plug in the one catch basin (A1) located in Block 82 that discharges to the Basin 44 conveyance system. The temporary plug was installed to evaluate the fate of stormwater discharges from this area of the property if this connection were to be permanently abandoned. Due to difficulties experienced with the integrity of the plug, PacifiCorp evaluation of potential abandonment is still underway.

Lastly, the planned disconnection of an approximately 1-acre portion of the Glacier Northwest site (former KF Jacobsen lease area) will eliminate future stormwater contributions from this site to the river via Outfall 44. Disconnection plans include capping the lateral line at the former discharge point from the catch basin.

Conclusions and Next Steps

Results of the City's source investigation indicate the presence of significant sources of PCBs to the Basin 44 stormwater conveyance system. Based on this investigation, one site has entered DEQ's Cleanup Program and has nearly completed implementation of source control measures.

Basin 44 data do not indicate that significant current sources of other contaminants of interest are discharging to the basin. Findings supporting this conclusion are as follows:

- The sampling objectives defined in the SAP and SAP amendment were met, and the resulting data are considered representative of stormwater and solids discharging to the Basin 44 conveyance system.
- Stormwater data for the downstream sampling location (representative of Outfall 44 discharges) were evaluated in a manner similar to that utilized in the City *Stormwater Evaluation Report* (BES, 2010d). With the exception of PCBs, concentrations of analytes in stormwater discharging from the basin are low, based on comparison of the basin geometric mean concentrations to the SLVs, DEQ default background concentrations (DEQ, 2002), harborwide concentration ranges, DEQ guidance (DEQ, 2010b), and other screening factors.
- The overall stormwater solids data set indicates concentrations of all other detected contaminants are generally low. Analyte concentrations in the sediment trap and inline solids are considered low relative to the JSCS SLVs (i.e., less than the SLVs or low factors of exceedance) and/or relative to the range of data compiled by DEQ (DEQ, 2010b), with the exception of elevated chlordane and BEHP at one location each. Solids were removed from these locations as part of the City's source control activities in the basin, and significant current sources of these constituents are not be believed to be present in the basin, as discussed in Section 6.3.

Data collected by PacifiCorp subsequent to the initiation of the City's source investigation indicates that discharges from the active substation properties likely account for the majority of observed PCBs concentrations in Basin 44 samples. Most Basin 44 sampling locations with elevated PCBs in stormwater and/or solids receive runoff from portions of the active Albina Substations (and adjacent rights-of-way) where PacifiCorp documented areas of PCB-contaminated erodible soils. Additionally, PCB Aroclor 1260 is the predominant Aroclor detected in samples from both the substation properties and in samples collected by the City in this basin.

PCBs were also identified at a location between the railroad corridor and Interstate Avenue. While the source of PCBs in this area has not been identified, it was confirmed that the source was historical. Subsequent data collection in this drainage area does not indicate a significant current source to the basin.

In 2010, PacifiCorp removed contaminated erodible soils from current and former Albina Substation properties and adjacent rights-of-way, and implemented onsite source control

measures to reduce overland stormwater discharges from substation properties to Basin 44. Both the City and PacifiCorp completed cleanouts of impacted portions of the Basin 44 conveyance system during the course of this source investigation. Additional investigation is underway at the Albina Substation to 1) identify lateral connections to Basin 44 that may convey site stormwater and/or groundwater; 2) evaluate the preferential groundwater to stormwater pathway from the site to Basin 44 storm lines on N. River and the vacated portion of N. Harding; and 3) assess the performance of site source control measures implemented in 2010. PacifiCorp has also proposed to disconnect the one known onsite stormwater inlet from Basin 44, following completion of visual assessment during temporary abandonment conditions currently underway.

While basin source investigation data do not represent contributions from the portion of the Glacier Northwest site connected to Basin 44, the City has reviewed and commented on recent construction plans submitted by Glacier to abandon the connection from this area to Basin 44. While this change will eliminate the site stormwater pathway to Basin 44, the potential significance of a preferential pathway for site groundwater discharge to the river via Basin 44 is not known. DEQ has requested Glacier to evaluate this pathway (DEQ, 2011).

Once system reconfiguration work has been completed at the PacifiCorp and Glacier Northwest properties, the City will refine the basin delineation to reflect current stormwater drainage to Outfall 44. The City plans no further source investigation in this basin but will continue to coordinate with PacifiCorp and DEQ on PacifiCorp's upcoming video survey and sampling activities, to help identify any additional stormwater and preferential groundwater pathway data gaps related to source identification and control at the Albina Substation properties. The City also will support DEQ efforts at the Cloudburst Recycling site to confirm that the site is not a current source of pesticides or other contaminants to Basin 44.

The source investigation results presented in this report and ongoing work at current and former PacifiCorp Albina Substation properties will support future DEQ decisions for this basin. Based on the source control measures that have been implemented or are currently planned by the City and other parties within the basin, the City expects that this outfall will not be a significant pathway and anticipates requesting a DEQ decision following the development of a summary report that will refer to this investigation and cover the City outfall basins 43, 44A and 45.

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Table 1: Current⁽¹⁾ and Historical NPDES Permits in Basin 44

Address	Company	Permit	Type and Ti	me Period	Available Stormwater	Notes
7100	py	Туре	Issue Date	Expiration Date ²	Data Period	
	Lone Star Northwest	100-J	12/20/1990	12/31/1995		Site has Air Discharge Permit #26-1995 & dock dredge permit. Had 931 N River as address.
1050 N. River	Glacier Northwest, Inc.	100-J	10/22/1996	7/31/2001	N/A	Name changed to Glacier NW ~2000. DEQ detemined that site not subject to 1200-Z coverage in 2001. Fueling onsite. Northern parcel drains to OF #44; area leased to KF Jacobsen until 2010 ³ (see below).
1208 N. River	KF Jacobsen & Co. Inc Plant ³	1000 1200-A 1200-A 1200-A 1200-A	12/13/1997 4/20/2001 4/20/2001 unknown 11/20/2007	6/30/2002 6/30/2007 6/30/2002 6/30/2007 6/30/2012	N/A	Site in use since 1927; shares site w/Ross Island Sand & Gravel. Aggregate materials received by barge. Recycled asphalt pavement (RAP) received by truck since 1990. Grinding of RAP conducted onsite for use with paving mixes. DEQ Water Quality File # 105307

- (1) Current permits are indicated in bold.
- (2) Expiration date as shown on general permit. DEQ typically gives adminsitrative permit extension date until a new general permit can be issued.
- (3) Though KF Jacobsen operations in Basin 44 were terminated when the Glacier terminated the lease on the northern parcel (August 2010), permit-related operations were underway during the period of the Basin 44 source investigation.

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Table 2 **Basin 44 Stormwater Sampling Event Summary**

Storm Date	Sampling Approach	Sample Time (PST)	Antecedent Dry Period (days) ⁽¹⁾	Minimum Forecasted Rainfall Total (Inches) ⁽²⁾	First Flush Event? ⁽³⁾
Events 1 – 5					
11/20/08		9:41	6	0.29	No
12/12/08		11:44	3	0.52	Yes
02/08/09	Whole Basin Screening ⁽⁴⁾	17:20	2	0.21	Yes
02/23/09		14:28	7	0.37	No
03/23/09		15:02	5	0.21	Yes
Event 6					
04/01/09	Source Tracing Samples ⁽⁴⁾	12:16 – 17:12	3	0.31	No

PST = Pacific Standard Time

⁽¹⁾ Cumulative rainfall during this time less than 0.10 inches per 24 hours as recorded at the Albina Rain Gage, 2920 N. Larrabee Avenue.

(2) Provided by Extended Range Forecasting, Inc.

(3) Broadly defined for the purposes of basin-level monitoring as being within the first 3 hours of observed runoff.

⁽⁴⁾Refer to Figure 2 for specific sample locations.

Table 3 Basin 44 Stormwater Results

Fluoranthene

Fluorene

0.131

0.0196 U

μg/I

μg/L

0.0883

0.0204

0.229

0.0313

NA

NA

0.204

0.0577 U

Sample Location SW1 JSCS Stormwater SLVs⁽¹⁾ Manhole ABC352 - Downstream in 12" line Event 4 Event 6 Event 3 Event 5 Event 1 Event 2 Event 3 Event 4 Event 5 Event 6 Duplicate Duplicate Duplicate Duplicate FO081411 FO081479 FO095155 FO095220 FO095375 FO095421 FO095156 FO095223 FO095378 FO095435 Human Health Human Health Ecologicaf(4) 11/20/2008 12/12/2008 2/8/2009 2/8/2009 2/23/2009 2/23/2009 3/23/2009 3/23/2009 4/1/2009 4/1/2009 Fish Consumption(2) Ingestion(3) Class Analyte Units Field Measurements 129 Conductivity umhos/cm 48 81 76 NA 40 NA NA 55 NA 10.1 7.7 NA 7.2 NA 7.8 NA 7.2 NA pН units 7.6 94 7.1 7.1 NA 9.1 NA 9.1 NA 7.5 NA Temperature Deg. C Total Suspended Solids (SM 2540D) 108 432 436 202 199 33 201 182 TSS mg/L 37 31 Total Organic Carbon (EPA 415.2) TOC NA NA NA NA NA NA NA NA 17 1.9 mg/L Total Metals (EPA 200.8) 0.93 3.20 NA 2.94 NA 0.045 150 μg/L 1.14 NA 2.19 NA 0.14 Arsenic NA Cadmium μg/L 0.25 0.43 1.72 NA 0.60 NA 0.54 NA NA NA 0.094 2 59 5 94 NA 4 39 NA 100 Chromium μg/L 16.7 NA 8 58 NA NA Copper μg/L 10.6 19.4 53.3 NA 24.3 NA 19.2 NA NA NA 1300 2.7 Lead μg/L 7.59 15.0 41.5 NA 29.7 NA 13.1 NA NA NA 15 0.54 Mercury 0.012 0.014 0.038 NA 0.026 NA 0.023 NA NA NA 0.146 0.77 ug/L Nickel μg/L 2.32 3.94 12.6 NA 6.04 NA 3.69 NA NA NA 4600 730 16 0.10 U 0.10 U 0.15 U NA 0.10 U NA 100 0.12 Silver NA 0.10 U NA NA μg/L Zinc μg/L 93 127 382 NA 178 NA 193 NA NA NA 26000 5000 36 Pesticides (EPA 8081A) 0.0015 U 0.0068 0.0041 U NA 0.0025 U NA 0.00031 0.28 0.011 4,4'-DDE μg/L NA NA NA NA 4,4'-DDD ug/L NA 0.00049 U 0.0040 J NA 0.0025 U NA 0.0025 U NA NA NA 0.00022 0.2 4,4'-DDT $\mu g/L$ NA 0.014 U 0.016 U NA 0.065 U NA 0.0025 U NA NA NA 0.00022 0.2 0.001 Estimated Total DDx(6) 0.2 0.011 J NA NA μg/L NA ND NA ND NA NA Aldrin 0.0019 U 0.0025 U NA 0.0025 U NA ug/L NA 0.0050 U NA NA NA 0.00005 0.004 alpha-BHC (α-BHC) NA 0.00049 II 0.0050 II 0.0025 II 0.0025 IJ 0.0049 2.2 NA NA NA 0.011 μg/L NA NA beta-BHC (β-BHC) 0.0011 U NA 0.0025 U NA 0.0025 U NA NA 0.037 μg/L NA 0.0050 U NA 0.017 delta-BHC (δ-BHC) 0.0025 U μg/L NA 0.00049 U 0.0050 U NA NA 0.0025 U NA NA NA gamma-BHC (y-BHC, Lindane) ug/L NA 0.00049 U 0.0050 U NA 0.0025 U NA 0.0025 U NA NA NA 1.8 0.052 0.08 alpha-Chlordane(7 $\mu g/L$ NA 0.014 0.0039 J NA 0.003 U NA 0.003 U NA NA NA beta-Chlordane NA 0.00049 U 0.0063 II NA 0.028 NA 0.0025 U NA NA NA μg/L ----Total Chlordane μg/L NA 0.014 0.0040 J NA 0.028 NA ND NA NA NA 0.00081 0.19 0.0043 Dieldrin μg/L NA 0.00049 U 0.0050 II NA 0.0025 U NA 0.0025 II NA NA NA 0.000054 0.0042 0.056 Endosulfan l NA 0.0099 U 0.0051 U NA 0.023 J NA 0.0025 U NA NA NA 89 220 0.051 μg/L Endosulfan II 220 0.0015 U 0.0050 U 0.0025 U 0.0025 U 89 μg/L NA NA NA NA NA NA 0.051 0.00049 U NA 0.0025 U NA Endosulfan Sulfate μg/L NA 0.0050 U NA 0.0025 U NA NA 89 Endrin μg/L NA 0.00049 U 0.0050 U NA 0.0025 U NA 0.0028 U NA NA NA 0.06 2 0.036 Endrin Aldehyde NA 0.0061 U 0.0023 J NA 0.014 J NA 0.0025 U NA NA NA 0.3 μg/L --Endrin Ketone μg/L NA 0.0049 J 0.0047 J NA 0.0088 NA 0.0020 J NA NA NA 0.0056 II 0.0053 0.0025 II NA 0.0088 II NA NA 0.000079 0.015 0.0038 Hentachlor NA NA NA μg/L Heptachlor Epoxide 0.0025 U 0.0050 U NA NA 0.0025 U NA NA 0.000039 0.0074 0.0038 μg/L NA 0.0061 U NA Methoxychlor μg/L NA 0.0019 U 0.0050 U NA 0.0081 U NA 0.0025 U NA NA NA 40 0.03 Toxaphene μg/L NA 0.660 U 0.25 U NA 0.93 U NA 0.13 U NA NA NA 0.00028 0.061 0.0002 Polychlorinated Biphenyl Congeners (PCBs) (EPA 1668M) 0.0793 0.320 0.034 Total PCBs (9)(10) 0.576 0.145 0.0228 1.93 1.71 0.0921 0.100 0.400 0.000064 0.014 μg/L Polycyclic Aromatic Hydrocarbons (PAHs) (EPA 8270-SIM 0.0196 U 0.0194 U 0.0730 0.0577 U NA 0.0192 U NA 990 0.2 520 NA NA NA Acenaphthene μg/L Acenaphthylene 0.0196 U 0.0194 U 0.0316 U NA 0.0577 U NA 0.0192 U NA NA NA 0.2 μg/L 0.0234 0.0211 U 0.0577 U NA 0.0192 U NA 40000 0.2 0.73 Anthracene 0.0194 U NA NA NA μg/L Benzo(a)anthracene μg/L 0.0289 0.0113 0.0335 NA 0.0353 NA 0.0120 NA NA NA 0.018 0.092 0.027 Benzo(a)pyrene $\mu g/L$ 0.0199 0.0123 0.0401 NA 0.0423 NA 0.0121 NA NA NA 0.018 0.0092 0.014 Benzo(b)fluoranthene μg/L 0.0302 0.0217 0.0653 NA 0.0795 NA 0.0212 NA NA NA 0.018 0.092 Benzo(g,h,i)perylene 0.0349 0.0252 0.0835 NA 0.0890 NA 0.0309 NA NA NA 0.2 μg/L Benzo(k)fluoranthene 0.0133 NA NA 0.018 ug/L 0.0179 NA 0.0510 0.0135 NA NA 0.2 0.0412 Chrysene NA NA NA μg/L 0.0609 0.0410 0.125 NA 0.138 0.0474 NA 0.018 0.2 Dibenzo(a,h)anthracene 0.0092 μg/L 0.00980 11 0.00971 11 0.0151 NA 0.0288 1 NA 0.00962 II NA NA NA 0.018

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NA

NA

0.0759

0.0192 U

NA

NA

NA

NA

NA

NA

140

5300

0.2

0.2

39

Table 3 Basin 44 Stormwater Results

					М		le Location SW1 2 - Downstream in	n 12'' line				JSCS S	tormwater SLVs	s ⁽¹⁾
Class Analyte	Units	Event 1 FO081411 11/20/2008	Event 2 FO081479 12/12/2008	Event 3 FO095155 2/8/2009	Event 3 Duplicate FO095156 2/8/2009	Event 4 FO095220 2/23/2009	Event 4 Duplicate FO095223 2/23/2009	Event 5 FO095375 3/23/2009	Event 5 Duplicate FO095378 3/23/2009	Event 6 FO095421 4/1/2009	Event 6 Duplicate FO095435 4/1/2009	Human Health Fish Consumption ⁽²⁾	Human Health Ingestion ⁽³⁾	Ecological (4)
Indeno(1,2,3-cd)pyrene	μg/L	0.0137	0.0119	0.0362	NA	0.0433	NA	0.0135	NA	NA	NA	0.018	0.092	
Naphthalene	μg/L	0.0399	0.187	0.222	NA	0.0638	NA	0.0309	NA	NA	NA		0.2	620
Phenanthrene	μg/L	0.0859	0.102	0.241	NA	0.143	NA	0.0781 B	NA	NA	NA		0.2	
Pyrene	μg/L	0.114	0.0611	0.133	NA	0.113	NA	0.0945	NA	NA	NA	4000	0.2	
Total PAHs ⁽¹⁰⁾) μg/L	0.601	0.596	1.37		1.00		0.430						
Polycyclic Aromatic Hydrocarbons (EPA 8270C)														
Acenaphthene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.20 U	NA	NA_	NA	990	0.2	520
Acenaphthylens Anthracene	μg/L	0.042 J 0.031 J	0.99 U 0.99 U	0.14 J 0.041 J	NA	1.1 U 1.1 U	NA NA	0.10 J 0.20 U	NA NA	NA NA	NA NA	40000	0.2	0.73
Benzo(a)anthracene	μg/L μg/L	0.031 J 0.028 J	0.99 U 0.99 U	0.041 J 0.060 J	NA NA	1.1 U	NA NA	0.20 U	NA NA	NA_NA	NA NA	0.018	0.2	0.73
Benzo(a)pyrene	μg/L μg/L	0.028 J	0.99 U	0.078 J	NA NA	1.1 U	NA NA	0.20 U	NA NA	NA NA	NA NA	0.018	0.0092	0.027
Benzo(b)fluoranthene	μg/L	0.22 U	0.99 U	0.076 J	NA NA	1.1 U	NA NA	0.20 U	NA NA	NA NA	NA	0.018	0.092	0.014
Benzo(g,h,i)perylene	μg/L μg/L	0.037 J	0.99 U	0.13 J	NA	1.1 U	NA	0.20 U	NA	NA NA	NA		0.2	
Benzo(k)fluoranthene	μg/L	0.22 U	0.99 U	0.045 J	NA	1.1 U	NA	0.20 U	NA	NA NA	NA	0.018	0.2	
Chrysene	μg/L	0.046 J	0.99 U	0.18 J	NA	1.1 U	NA	0.20 U	NA	NA	NA	0.018	0.2	
Dibenzo(a,h)anthracene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.20 U	NA	NA	NA	0.018	0.0092	
Fluoranthene	μg/L	0.11 J	0.14 J	0.26	NA	0.29 J	NA	0.13 J	NA	NA	NA	140	0.2	
Fluorene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.20 U	NA	NA	NA	5300	0.2	3.9
Indeno(1,2,3-cd)pyrene	μg/L	0.22 U	0.99 U	0.087 J	NA	1.1 U	NA	0.20 U	NA	NA	NA	0.018	0.092	
Naphthalene	μg/L	0.037 J	0.25 J	0.25	NA	1.1 U	NA	0.20 U	NA	NA	NA	-	0.2	620
Phenanthrene	μg/L	0.078 J	0.13 J	0.29	NA	0.20 J	NA	0.092 J	NA	NA	NA		0.2	
Pyrene	μg/L	0.14 J	0.19 J	0.26	NA	0.28 J	NA	0.13 J	NA	NA	NA	4000	0.2	
Total PAHs ⁽¹⁰⁾ Phthalates (EPA 8270-SIM)	, μg/L	0.55 J	0.71 J	2.0 J	NA	0.77 J	NA	0.45 J	NA	NA	NA			
Bis(2-ethylhexyl) phthalate (BEHP)	μg/L	1.94	0.992	1.53	NA	3.15	NA	1.41	NA	NA	NA	2.2	4.8	3
Butylbenzylphthalate	μg/L	0.980 U	0.971 U	0.578 J	NA	1.92 U	NA	0.962 U	NA	NA	NA	1900	7300	3
Di-n-butylphthalate	μg/L	0.980 U	0.971 U	1.05 U	NA	1.92 U	NA	0.962 U	NA	NA	NA	4500	3700	3
Di-n-octylphthalate	μg/L	0.980 U	0.971 U	1.45	NA	1.30 J	NA	1.78	NA	NA	NA		1500	3
Diethylphthalate Dimethylphthalate	μg/L	0.980 U 0.98 U	0.971 U 0.971 U	1.05 U 1.05 U	NA	1.92 U 1.92 U	NA NA	0.962 U 0.962 U	NA	NA	NA	44000 1100000	29000 370000	3
Dimethylphthalate	μg/L	0.98 U	0.971 U	1.03 U	NA	1.92 U	NA	0.962 U	NA	NA	NA	1100000	3/0000	3
Phthalates (EPA 8270C)														
Bis(2-ethylhexyl) phthalate (BEHP)	μg/L	2.3	1.6 J	2.9	NA	2.8 J	NA	3.1	NA	NA	NA	2.2	4.8	3
Butyl Benzyl Phthalate	μg/L	0.21 J	0.99 U	0.28	NA	1.1 U	NA	0.2 U	NA	NA	NA	1900	7300	3
Di-n-butyl phthalate	μg/L	0.18 J	0.31 J	0.16 J	NA	0.17 J	NA	0.2 U	NA	NA	NA	4500	3700	3
Di-n-octyl phthalate	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA		1500	3
Diethyl phthalate	μg/L	0.081 J	0.99 U	0.15 J	NA	1.1 U	NA	0.12 J	NA	NA	NA	44000	29000	3
Dimethyl phthalate Semi-volatile Organic Compounds (EPA 8270C)	μg/L	0.11 J	0.99 U	0.17 J	NA	1.1 U	NA	0.075 J	NA	NA	NA	1100000	370000	3
1,2,4-Trichlorobenzene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	70	8.2	110
1,2-Dichlorobenzene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	1300	49	763
1,3-Dichlorobenzene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	960	14	763
1,4-Dichlorobenzene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	190	2.8	763
2,4,5-Trichlorophenol	μg/L	0.53 U	2.5 U	0.53 U	NA	2.6 U	NA	0.49 U	NA	NA	NA	3600	3700	
2,4,6-Trichlorophenol	μg/L	0.53 U	2.5 U	0.53 U	NA	2.6 U	NA	0.49 U	NA	NA	NA	2.4	6.1	970
2,4-Dichlorophenol	μg/L	0.53 U	2.5 U	0.53 U	NA	2.6 U	NA	0.49 U	NA	NA	NA	290	110	365
2,4-Dimethylphenol	μg/L	4.3 U	20 U	4.3 U	NA	21 U	NA	3.9 U	NA	NA	NA	850	730	
2,4-Dinitrophenol	μg/L	4.3 U	20 U	4.3 U	NA	21 U	NA	3.9 U	NA	NA	NA	5300	73	150
2,4-Dinitrotoluene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	3.4	73	
2,6-Dinitrotoluene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA		37	
2-Chloronaphthalene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA NA	0.2 U	NA NA	NA	NA	1600	490	2000
2-Chlorophenol	μg/L	0.53 U 0.22 U	2.5 U	0.53 U 0.099 J	NA	2.6 U	NA	0.49 U	NA	NA	NA NA	150	30	2000
2-Methylnaphthalene 2-Methylphenol	μg/L	0.22 U 0.21 J	0.22 J 2.5 U	0.099 J 0.92	NA NA	1.1 U 2.6 U	NA NA	0.2 U 0.49 U	NA NA	NA NA	NA NA		0.2 180	13
2-Metnyiphenoi 2-Nitroaniline	μg/L μg/L	0.21 J 0.22 U	0.99 U	0.92 0.22 U	NA NA	2.6 U	NA NA	0.49 U	NA NA	NA NA	NA NA	-	110	
2-Nitrophenol	μg/L μg/L	0.22 U 0.13 J	2.5 U	0.22 U 0.53 U	NA NA	2.6 U	NA NA	0.49 U	NA NA	NA NA	NA NA		1100	150
3,3'-Dichlorobenzidine	μg/L μg/L	2.2 U	9.9 U	2.2 U	NA NA	2.0 U	NA NA	2 U	NA NA	NA NA	NA NA	0.028	0.15	763
3-Nitroaniline	μg/L μg/L	1.1 U	5 U	1.1 U	NA NA	5.2 U	NA	0.98 U	NA	NA	NA		3.2	
5 1111041111110	MB/ L	1.1 U	5.0	1.1 U	INA	3.2 0	INA	J.76 U	11/1	INA	INA	-	3.4	

Table 3 Basin 44 Stormwater Results

Sample Location SW1 Manhole ABC352 - Downstream in 12" line

JSCS Stormwater SLVs⁽¹⁾

					111	unnoic ADCSS	2 - Downsti cam ii	12 11110						
		Event 1 FO081411	Event 2 FO081479	Event 3 FO095155	Event 3 Duplicate FO095156	Event 4 FO095220	Event 4 Duplicate FO095223	Event 5 FO095375	Event 5 Duplicate FO095378	Event 6 FO095421	Event 6 Duplicate FO095435	Human Health	Human Health	
ss Analyte	Units	11/20/2008	12/12/2008	2/8/2009	2/8/2009	2/23/2009	2/23/2009	3/23/2009	3/23/2009	4/1/2009	4/1/2009	Fish Consumption ⁽²⁾	Ingestion(3)	Ecologicaf ⁽⁴⁾
4,6-Dinitro-2-methylphenol	μg/L	2.2 U	9.9 U	2.2 U	NA	11 U	NA	2 U	NA	NA	NA	280		150
4-Bromophenylphenyl ether	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA			
4-Chloro-3-methylphenol	μg/L	0.53 U	2.5 U	0.53 U	NA	2.6 U	NA	0.49 U	NA	NA	NA			
4-Chloroaniline	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA		150	
4-Chlorophenyl phenyl ether	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA		0.06	
4-Methylphenol	μg/L	0.53 U	2.5 U	1.5	NA	2.6 U	NA	0.49 U	NA	NA	NA		180	
4-Nitroaniline	μg/L	1.1 U	5 U	1.1 U	NA	5.2 U	NA	0.98 U	NA	NA	NA		3.2	
4-Nitrophenol	μg/L	0.60 J	9.9 U	2.2 U	NA	11 U	NA	2 U	NA	NA	NA		290	150
Benzoic acid	μg/L	5.3 U	16 J	4.5 J	NA	26 U	NA	2.3 J	NA	NA	NA	-	150000	42
Benzyl alcohol	μg/L	0.12 J	0.81 J	0.71	NA	2.6 U	NA	0.49 U	NA	NA	NA		11000	8.6
Bis(2-chloroethoxy) methane	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	-		-
Bis(2-chloroethyl) ether	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	0.53	0.06	
Bis(2-chloroisopropyl) ether	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA		0.95	
Dibenzofuran	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA		12	3.7
Hexachlorobenzene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	0.00029	0.042	100
Hexachlorobutadiene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	18	0.86	9.3
Hexachlorocyclopentadien	μg/L	1.1 U	5 U	1.1 U	NA	5.2 U	NA	0.98 U	NA	NA	NA	1100	50	5.2
Hexachloroethane	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	3.3	4.8	540
Isophorone	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.28 U	NA	NA	NA	960	71	
Nitrobenzene	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	690	3.4	
N-Nitrosodi-n-propylamine	μg/L	0.22 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	0.51	0.0096	
N-Nitrosodiphenylamine	μg/L	0.220 U	0.99 U	0.22 U	NA	1.1 U	NA	0.2 U	NA	NA	NA	6	14	210
Pentachlorophenol	μg/L	0.45 J	5 U	0.84 J	NA	5.2 U	NA	0.7 J	NA	NA	NA	3	0.56	15
Phenol	μg/L	0.19 J	0.70 J	2.2	NA	2.6 U	NA	0.54	NA	NA	NA	1700000	11000	2560

Notes:

- U = The analyte was not detected above the reported sample quantification limit.
- J = The result is an estimated concentration. The value is less than the MRL but greater than or equal to the MDL, or, for some organochlorine pesticides, the RPD between results from the primary and verification columns varied by more than 40 percent.
- -- No JSCS screening level available NA = not analyzed.

ND = not detected.

umhos/cm = micromhos per centimeter.

μg/L = micrograms per liter

mg/L = milligrams per liter.

(1) JSCS SLVs = Portland Harbor Joint Source Control Strategy Screening Level Values (DEQ/EPA Final December 2005, Amended July 2007).

(2) The SLVs for chemicals in water taken up by fish for human consumption represent EPA's NRWQC values. If no NRWQC values are available, then DEQ's AWQC values are listed for the constituent.

(3) The SLVs for chemicals in water for human ingestion represent the most conservative value between EPA's MCLs and Region 9 PRGs.

(4) The SLVs for chemicals in water for ecological exposure represent EPA's NRWQC values. If no NRWQC values are available, then DEQ's AWQC values are listed for the constituent. If no AWQC values are available, then Oak Ridge National Laboratory Tier II SCV Technology Benchmark values are listed for the constituent.

(5) Mercury analysis by WPCL SOP M-10.02.

(6) Estimated Total DDx is the sum of DDE, DDD, and DDT.

(7) Alpha-Chlordane also is known as cis-Chlordane. Beta-Chlordane also is known as trans-Chlordane and gamma-Chlordane.

(8) Total Chlordane is the sum of alpha- and beta-Chlordane.

(9)Refer to Table 4 for individual PCB congener results

 $^{\left(10\right)}$ Total PCBs and PAHs are calculated by assigning "0" to undetected constituents.

= Highlighted values have been selected by DEQ for initial upland source control screening evaluations.

bold = Concentration exceeds DEQ's SLV.

Table 4
Basin 44 Stormwater - PCB Congeners Results

Sample Location SW1
Manhole ABC352 - Downstream in 12" Line
JSCS Stormwater SLVs⁽²⁾

						M	anhole ABC352 - I	Downstream in 12	'' Line				Joco	Stormwater SL vs	
						Event 3		Event 4		Event 5		Event 6	_		
			Event 1	Event 2	Event 3	Duplicate	Event 4	Duplicate	Event 5	Duplicate	Event 6	Duplicate			
			FO081411	FO081479	FO095155	FO095156	FO095220	FO095223	FO095375	FO095378	FO095421	FO095435	Human Health	Human Health	
IUPAC Number ⁽¹	(1) Chemical Name	Units	11/20/2008	12/12/2008	2/8/2009	2/8/2009	2/23/2009	2/23/2009	3/23/2009	3/23/2009	4/1/2009	4/1/2009	Fish Consumption ⁽³⁾	Ingestion ⁽⁴⁾	Ecological ⁽⁵⁾
Polychlorinated Biphe	enyl Congeners (EPA 1668A)	Cinto	11/20/2000	12/12/2000	2,0,200)	2/0/2009	2/23/2009	2/23/2007	3/23/2007	3/23/2007	4/1/2009	1712007	1 isii Consumption	nigestion	Leological
PCB 1	2-MoCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000243 U	0.000244 U	0.000242 U	0.000244 U	0.000247 U	0.000256 U	-	-	-
PCB 2	3-MoCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000243 U	0.000244 U	0.000242 U	0.000244 U	0.000247 U	0.000256 U			
PCB 3	4-MoCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000243 U	0.000244 U	0.000242 U	0.000244 U	0.000247 U	0.000256 U			
PCB 4 PCB 5	2,2'-DiCB 2,3-DiCB	μg/L μg/L	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000413 0.000243 U	0.000387 0.000244 U	0.000242 U 0.000242 U	0.000244 U 0.000244 U	0.00245 EMPC 0.000247 U	0.000256 U 0.000256 U			
PCB 6	2,3-DICB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000243 0	0.000244 0	0.000242 U	0.000244 U	0.000247 U	0.000256 U			
PCB 7	2,4-DiCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000243 U	0.000244 U	0.000242 U	0.000244 U	0.000247 U	0.000256 U	-		
PCB 8	2,4'-DiCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000752	0.000777	0.000242 U	0.000244 U	0.000247 U	0.000261			
PCB 9	2,5-DiCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000243 U	0.000244 U	0.000242 U	0.000244 U	0.000247 U	0.000256 U			
PCB 10 PCB 11	2,6-DiCB 3,3'-DiCB	μg/L	0.000500 U 0.000600 U	0.000487 U 0.000585 U	0.000516 U 0.00223	0.000519 U 0.000623 U	0.000243 U 0.00174	0.000244 U 0.00176	0.000242 U 0.00145 U	0.000244 U 0.00147 U	0.000247 U 0.00148 U	0.000256 U 0.00154 U			
PCB 12/13	3,4-DiCB + 3,4'-DiCB	μg/L μg/L	0.000500 U	0.000385 U	0.00223 0.000516 U	0.000623 U	0.00174	0.000576	0.000484 U	0.000489 U	0.00148 U	0.00154 U			
PCB 14	3,5-DiCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000243 U	0.000244 U	0.000242 U	0.000244 U	0.000247 U	0.000256 U		-	
PCB 15	4,4'-DiCB	μg/L	0.000500 U	0.00135	0.000516 U	0.000519 U	0.00526	0.00404	0.000262	0.000297	0.00139	0.00161			
PCB 16	2,2',3-TriCB	μg/L	0.000500 U	0.00132	0.000516 U	0.000519 U	0.00580	0.00531	0.000242 U	0.000244 U	0.000554	0.00129			
PCB 17 PCB 18/30	2,2',4-TriCB 2,2',5-TriCB + 2,4,6-TriCB	μg/L	0.000500 U 0.000500 U	0.00108 0.00214	0.000516 U 0.000803	0.000519 U 0.000519 U	0.00514 0.00937	0.00485 0.00854	0.000242 U 0.000484 U	0.000244 U 0.000489 U	0.000408 0.000720	0.000945			
PCB 19	2,2,6-TriCB + 2,4,6-TriCB	μg/L μg/L	0.000500 U	0.00214 0.000487 U	0.000516 U	0.000519 U	0.00937	0.000761	0.000484 U	0.000489 U	0.000720 0.000247 U	0.000256 U			
PCB 20/28	2,3,3'-TriCB + 2,4,4'-TriCB	μg/L	0.000932	0.00721	0.00224	0.000623 U	0.0356	0.0310	0.00148	0.00154	0.00664	0.00778			
PCB 21/33	2,3,4-TriCB + 2',3,4-TriCB	μg/L	0.000500 U	0.00213	0.000677	0.000519 U	0.00913	0.00798	0.000484 U	0.000489 U	0.00201	0.00231			
PCB 22	2,3,4'-TriCB	μg/L	0.000500 U	0.00321	0.00103	0.000519 U	0.0173	0.0152	0.000760	0.000799	0.00327	0.00368			
PCB 23 PCB 24	2,3,5-TriCB	μg/L	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000243 U 0.000243 U	0.000244 U	0.000242 U 0.000242 U	0.000244 U 0.000244 U	0.000247 U 0.000247 U	0.000256 U 0.000256 U			
PCB 24 PCB 25	2,3,6-TriCB 2,3',4-TriCB	μg/L ug/l	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000243 U 0.00197	0.000244 U 0.00175	0.000242 U 0.000242 U	0.000244 U 0.000244 U	0.000247 U 0.000336	0.000256 U 0.000424			
PCB 26/29	2,3',4-11CB 2,3',5-TriCB + 2,4,5-TriCB	μg/L μg/L	0.000500 U	0.000487 0	0.000516 U	0.000519 U	0.00197	0.00175	0.000242 U	0.000244 U	0.000336	0.000424			
PCB 27	2,3',6-TriCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000989	0.000984	0.000242 U	0.000244 U	0.000247 U	0.000256 U	-	-	
PCB 31	2,4',5-TriCB	μg/L	0.000569	0.00413	0.00127	0.000737	0.0207	0.0181	0.000877	0.000902	0.00390	0.00450			
PCB 32	2,4',6-TriCB	μg/L	0.000500 U	0.000969	0.000516 U	0.000519 U	0.00561	0.00496	0.000242 U	0.000244 U	0.000546	0.000987			
PCB 34 PCB 35	2',3,5-TriCB 3.3'.4-TriCB	μg/L	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000243 U 0.000906	0.000244 U 0.000244 U	0.000242 U 0.000242 U	0.000244 U 0.000244 U	0.000247 U 0.000332	0.000256 U 0.000307			
PCB 35 PCB 36	3,3,4-11CB 3,3'5-TriCB	μg/L μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000906 0.000243 U	0.000244 U	0.000242 U	0.000244 U	0.000332 0.000247 U	0.000307 0.000256 U			
PCB 37	3.4.4'-TriCB	μg/L	0.000840	0.00600	0.00116	0.000519 U	0.0190	0.0165	0.00113	0.00119	0.00504	0.00582	-		
PCB 38	3,4,5-TriCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000243 U	0.000244 U	0.000242 U	0.000244 U	0.000247 U	0.000256 U	-	-	-
PCB 39	3,4',5-TriCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000351	0.000320	0.000242 U	0.000244 U	0.000247 U	0.000256 U			
PCB 40/41/71	2,2',3,3'-TeCB + 2,2',3,4-TeCB + 2,3',4',6-TeCB	μg/L	0.000943	0.00855	0.00246	0.000807	0.0359	0.0312	0.00178	0.00190	0.00529	0.00730			
PCB 42 PCB 43	2,2',3,4'-TeCB	μg/L	0.000500 U	0.00342 0.000487 U	0.00104 0.000516 U	0.000519 U 0.000519 U	0.0146	0.0127	0.000691 0.000484 U	0.000721 0.000489 U	0.00214 0.000495 U	0.000721 U 0.000513 U			
PCB 44/47/65	2,2',3,5-TeCB 2,2',3,5'-TeCB + 2,2',4,4'-TeCB + 2,3,5,6-TeCB	μg/L μg/L	0.000500 U 0.00111	0.000487 U	0.00326	0.000519 0	0.00169	0.00146	0.000484 0	0.000489 U	0.000495 U	0.000513 U			
PCB 45/51	2.2'.3.6-TeCB + 2.2'.4.6'-TeCB	μg/L	0.000500 U	0.00165	0.000563	0.000519 U	0.00742	0.00651	0.00214 0.000968 U	0.00224 0.000977 U	0.000989 U	0.00127			
PCB 46	2,2',3,6'-TeCB	μg/L	0.000500 U	0.000625	0.000516 U	0.000519 U	0.00271	0.00238	0.000484 U	0.000489 U	0.000495 U	0.000513 U		-	-
PCB 48	2,2',4,5-TeCB	μg/L	0.000500 U	0.00233	0.000665	0.000519 U	0.0103	0.00882	0.000484 U	0.000489 U	0.00139	0.00200			
PCB 49/69	2,2',4,5'-TeCB + 2,3',4,6-TeCB	μg/L	0.000555	0.00555	0.00175	0.000822	0.0254	0.0220	0.00115 U	0.00120	0.00348	0.00487			
PCB 50/53 PCB 52	2,2',4,6-TeCB + 2,2',5,6'-TeCB 2,2',5,5'-TeCB	μg/L	0.000500 U 0.00101	0.00103 0.0103	0.000516 U 0.00363	0.000519 U 0.00149	0.00462 0.0478	0.00416 0.0419	0.000968 U 0.00199	0.000977 U 0.00210	0.000989 U 0.00580	0.00103 U 0.00817			
PCB 52 PCB 54	2,2',5,5-1eCB 2,2',6,6'-TeCB	μg/L μg/L	0.000500 U	0.0103 0.000487 U	0.00363 0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.00210 0.000489 U	0.00580 0.000495 U	0.000513 U			
PCB 55	2,3,3',4-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000938	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-		
PCB 56	2,3,3',4'-TeCB	μg/L	0.00104	0.00627	0.00140	0.000746	0.0217	0.0191	0.00128	0.00141	0.00521	0.00567			
PCB 57	2,3,3',5-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U			
PCB 58	2,3,3',5'-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U			
PCB 59/62/75 PCB 60	2,3,3',6-TeCB + 2,3,4,6-TeCB + 2,4,4',6-TeCB 2,3,4,4'-TeCB	μg/L	0.000500 U 0.000601	0.00116 0.00339	0.000516 U 0.000758	0.000519 U 0.000588	0.00488	0.00420 0.0100	0.00145 U 0.000671	0.00147 U 0.000687	0.00148 U 0.00269	0.00154 U 0.00303			
	2,3,4,5-TeCB + 2,3',4',5-TeCB + 2,4,4',5-TeCB + 2',3,4,5-	μg/L													
PCB 61/70/74/76	TeCB	μg/L	0.00296	0.0194	0.00512	0.00272	0.0852	0.0733	0.00408	0.00427	0.0157	0.0182		-	
PCB 63 PCB 64	2,3,4',5-TeCB 2,3,4',6-TeCB	μg/L	0.000500 U 0.000616	0.000487 U 0.00571	0.000516 U 0.00163	0.000519 U 0.000746	0.00165	0.00145	0.000484 U 0.00116	0.000489 U 0.00124	0.000495 U 0.00373	0.000513 U 0.00505			
PCB 66	2,3,4,6-1eCB 2,3',4,4'-TeCB	μg/L μg/L	0.000616	0.00571	0.00163	0.000746	0.0243	0.0211	0.00116	0.00124	0.00373	0.00505			
PCB 67	2,3',4,5-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.00172	0.00140	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-		
PCB 68	2,3',4,5'-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U			
PCB 72	2,3',5,5'-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-	-	
PCB 73 PCB 77	2,3',5',6-TeCB 3,3',4,4'-TeCB	μg/L	0.000500 U 0.000510	0.000487 U 0.00279	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000486 U 0.00649	0.000498 U 0.00586	0.000484 U 0.000484 U	0.000489 U 0.000554	0.000495 U 0.00176	0.000513 U 0.00214			
PCB 77 PCB 78	3,3',4,4'-TeCB 3,3',4,5-TeCB	μg/L μg/L	0.000510 0.000500 U	0.00279 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.00649 0.000846	0.00586 0.000489 U	0.000484 U 0.000484 U	0.000554 0.000489 U	0.00176 0.000495 U	0.00214 0.000513 U			
PCB 79	3,3',4,5'-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000846	0.000489 0	0.000484 U	0.000489 U	0.000495 0	0.000513 U			
PCB 80	3,3',5,5'-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000345 U	0.000513 U			
PCB 81	3,4,4',5-TeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U			
PCB 82	2,2',3,3',4-PeCB	μg/L	0.000551	0.00396	0.00112	0.00110	0.0112	0.0103	0.000671	0.000756	0.00187	0.00257			
PCB 83 PCB 84	2,2',3,3',5-PeCB	μg/L	0.000500 U 0.000610	0.00126 0.00556	0.000545	0.000519 U 0.000547	0.00455	0.00383	0.000484 U	0.000489 U 0.000991	0.000968	0.00143			
PCB 85/116/117	2,2',3,3',6-PeCB 2,2',3,4,4'-PeCB + 2,3,4,5,6-PeCB + 2,3,4',5,6-PeCB	μg/L μg/L	0.000650	0.00556	0.00194 0.00120	0.000547 0.000623 U	0.0221 0.0166	0.0197 0.0141	0.000933 0.00145 U	0.000991 0.00147 U	0.00224 0.00148 U	0.00344 0.00565			
	2.212.4 E. DeCD + 2.212.4 El DeCD + 2.2121.4 E. DeCD +	μg-L													
PCB 86/87/97/108/119/	125 2,2,3,4,5-FeCB + 2,2,3,4,5-FeCB + 2,2,3,4,5-FeCB + 2,2,3,4,5-FeCB + 2,3,4,5,6-FeCB	μg/L	0.00236	0.0184	0.000999	0.00248 U	0.0627	0.0559	0.00309	0.00328	0.00865	0.0119			
PCB 88/91	2,2',3,4,6-PeCB + 2,2',3,4',6-PeCB	μg/L	0.000500 U	0.00282	0.00282	0.000519 U	0.0127	0.0114	0.000968 U	0.000977 U	0.00127	0.00185			
PCB 89	2,2',3,4,6'-PeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.00106	0.000928	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-		
PCB 90/101/113	2,2',3,4',5-PeCB + 2,2',4,5,5'-PeCB + 2,3,3',5',6-PeCB	μg/L	0.00265	0.0218	0.00691	0.00173	0.0880	0.0785	0.00357	0.00384	0.00962	0.0137			
PCB 92	2,2',3,5,5'-PeCB 2,2',3,5,6-PeCB + 2,2',3',4,6-PeCB + 2,2',4,4',6-PeCB +	μg/L	0.000500 U	0.00346	0.00119	0.000519 U	0.0154	0.0138	0.0006219	0.000692	0.00163	0.00232			
PCB 93/98/100/102	2,2',3,5,6-PeCB + 2,2',3',4,6-PeCB + 2,2',4,4',6-PeCB + 2,2',4.5.6'-PeCB	μg/L	0.000750 U	0.000826	0.000775 U	0.000779 U	0.00345	0.00307	0.00194 U	0.00195 U	0.00198 U	0.00205 U	-	-	
PCB 94	2,2',3,5,6'-PeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U			
PCB 95	2,2',3,5',6-PeCB	μg/L	0.00148	0.0141	0.00536	0.000932	0.0635	0.00560	0.00241	0.00253	0.00582	0.00901			
PCB 96	2,2',3,6,6'-PeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000553	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-		
PCB 99	2,2',4,4',5-PeCB	μg/L	0.00118	0.00905	0.00336	0.000813	0.0357	0.0325	0.00149	0.00155	0.00461	0.00587			
PCB 103 PCB 104	2,2',4,5',6-PeCB	μg/L	0.000500 U	0.000487 U	0.000775 U	0.000779 U	0.000486 U 0.000486 U	0.000489 U 0.000489 U	0.000484 U	0.000489 U 0.000489 U	0.000495 U	0.000513 U 0.000513 U	-	-	
PCB 104 PCB 105	2,2',4,6,6'-PeCB 2,3,3',4.4'-PeCB	μg/L μg/L	0.000500 U 0.00243	0.000487 U 0.0149	0.000516 U 0.00322	0.000519 U 0.000667	0.000486 U 0.0437	0.000489 U 0.0382	0.000484 U 0.00256	0.000489 U 0.00273	0.000495 U 0.00877	0.000513 U 0.0107			
PCB 106	2,3,3',4,5-PeCB	μg/L	0.00243 0.000500 U	0.000487 U	0.00322 0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.00256 0.000484 U	0.00273 0.000489 U	0.000495 U	0.000513 U			
	11111 222														

Table 4
Basin 44 Stormwater - PCB Congeners Results

Sample Location SW1
Manhole ABC352 - Downstream in 12" Line
JSCS Stormwater SLVs⁽²⁾

						M	anhole ABC352 - E	ownstream in 12	" Line				JSCS	Stormwater SLVs	,2)
			Event 1 F0081411	Event 2 FO081479	Event 3 FO095155	Event 3 Duplicate FO095156	Event 4 FO095220	Event 4 Duplicate FO095223	Event 5 FO095375	Event 5 Duplicate FO095378	Event 6 FO095421	Event 6 Duplicate FO095435	Human Health	Human Health	
IUPAC Number(1)	Chemical Name	Units	11/20/2008	12/12/2008	2/8/2009	2/8/2009	2/23/2009	2/23/2009	3/23/2009	3/23/2009	4/1/2009	4/1/2009	Fish Consumption (3)	Ingestion ⁽⁴⁾	Ecological ⁽⁵⁾
PCB 107/124	2,3,3',4',5-PeCB + 2',3,4,5,5'-PeCB	μg/L	0.000500 U	0.00104	0.000516 U	0.000519 U	0.00399	0.00357	0.000968 U	0.000977 U	0.000989 U	0.00103 U			
PCB 109 PCB 110/115	2,3,3',4,6-PeCB 2,3,3',4',6-PeCB + 2,3,4,4',6-PeCB	μg/L	0.000500 Ü 0.00420	0.00173 0.0331	0.000516 U 0.00936	0.000519 U 0.00114	0.00548 0.115	0.00504 0.104	0.000484 U 0.00606	0.000489 U 0.00651	0.00115 0.0194	0.00127 0.0207			
PCB 1111	2,3,3,5,5'-PeCB	μg/L μg/L	0.000500 U	0.000487 U	0.00936 0.000516 U	0.000519 U	0.00171	0.000489 U	0.000484 U	0.00081 0.000489 U	0.000495 U	0.000513 U	-		
PCB 112	2,3,3',5,6-PeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-	-	
PCB 114 PCB 118	2,3,4,4',5-PeCB 2,3',4,4',5-PeCB	μg/L μg/L	0.000500 U 0.00441	0.000710 0.0284	0.000516 U 0.00661	0.000519 U 0.000957	0.00210	0.00180	0.000484 U 0.00518	0.000489 U 0.00547	0.000495 U 0.0178	0.000513 U 0.0211			
PCB 120	2,3,4,4,5-PeCB 2,3',4,5,5'-PeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000957 0.000519 U	0.00486 U	0.000489 U	0.000484 U	0.00547 0.000489 U	0.000495 U	0.000513 U			
PCB 121	2,3',4,5',6-PeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U		-	
PCB 122 PCB 123	2',3,3',4,5-PeCB 2',3,4,4',5-PeCB	μg/L	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.00142	0.00128 0.00129	0.000484 U 0.000484 U	0.000489 U 0.000489 U	0.000495 U 0.000495 U	0.000513 U 0.000513 U			
PCB 126	3.3'.4.4'.5-PeCB	μg/L μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.00162	0.00129	0.000484 U	0.000489 U	0.000495 U	0.000513 U			
PCB 127	3,3',4,5,5'-PeCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000511	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-	-	
PCB 128/166 PCB 129/138/163	2,2',3,3',4,4'-HxCB + 2,3,4,4',5,6-HxCB 2,2',3,3',4,5-HxCB + 2,2',3,4,4',5'-HxCB + 2,3,3',4',5,6-HxCB	μg/L	0.00100	0.00696	0.00186	0.00104 U 0.000859	0.0224	0.0204	0.00136	0.00146	0.00398	0.00524			
PCB 129/138/163	2,2,3,3,4,5-HxCB + 2,2,3,4,4,5-HxCB + 2,3,3,4,5,6-HxCB 2,2',3,3',4,5'-HxCB	µg/L µg/L	0.00726 0.000500 U	0.00231	0.000667	0.000859 0.000519 U	0.00781	0.00727	0.00798	0.00873	0.0240	0.0295			
PCB 131	2,2',3,3',4,6-HxCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.00162	0.00146	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-	-	
PCB 132	2,2',3,3',4,6'-HxCB	μg/L	0.00220	0.0130	0.00383	0.000519 U	0.0448	0.0402	0.00260	0.00282	0.00724	0.00927			
PCB 133 PCB 134/143	2,2',3,3',5,5'-HxCB 2,2',3,3',5,6-HxCB + 2,2',3,4,5,6'-HxCB	μg/L μg/L	0.000500 U 0.000500 U	0.000487 U 0.00148	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.00112	0.00103	0.000484 U 0.000968 U	0.000489 U 0.000977 U	0.000495 U 0.000989 U	0.000513 U 0.00105			
PCB 135/151	2,2',3,3',5,6'-HxCB + 2,2',3,5,5',6-HxCB	μg/L	0.00178	0.0110	0.00337	0.000529 U	0.0273	0.0244	0.00195 U	0.00212	0.00487	0.00691	-		
PCB 136	2,2',3,3',6,6'-HxCB	μg/L	0.000533	0.00374	0.00126	0.000519 U	0.0113	0.0100	0.000652	0.000698	0.00148	0.00225			
PCB 137 PCB 139/140	2,2',3,4,4',5-HxCB 2,2',3,4,4',6-HxCB + 2,2',3,4,4',6'-HxCB	μg/L μg/l	0.000500 U 0.000500 U	0.00213 0.000525	0.000646 0.000516 U	0.000519 U 0.000519 U	0.00728 0.00198	0.00619 0.00179	0.000484 U 0.000968 U	0.000489 U 0.000977 U	0.00121 0.000989 U	0.00154 0.00103 U			
PCB 139/140	2,2',3,4,4,6-HXCB + 2,2',3,4,4',6-HXCB 2,2',3,4,5,5'-HxCB	μg/L μg/L	0.00149	0.00698	0.000516 U	0.000519 0	0.0205	0.0179	0.000968 0	0.000977 0	0.00348	0.00454			
PCB 142	2,2',3,4,5,6-HxCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-		
PCB 144 PCB 145	2,2',3,4,5',6-HxCB 2,2',3,4,6,6'-HxCB	μg/L	0.000500 U 0.000500 U	0.00161 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.00402 0.000486 U	0.00311 0.000489 U	0.000484 U 0.000484 U	0.000489 U 0.000489 U	0.000727 0.000495 U	0.00105 0.000513 U			
PCB 145	2,2',3,4',5,5'-HxCB	μg/L μg/L	0.000821	0.000487 0	0.000516 0	0.000519 U	0.000486 0	0.000489 0	0.000484 0	0.000489 0	0.000495 0	0.000513 0			
PCB 147/149	2,2',3,4',5,6-HxCB + 2,2',3,4',5',6-HxCB	μg/L	0.00465	0.0261	0.00749	0.000549	0.0766	0.0673	0.00502	0.00542	0.0138	0.0176			
PCB 148 PCB 150	2,2',3,4',5,6'-HxCB	μg/L	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000486 U 0.000486 U	0.000489 U 0.000489 U	0.000484 U 0.000484 U	0.000489 U 0.000489 U	0.000495 U 0.000495 U	0.000513 U			
PCB 150 PCB 152	2,2',3,4',6,6'-HxCB 2,2',3,5,6,6'-HxCB	µg/L µg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U 0.000513 U			
PCB 153/168	2,2',4,4',5,5'-HxCB + 2,3',4,4',5',6-HxCB	μg/L	0.00534	0.0306	0.00717	0.000623 U	0.0889	0.0803	0.00579	0.00627	0.0174	0.0206			
PCB 154	2,2',4,4',5,6'-HxCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000649	0.000657	0.000484 U	0.000489 U	0.000495 U	0.000513 U			
PCB 155 PCB 156/157	2,2',4,4',6,6'-HxCB 2,3,3',4,4',5-HxCB + 2,3,3',4,4',5'-HxCB	μg/L μg/L	0.000500 U 0.00100 U	0.000487 U 0.00587	0.000516 U 0.00137	0.000519 U 0.00104 U	0.000486 U 0.0176	0.000489 U 0.0158	0.000484 U 0.000968 U	0.000489 U 0.00105 U	0.000495 U 0.00320	0.000513 U 0.00382	-		
PCB 158	2,3,3',4,4',6-HxCB	μg/L	0.000691	0.00414	0.000516 U	0.000519 U	0.0130	0.0119	0.000836	0.000892	0.00248	0.00302			
PCB 159	2,3,3',4,5,5'-HxCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000535	0.000513 U			
PCB 160 PCB 161	2,3,3',4,5,6-HxCB 2,3,3',4,5',6-HxCB	µg/L µg/L	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000486 U 0.000486 U	0.000489 U 0.000489 U	0.000484 U 0.000484 U	0.000489 U 0.000489 U	0.000495 U 0.000495 U	0.000513 U 0.000513 U			
PCB 162	2,3,3',4',5,5'-HxCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.00101	0.000569	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-	-	
PCB 164	2,3,3',4',5',6-HxCB	μg/L	0.000500 U	0.00244	0.000647	0.000519 U	0.00803	0.00766	0.000485	0.000543	0.00145	0.00179			
PCB 165 PCB 167	2,3,3',5,5',6-HxCB 2,3',4,4',5,5'-HxCB	μg/L	0.000500 U 0.000500 U	0.000487 U 0.00166	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000486 U 0.00555	0.000489 U 0.00496	0.000484 U 0.000484 U	0.000489 U 0.000489 U	0.000495 U 0.00120	0.000513 U 0.00134			
PCB 167	2,3,4,4,5,5-HxCB 3,3',4,4',5,5'-HxCB	µg/L µg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.00120 0.000495 U	0.000513 U			
PCB 170	2,2',3,3',4,4',5-HpCB	μg/L	0.00212	0.0114	0.00198	0.000519 U	0.0266	0.0240	0.00193	0.00215	0.00618	0.00676			
PCB 171/173 PCB 172	2,2',3,3',4,4',6-HpCB + 2,2',3,3',4,5,6-HpCB 2,2',3,3',4,5,5'-HpCB	μg/L	0.000636 0.000500 U	0.00325 0.00182	0.000630 0.000516 U	0.000519 U 0.000519 U	0.00832	0.00758 0.00423	0.000968 U 0.000484 U	0.000977 U 0.000489 U	0.00176	0.00197			
PCB 172	2,2,3,3,4,5,6'-HpCB	μg/L μg/L	0.000500 0	0.00182	0.000516 0	0.000519 U	0.00486	0.00423	0.000484 0	0.000489 0	0.00105	0.00108			
PCB 175	2,2',3,3',4,5',6-HpCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.00104	0.000865	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-	-	-
PCB 176 PCB 177	2,2',3,3',4,6,6'-HpCB	μg/L	0.000500 U 0.00128	0.00128	0.000516 U	0.000519 U 0.000519 U	0.00296	0.00266	0.000484 U	0.000489 U	0.000613 0.00343	0.000716			
PCB 177 PCB 178	2,2',3,3',4',5,6-HpCB 2,2',3,3',5,5',6-HpCB	μg/L μg/L	0.00128 0.000500 U	0.00642 0.00212	0.00116 0.000516 U	0.000519 U 0.000519 U	0.0157 0.00455	0.0139 0.00406	0.00108 0.000484 U	0.00118 0.000489 U	0.00343	0.00372 0.00118			
PCB 179	2,2',3,3',5,6,6'-HpCB	μg/L	0.000817	0.00414	0.00100	0.000519 U	0.00900	0.00801	0.000688	0.000790	0.00192	0.00227	-		
PCB 180/193	2,2',3,4,4',5,5'-HpCB + 2,3,3',4',5,5',6-HpCB	μg/L	0.00492	0.0259	0.00440	0.000519 U	0.0590	0.0522	0.00410	0.00464	0.0136	0.0144			
PCB 181 PCB 182	2,2',3,4,4',5,6'-HpCB 2,2',3,4,4',5,6'-HpCB	μg/L μg/l	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000486 U 0.000486 U	0.000489 U 0.000489 U	0.000484 U 0.000484 U	0.000489 U 0.000489 U	0.000495 U 0.000495 U	0.000513 U 0.000513 U			
PCB 183/185	2,2',3,4,4',5',6-HpCB + 2,2',3,4,5,5',6-HpCB	μg/L μg/L	0.00150	0.00736	0.00134	0.000519 U	0.0180	0.0164	0.00127	0.00141	0.00493 0	0.00449	-	-	
PCB 184	2,2',3,4,4',6,6'-HpCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.000484 U	0.000489 U	0.000495 U	0.000513 U	-	-	-
PCB 186 PCB 187	2,2',3,4,5,6,6'-HpCB 2,2',3,4',5,5',6-HpCB	μg/L	0.000500 U 0.00256	0.000487 U 0.0131	0.000516 U 0.00290	0.000519 U 0.000519 U	0.000486 U 0.0281	0.000489 U 0.0250	0.000484 U 0.00221	0.000489 U 0.00253	0.000495 U 0.00651	0.000513 U 0.00755			
PCB 188	2,2,3,4,5,5,6-HpCB 2,2',3,4',5,6,6'-HpCB	μg/L μg/L	0.00256 0.000500 U	0.000487 U	0.00290 0.000516 U	0.000519 U	0.000486 U	0.000489 U	0.00221 0.000484 U	0.00253 0.000489 U	0.000495 U	0.000513 U			
PCB 189	2,3,3',4,4',5,5'-HpCB	μg/L	0.000500 U	0.000490	0.000516 U	0.000519 U	0.00112	0.00106	0.000484 U	0.000489 U	0.000495 U	0.000513 U			
PCB 190 PCB 191	2,3,3',4,4',5,6-HpCB	μg/L	0.000500 U	0.00247	0.000516 U	0.000519 U	0.00528 0.00110	0.00478	0.000484 U 0.000484 U	0.000489 U	0.00122	0.00125			
PCB 191 PCB 192	2,3,3',4,4',5',6-HpCB 2,3,3',4,5,5',6-HpCB	μg/L μg/L	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.00110 0.000486 U	0.000972 0.000489 U	0.000484 U 0.000484 U	0.000489 U 0.000489 U	0.000495 U 0.000495 U	0.000513 U 0.000513 U			
PCB 194	2,2',3,3',4,4',5,5'-OcCB	μg/L	0.000883	0.00639	0.00108	0.000519 U	0.00116	0.0109	0.000862	0.000903	0.00244	0.00259			
PCB 195	2,2',3,3',4,4',5,6-OcCB	μg/L	0.000501	0.00243	0.000516 U	0.000519 U	0.00474	0.00444	0.000726 U	0.000733 U	0.000967	0.00120			
PCB 196 PCB 197/200	2,2',3,3',4,4',5,6'-OcCB 2,2',3,3',4,4',6,6'-OcCB + 2,2',3,3',4,5,6,6'-OcCB	μg/L μg/L	0.000700 U 0.00250 U	0.00328 0.00244 U	0.000516 U 0.000516 U	0.000727 U 0.00260 U	0.00593 0.00186	0.00528 0.00167	0.000726 U 0.00145 U	0.000733 U 0.00147 U	0.00127 0.00148 U	0.00153 0.00154 U			
PCB 198/199	2,2',3,3',4,5,5',6-OcCB + 2,2',3,3',4,5,5',6'-OcCB	μg/L	0.00137	0.00699	0.00141	0.000519 U	0.0124	0.0110	0.00145 U	0.00147 U	0.00283	0.00322			
PCB 201	2,2',3,3',4,5',6,6'-OcCB	μg/L	0.000500 U	0.000697	0.000516 U	0.000504 U	0.00138	0.00125	0.000726 U	0.000733 U	0.000742 U	0.000769 U	-		
PCB 202 PCB 203	2,2',3,3',5,5',6,6'-OcCB 2,2',3,4,4',5,5',6-OcCB	μg/L μg/L	0.000500 U 0.000767	0.000845	0.000516 U 0.000828	0.000519 U 0.000519 U	0.00165	0.00153 0.00640	0.000726 U 0.000726 U	0.000733 U 0.000733 U	0.000742 U 0.00157	0.000769 U 0.00191			
PCB 203	2,2',3,4,4',5,6,6'-OcCB	μg/L	0.000767 0.000500 U	0.000487 U	0.000828 0.000516 U	0.000519 U	0.00677 0.000728 U	0.000733 U	0.000726 U	0.000733 U	0.00157 0.000742 U	0.000769 U			
PCB 205	2,3,3',4,4',5,5',6-OcCB	μg/L	0.000500 U	0.000487 U	0.000516 U	0.000519 U	0.000728 U	0.000733 U	0.000726 U	0.000733 U	0.000742 U	0.000769 U			
PCB 206	2,2',3,3',4,4',5,5',6-NoCB	μg/L	0.000500 U	0.00143	0.000516 U	0.000519 U	0.00276	0.00246	0.000726 U	0.000733 U	0.000742 U	0.000769 U			
	2.21.2.21.4.41.E.G.G. No.CB														
PCB 207 PCB 208	2,2',3,3',4,4',5,6,6'-NoCB 2,2',3,3',4,5,5',6,6'-NoCB	μg/L μg/L	0.000500 U 0.000500 U	0.000487 U 0.000487 U	0.000516 U 0.000516 U	0.000519 U 0.000519 U	0.000728 U 0.000728 U	0.000733 U 0.000733 U	0.000726 U 0.000726 U	0.000733 U 0.000733 U	0.000742 U 0.000742 U	0.000769 U 0.000769 U			

Table 4 Basin 44 Stormwater - PCB Congeners Results

						Ma	Sample Lo anhole ABC352 - D	ocation SW1 Downstream in 12	" Line				JSCS	Stormwater SLVs	2)
			Event 1 FO081411	Event 2 FO081479	Event 3 FO095155	Event 3 Duplicate FO095156	Event 4 FO095220	Event 4 Duplicate FO095223	Event 5 FO095375	Event 5 Duplicate FO095378	Event 6 FO095421	Event 6 Duplicate FO095435	Human Health	Human Health	
IUPAC Number ⁽¹⁾	Chemical Name	Units	11/20/2008	12/12/2008	2/8/2009	2/8/2009	2/23/2009	2/23/2009	3/23/2009	3/23/2009	4/1/2009	4/1/2009	Fish Consumption (3)	Ingestion ⁽⁴⁾	Ecological ⁽⁵⁾
	Total Monochlorobiphenyls	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
	Total Dichlorobiphenyls	μg/L	ND	0.00135	0.00223	ND	0.00907	0.00789	0.000262	0.000297	0.00139	0.00188			
	Total Trichlorobiphenyls	μg/L	0.00234	0.0291	0.00718	0.000737	0.137	0.121	0.00424	0.00442	0.0245	0.0308			
	Total Tetrachlorobiphenyls	μg/L	0.0109	0.0932	0.0252	0.0103	0.395	0.342	0.0176	0.0187	0.0631	0.0790			-
	Total Pentachlorobiphenyls	μg/L	0.0205	0.166	0.0477	0.0104	0.610	0.541	0.0266	0.0284	0.0837	0.111			
	Total Hexachlorobiphenyls	μg/L	0.0258	0.169	0.0436	0.00141	0.517	0.466	0.0292	0.0328	0.0908	0.114			
	Total Heptachlorobiphenyls	μg/L	0.0162	0.0916	0.0157	ND	0.215	0.191	0.0133	0.0149	0.0477	0.0521			
	Total Octachlorobiphenyls	μg/L	0.00352	0.0244	0.00332	ND	0.0463	0.0425	0.000862	0.000903	0.00908	0.0104			
	Total Nonachlorobiphenyls	μg/L	ND	0.00143	ND	ND	0.00276	0.00246	ND	ND	ND	ND			-
	Total Decachlorobiphenyls	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		-	
	Total PCBs ⁽⁶⁾	μg/L	0.0793	0.576	0.145	0.0228	1.93	1.71	0.0921	0.100	0.320	0.400	0.000064	0.034	0.014

MoCB = Monochlorobiphenyl

DiCB = Dichlorobiphenyl

TriCB = Trichlorobiphenyl

TeCB = Tetrachlorobiphenyl

PeCB = Pentachlorobiphenyl HeCB = Hexachlorobiphenyl

HpCB = Hexacniorobiphenyl

OcCB = Octachlorobiphenyl

NoCB = Nonachlorobiphenyl

-- No JSCS screening level available.

EMPC = Estimated Maximum Possible Concentration.

U = The analyte was not detected above the reported sample quantification limit.

C = The analyte was not detected above the reported sample quantification finite

 $\mu g/L = micrograms \ per \ liter.$

ND = not detected.

 $^{(1)}$ IUPAC = International Union of Pure and Applied Chemistry.

(2) JSCS SLVs = Portland Harbor Joint Source Control Strategy Screening Level Values (DEQ/EPA Final December 2005, Amended July 2007).

(i) The SLVs for chemicals in water taken up by fish for human consumption represent EPA's NRWQC values. If no NRWQC values are available, then DEQ's AWQC values are listed for the constituent.

(4) The SLVs for chemicals in water for human ingestion represent the most conservative value between EPA's MCLs and Region 9 PRGs.

(5) The SLVs for chemicals in water for ecological exposure represent EPA's NRWQC values. If no NRWQC values are available, then DEQ's AWQC values are listed for the constituent. If no AWQC values are available, then Oak Ridge National Laboratory Tier II SCV Technology Benchmark values are listed for the constituent.

(6) Total homologs and total congener concentrations are calculated by assigning "0" to undetected constituents and EMPC values.

Highlighted values have been selected by DEQ for initial upland source control screening evaluations.

bold = Concentration exceeds DEQ's SLV.

Table 5 Basin 44 Subbasin Stormwater Results

						N River Street						N. Loring Street				NE of Railroad Tracks		
		•	Manhole ABC352 Downstream in 12" Line		Manhole ABC349 Downstream in 10" Line	Manhole ABC355 Upstream in North Lateral	Manhole ABC355 Upstream in Northeast Lateral	Catch Basin AMX004 Northeast of Manhole ABC355	Manhole ABC355 Downstream in 10" Line	Manhole ABC348 Upstream in 12" Line Northwest of Manhole	Manhole ABC348 Upstream in 8" Line Northeast of Manhole	Manhole ABC348 Upstream in 12" Line Southeast of Manhole	Catch Basin APL246 Southeast of Manhole ABC348	Catch Basin APL236 Southeast of Manhole ABC267	Manhole ABC278 Downstream in 8" Line	Manhole ABC259 Downstream in 8" Line	JSCS S	tormwater SLVs ⁽²⁾
Class/IUPAC Number (1)	Analyte/Chemical Name	Units	FO095421 04/01/09	FO095435 04/01/09	FO095422 04/01/09	FO095433 04/01/09	FO095432 04/01/09	FO095431 04/01/09	FO095423 04/01/09	FO095424 04/01/09	FO095426 04/01/09	FO095425 04/01/09	FO095430 04/01/09	FO095429 04/01/09	FO095428 04/01/09	FO095427 04/01/09	Human Health Fish Consumption ⁽³⁾	Human Health Ingestion ⁽⁴⁾ Ecological ⁽⁵⁾
Field Measurements	Conductivity	μmhos/cm	55	NA NA	149	155	293	99	142	50	85	68	85	90	98	41	-	
	PH Temperature	units Deg. C	7.2 7.5	NA NA	7.7	7.4 8.9	6.3 9.7	8.4 7.8	7.6 8.1	7.6 7.4	7.5 8.3	8.2 8.4	7.7 9.0	8.0 7.9	8.8 7.7	7.6 8.5	-	
Total Suspended Solids (S	TSS	mg/L	201	182	121	21	4	73	122	21	57	27	26	100	58	13		
Total Organic Carbon (EP	A 415.2) TOC	mg/L	1.7	1.0	4.9	2.8	4.4	1.5	3.9	1.9	3.0	2.8	3.4	2.2	2.9	4.4	-	
Polychlorinated Biphenyl (PCB 1	2-MoCB	μg/L	0.000247 U	0.000256 U	0.000249 U	0.000246 U	0.000249 U	0.000241 U	0.000252 U	0.000259 U	0.000277	0.000248 U	0.000249 U	0.000242 U	0.000248 U	0.000238 U	-	
PCB 2 PCB 3 PCB 4	3-MoCB 4-MoCB 2,2'-DiCB	μg/L μg/L	0.000247 U 0.000247 U 0.00245 EMPC	0.000256 U 0.000256 U 0.000256 U	0.000249 U 0.000249 U 0.000249 U	0.000246 U 0.000246 U 0.000246 U	0.000249 U 0.000249 U 0.000249 U	0.000241 U 0.000241 U 0.000241 U	0.000252 U 0.000252 U 0.000252 U	0.000259 U 0.000259 U 0.000259 U	0.000256 U 0.000256 U 0.000256 U	0.000248 U 0.000248 U 0.000248 U	0.000249 U 0.000249 U 0.000249 U	0.000242 U 0.000242 U 0.000242 U	0.000248 U 0.000248 U 0.000248 U	0.000238 U 0.000238 U 0.000968 EMPC		
PCB 5 PCB 6	2,3-DiCB 2,3-DiCB	μg/L μg/L	0.00243 EMPC 0.000247 U 0.000247 U	0.000256 U 0.000256 U	0.000249 U 0.000249 U 0.000249 U	0.000246 U 0.000246 U	0.000249 U 0.000249 U 0.000249 U	0.000241 U 0.000241 U 0.000241 U	0.000252 U 0.000252 U 0.000252 U	0.000259 U 0.000259 U 0.000259 U	0.000256 U 0.000256 U	0.000248 U 0.000248 U 0.000248 U	0.000249 U 0.000249 U 0.000249 U	0.000242 U 0.000242 U 0.000242 U	0.000248 U 0.000248 U	0.00038 U 0.000238 U		
PCB 7 PCB 8	2,4-DiCB 2,4'-DiCB	μg/L μg/L	0.000247 U 0.000247 U	0.000256 U 0.000261	0.000249 U 0.000249 U	0.000246 U 0.000246 U	0.000249 U 0.000249 U	0.000241 U 0.000241 U	0.000252 U 0.000252 U	0.000259 U 0.000259 U	0.000256 U 0.000256 U	0.000248 U 0.000248 U	0.000249 U 0.000249 U	0.000242 U 0.000242 U	0.000248 U 0.000248 U	0.000238 U 0.000238 U	-	
PCB 9 PCB 10	2,5-DiCB 2,6-DiCB	μg/L μg/L	0.000247 U 0.000247 U	0.000256 U 0.000256 U	0.000249 U 0.000249 U	0.000246 U 0.000246 U	0.000249 U 0.000249 U	0.000241 U 0.000241 U	0.000252 U 0.000252 U	0.000259 U 0.000259 U	0.000256 U 0.000256 U	0.000248 U 0.000248 U	0.000249 U 0.000249 U	0.000242 U 0.000242 U	0.000248 U 0.000248 U	0.000238 U 0.000238 U	-	
PCB 11 PCB 12/13	3,3'-DiCB 3,4-DiCB + 3,4'-DiCB	μg/L μg/L	0.00148 U 0.000495 U	0.00154 U 0.000513 U	0.00150 U 0.000499 U	0.00148 U 0.000492 U	0.00149 U 0.000498 U	0.00145 U 0.000483 U	0.00151 U 0.000505 U	0.00155 U 0.000517 U	0.00153 U 0.000511 U	0.00149 U 0.000495 U	0.00149 U 0.000498 U	0.00145 U 0.000485 U	0.00149 U 0.000496 U	0.00143 U 0.000476 U		
PCB 14 PCB 15 PCB 16	3,5-DiCB 4,4'-DiCB 2,2',3-TriCB	μg/L μg/L	0.000247 U 0.00139 0.000554	0.000256 U 0.00161 0.00129	0.000249 U 0.000261 0.000249 U	0.000246 U 0.000246 U 0.000246 U	0.000249 U 0.000249 U 0.000249 U	0.000241 U 0.000241 U 0.000241 U	0.000252 U 0.000726 0.000891	0.000259 U 0.000259 U 0.000259 U	0.000256 U 0.000256 U 0.000256 U	0.000248 U 0.000248 U 0.000248 U	0.000249 U 0.00218 0.00126	0.000242 U 0.000242 U 0.000242 U	0.000248 U 0.000248 U 0.000248 U	0.000238 U 0.000238 U 0.000238 U	= =	
PCB 17 PCB 18/30	2,2',4-TriCB 2,2',5-TriCB + 2,4,6-TriCB	μg/L μg/L	0.000334 0.000408 0.00072	0.000945 0.00180	0.000249 U 0.000499 U	0.000246 U 0.000492 U	0.000249 U 0.000498 U	0.000241 U 0.000241 U 0.000483 U	0.000666 0.00141	0.000259 U 0.000517 U	0.000256 U 0.000511 U	0.000248 U 0.000495 U	0.000870 0.00161	0.000242 U 0.000242 U 0.000485 U	0.000248 U 0.000496 U	0.000238 U 0.000476 U		
PCB 19 PCB 20/28	2,2',6-TriCB 2,3,3'-TriCB + 2,4,4'-TriCB	μg/L μg/L	0.00072 0.000247 U 0.00664	0.000256 U 0.00778	0.000433 U 0.000249 U 0.000911	0.000246 U 0.000492 U	0.000498 U 0.000498 U	0.000241 U 0.000822	0.000252 U 0.00481	0.000517 U 0.000517 U	0.000256 U 0.000511 U	0.000495 U 0.000495 U	0.000249 U 0.00999	0.000242 U 0.00210	0.000496 U 0.000496 U	0.000238 U 0.000476 U		
PCB 21/33 PCB 22	2,3,4-TriCB + 2',3,4-TriCB 2,3,4'-TriCB	μg/L μg/L	0.00201 0.00327	0.00231 0.00368	0.000499 U 0.000345	0.000492 U 0.000246 U	0.000498 U 0.000249 U	0.000483 U 0.000433	0.00128 0.00233	0.000517 U 0.000259 U	0.000511 U 0.000256 U	0.000495 U 0.000248 U	0.00305 0.00500	0.000485 U 0.00102	0.000496 U 0.000248 U	0.000476 U 0.000238 U	-	
PCB 23 PCB 24	2,3,5-TriCB 2,3,6-TriCB	μg/L μg/L	0.000247 U 0.000247 U	0.000256 U 0.000256 U	0.000249 U 0.000249 U	0.000246 U 0.000246 U	0.000249 U 0.000249 U	0.000241 U 0.000241 U	0.000252 U 0.000252 U	0.000259 U 0.000259 U	0.000256 U 0.000256 U	0.000248 U 0.000248 U	0.000249 U 0.000249 U	0.000242 U 0.000242 U	0.000248 U 0.000248 U	0.000238 U 0.000238 U	-	
PCB 25 PCB 26/29	2,3',4-TriCB 2,3',5-TriCB + 2,4,5-TriCB	μg/L μg/L	0.000336 0.000754	0.000424 0.000942	0.000249 U 0.000499 U	0.000246 U 0.000492 U	0.000249 U 0.000498 U	0.000241 U 0.000483 U	0.000272 0.000559	0.000259 U 0.000517 U	0.000256 U 0.000511 U	0.000248 U 0.000495 U	0.000520 0.00115	0.000242 U 0.000485 U	0.000248 U 0.000496 U	0.000238 U 0.000476 U	-	
PCB 27 PCB 31	2,3',6-TriCB 2,4',5-TriCB	μg/L μg/L	0.000247 U 0.00390	0.000256 U 0.00450	0.000249 U 0.000570	0.000246 U 0.000275	0.000249 U 0.000249 U	0.000241 U 0.000500	0.000252 U 0.00251	0.000259 U 0.000259 U	0.000256 U 0.000256 U	0.000248 U 0.000248 U	0.000249 U 0.00580	0.000242 U 0.00114	0.000248 U 0.000280	0.000238 U 0.000238 U		
PCB 32 PCB 34	2,4',6-TriCB 2',3,5-TriCB	μg/L μg/L	0.000546 0.000247 U	0.000987 0.000256 U	0.000249 U 0.000249 U	0.000246 U 0.000246 U	0.000249 U 0.000249 U	0.000241 U 0.000241 U	0.00068 0.000252 U	0.000259 U 0.000259 U	0.000256 U 0.000256 U	0.000248 U 0.000248 U	0.00105 0.000249 U	0.000275 0.000242 U	0.000248 U 0.000248 U	0.000238 U 0.000238 U		
PCB 35 PCB 36 PCB 37	3,3',4-TriCB 3,3',5-TriCB 3,4,4'-TriCB	μg/L μg/L	0.000332 0.000247 U 0.00504	0.000307 0.000256 U 0.00582	0.000249 U 0.000249 U 0.000721	0.000246 U 0.000246 U 0.000276	0.000249 U 0.000249 U 0.000249 U	0.000241 U 0.000241 U 0.000700	0.000252 U 0.000252 U 0.00364	0.000259 U 0.000259 U 0.000259 U	0.000256 U 0.000256 U 0.000256 U	0.000248 U 0.000248 U 0.000248 U	0.000526 0.000249 U 0.00950	0.000242 U 0.000242 U 0.000835	0.000248 U 0.000248 U 0.000248 U	0.000238 U 0.000238 U 0.000238 U		
PCB 38 PCB 39	3,4,5-TriCB 3,4',5-TriCB	μg/L μg/L μg/l	0.000247 U 0.000247 U	0.000256 U 0.000256 U	0.000249 U 0.000249 U	0.000246 U 0.000246 U	0.000249 U 0.000249 U	0.000241 U 0.000241 U	0.000252 U 0.000252 U	0.000259 U 0.000259 U	0.000256 U 0.000256 U	0.000248 U 0.000248 U	0.000249 U 0.000249 U	0.000242 U 0.000242 U	0.000248 U 0.000248 U	0.000238 U 0.000238 U		
PCB 40/41/71 PCB 42	2,2',3,3'-TeCB + 2,2',3,4-TeCB + 2,3',4',6-TeCB 2,2',3,4'-TeCB	μg/L μg/L	0.00529 0.00214	0.00730 0.000721 U	0.00150 U 0.000499 U	0.00148 U 0.000492 U	0.00149 U 0.000498 U	0.00145 U 0.000483 U	0.00481 0.00194	0.00155 U 0.000517 U	0.00153 U 0.000511 U	0.00149 U 0.000495 U	0.0104 0.00420	0.00179 0.000749	0.00149 U 0.000496 U	0.00143 U 0.000476 U	-	
PCB 43 PCB 44/47/65	2,2',3,5-TeCB 2,2',3,5'-TeCB + 2,2',4,4'-TeCB + 2,3,5,6-TeCB	μg/L μg/L	0.000495 U 0.00636	0.000513 U 0.00874	0.000499 U 0.00150 U	0.000492 U 0.00148 U	0.000498 U 0.00149 U	0.000483 U 0.00145 U	0.000505 U 0.00560	0.000517 U 0.00155 U	0.000511 U 0.00153 U	0.000495 U 0.00149 U	0.000498 U 0.0119	0.000485 U 0.00206	0.000496 U 0.00149 U	0.000476 U 0.00143 U		
PCB 45/51 PCB 46	2,2',3,6-TeCB + 2,2',4,6'-TeCB 2,2',3,6'-TeCB	μg/L μg/L	0.000989 U 0.000495 U	0.00127 0.000513 U	0.000997 U 0.000499 U	0.000984 U 0.000492 U	0.000996 U 0.000498 U	0.000925 U 0.000483 U	0.00101 U 0.000505 U	0.00103 U 0.000517 U	0.00102 U 0.000511 U	0.000990 U 0.000495 U	0.00145 0.000555	0.000970 U 0.000485 U	0.000993 U 0.000496 U	0.000952 U 0.000476 U		
PCB 48 PCB 49/69	2,2',4,5-TeCB 2,2',4,5'-TeCB + 2,3',4,6-TeCB	μg/L μg/L	0.00139 0.00348	0.00200 0.00487	0.000499 U 0.000997 U	0.000492 U 0.000984 U	0.000498 U 0.000996 U	0.000483 U 0.000925 U	0.00130 0.00313	0.000517 U 0.00103 U	0.000511 U 0.00102 U	0.000495 U 0.000990 U	0.00262 0.00629	0.000494 0.00120	0.000496 U 0.000993 U	0.000476 U 0.000952 U		
PCB 50/53 PCB 52	2,2',4,6-TeCB + 2,2',5,6'-TeCB 2,2',5,5'-TeCB	μg/L μg/L	0.000989 U 0.00580	0.00103 U 0.00817	0.000997 U 0.000715	0.000984 U 0.000624	0.000996 U 0.000498 U	0.000925 U 0.00102	0.00101 U 0.00477	0.00103 U 0.000517 U	0.00102 U 0.000511 U	0.000990 U 0.000495 U	0.000996 U 0.0106	0.000970 U 0.00192	0.000993 U 0.000496 U	0.000952 U 0.000476 U		
PCB 54 PCB 55 PCB 56	2,2',6,6'-TeCB 2,3,3',4-TeCB 2,3,3',4'-TeCB	μg/L μg/L	0.000495 U 0.000495 U 0.00521	0.000513 U 0.000513 U 0.00567	0.000499 U 0.000499 U 0.000699	0.000492 U 0.000492 U 0.000492 U	0.000498 U 0.000498 U 0.000498 U	0.000483 U 0.000483 U 0.000819	0.000505 U 0.000505 U 0.00355	0.000517 U 0.000517 U 0.000517 U	0.000511 U 0.000511 U 0.000511 U	0.000495 U 0.000495 U 0.000495 U	0.000498 U 0.000498 U 0.0117	0.000485 U 0.000485 U 0.00118	0.000496 U 0.000496 U 0.000496 U	0.000476 U 0.000476 U 0.000476 U	<u>=</u>	
PCB 57 PCB 58	2,3,3',5-TeCB 2,3,3',5'-TeCB	μg/L μg/L	0.00321 0.000495 U 0.000495 U	0.000513 U 0.000513 U	0.000499 U 0.000499 U	0.000492 U 0.000492 U 0.000492 U	0.000498 U 0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000791 0.000498 U	0.000185 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U 0.000476 U		
PCB 59/62/75 PCB 60	2,3,3',6-TeCB + 2,3,4,6-TeCB + 2,4,4',6-TeCB 2,3,4,4'-TeCB	μg/L μg/L	0.00148 U 0.00269	0.00154 U 0.00303	0.00150 U 0.000499 U	0.000148 U 0.000492 U	0.00149 U 0.000498 U	0.00145 U 0.000483 U	0.00151 U 0.00193	0.00155 U 0.000517 U	0.00153 U 0.000511 U	0.00149 U 0.000495 U	0.00149 U 0.00566	0.00145 U 0.000595	0.00149 U 0.000496 U	0.00143 U 0.000476 U		
PCB 61/70/74/76	2,3,4,5-TeCB + 2,3',4',5-TeCB + 2,4,4',5-TeCB + 2',3,4 TeCB	4,5- μg/L	0.0157	0.0182	0.000199 U	0.00172 U	0.00199 U	0.00258 U	0.0106	0.00207 U	0.00205 U	0.00198 U	0.0323	0.00386	0.00199 U	0.00190 U		
PCB 63 PCB 64	2,3,4',5-TeCB 2,3,4',6-TeCB	μg/L μg/L	0.000495 U 0.00373	0.000513 U 0.00505	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000642	0.000505 U 0.00325	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000616 0.00680	0.000485 U 0.00122	0.000496 U 0.000496 U	0.000476 U 0.000476 U	= = =	
PCB 66 PCB 67	2,3',4,4'-TeCB 2,3',4,5-TeCB	μg/L μg/L	0.00906 0.000495 U	0.00965 0.000513 U	0.00114 0.000499 U	0.000631 0.000492 U	0.000498 U 0.000498 U	0.00136 0.000483 U	0.00641 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.0190 0.000648	0.00214 0.000485 U	0.000528 0.000496 U	0.000476 U 0.000476 U		
PCB 68 PCB 72	2,3',4,5'-TeCB 2,3',5,5'-TeCB	μg/L μg/L	0.000495 U 0.000495 U	0.000513 U 0.000513 U	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.000498 U	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U	-	
PCB 73 PCB 77 PCB 78	2,3',5',6-TeCB 3,3',4,4'-TeCB 3,3',4,5-TeCB	μg/L μg/L	0.000495 U 0.00176	0.000513 U 0.00214	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.00116	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.00522	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U		
PCB 79 PCB 80	3,3',4,5'-TeCB 3,3',4,5'-TeCB	μg/L μg/L	0.000495 U 0.000545 0.000495 U	0.000513 U 0.000513 U 0.000513 U	0.000499 U 0.000499 U 0.000499 U	0.000492 U 0.000492 U 0.000492 U	0.000498 U 0.000498 U 0.000498 U	0.000483 U 0.000483 U 0.000483 U	0.000505 U 0.000505 U 0.000505 U	0.000517 U 0.000517 U 0.000517 U	0.000511 U 0.000511 U 0.000511 U	0.000495 U 0.000495 U 0.000495 U	0.000498 U 0.000674 0.000498 U	0.000485 U 0.000485 U 0.000485 U	0.000496 U 0.000496 U 0.000496 U	0.000476 U 0.000476 U 0.000476 U	=======================================	
PCB 81 PCB 82	3,4,4',5-TeCB 2,2',3,3',4-PeCB	μg/L μg/l	0.000495 U 0.00187	0.000513 U 0.00257	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000910	0.000517 U 0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.00521	0.000485 U 0.000522	0.000496 U 0.000496 U	0.000476 U 0.000476 U		
PCB 83 PCB 84	2,2',3,3',5-PeCB 2,2',3,3',6-PeCB	μg/L μg/L	0.000968 0.00224	0.00143 0.00344	0.000499 U 0.000499 U	0.000492 U 0.000604	0.000498 U 0.000498 U	0.000483 U 0.000569	0.000663 0.00137	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.00253 0.00593	0.000485 U 0.000947	0.000496 U 0.000496 U	0.000476 U 0.000476 U		
PCB 85/116/117	2,2',3,4,4'-PeCB + 2,3,4,5,6-PeCB + 2,3,4',5,6-PeCB 2,2',3,4,5-PeCB + 2,2',3,4,5'-PeCB + 2,2',3',4,5-PeCB	μg/L	0.00148 U	0.00565	0.00150 U	0.00148 U	0.00149 U	0.00145 U	0.00164	0.00155 U	0.00153 U	0.00149 U	0.00585	0.00145	0.00149 U	0.00143 U	-	
PCB 86/87/97/108/119/125	2,3,3,4,5'-PeCB + 2,3',4,4',6-PeCB + 2',3,4,5,6'-PeCB 2,2',3,4,6-PeCB + 2,2',3,4',6-PeCB	μg/L	0.00865	0.0119	0.00299 U	0.00295 U	0.00299 U	0.00290 U	0.00414 0.00101 U	0.00310 U	0.00307 U		0.0235	0.00291	0.00298 U	0.00286 U	-	
PCB 88/91 PCB 89 PCB 90/101/113	2,2',3,4,6'-PeCB + 2,2',3,4',6-PeCB 2,2',3,4',6'-PeCB 2,2',3,4',5-PeCB + 2,2',4,5,5'-PeCB + 2,3,3',5',6-PeCB	μg/L μg/L	0.00127 0.000495 U 0.00962	0.00185 0.000513 U 0.0137	0.000997 U 0.000499 U 0.00153	0.000984 U 0.000492 U 0.00188	0.000996 U 0.000498 U 0.00149 U	0.000965 U 0.000483 U 0.00222	0.00101 U 0.000505 U 0.00442	0.00103 U 0.000517 U 0.00155 U	0.00102 U 0.000511 U 0.00153 U	0.000990 U 0.000495 U 0.00149 U	0.00321 0.000498 U 0.0245	0.000970 U 0.000485 U 0.00312	0.000993 U 0.000496 U 0.00149 U	0.000952 U 0.000476 U 0.00161		
PCB 92	2,2',3,5,5'-PeCB 2,2',3,5,6-PeCB + 2,2',3',4,6-PeCB + 2,2',4,4',6-PeCB	μg/L μg/L	0.00163	0.00232	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000813	0.000517 U	0.000511 U	0.000495 U	0.00414	0.000617	0.000496 U	0.000476 U	-	
	2,2',4,5,6'-PeCB 2,2',3,5,6'-PeCB	μg/L μg/L	0.00198 U 0.000495 U	0.00205 U 0.000513 U	0.00199 U 0.000499 U	0.00197 U 0.000492 U	0.00199 U 0.000498 U	0.00193 U 0.000483 U	0.00202 U 0.000505 U	0.00207 U 0.000517 U	0.00205 U 0.000511 U	0.00198 U 0.000495 U	0.00199 U 0.000498 U	0.00194 U 0.000485 U	0.00199 U 0.000496 U	0.00190 U 0.000476 U		
PCB 95 PCB 96	2,2',3,5',6-PeCB 2,2',3,6,6'-PeCB	μg/L μg/L	0.00582 0.000495 U	0.00901 0.000513 U	0.00127 0.000499 U	0.00157 U 0.000492 U	0.000498 U 0.000498 U	0.00142 0.000483 U	0.00368 0.000505 U	0.000746 0.000517 U	0.000560 0.000511 U	0.000495 U 0.000495 U	0.0144 0.000498 U	0.00284 0.000485 U	0.000636 0.000496 U	0.00115 0.000476 U		
PCB 99 PCB 103	2,2',4,4',5-PeCB 2,2',4,5',6-PeCB	μg/L μg/L	0.00461 0.000495 U	0.00587 0.000513 U	0.000611 0.000499 U	0.000881 0.000492 U	0.000498 U 0.000498 U	0.000902 0.000483 U	0.00185 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.0106 0.000498 U	0.00110 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U		
PCB 104 PCB 105	2,2',4,6,6'-PeCB 2,3,3',4,4'-PeCB	μg/L μg/L	0.000495 U 0.00877	0.000513 U 0.0107	0.000499 U 0.000849	0.000492 U 0.00119	0.000498 U 0.000498 U	0.000483 U 0.00164	0.000505 U 0.00364	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.0231	0.000485 U 0.00200	0.000496 U 0.000553 U	0.000476 U 0.000476 U		
PCB 106 PCB 107/124 PCB 109	2,3,3',4,5-PeCB 2,3,3',4',5-PeCB + 2',3,4,5,5'-PeCB 2,3,3',4,6-PeCB	μg/L μg/L	0.000495 U 0.000989 U 0.00115	0.000513 U 0.00103 U 0.00127	0.000499 U 0.000997 U 0.000499 U	0.000492 U 0.000984 U 0.000492 U	0.000498 U 0.000996 U 0.000498 U	0.000483 U 0.000965 U 0.000483 U	0.000505 U 0.00101 U 0.000505 U	0.000517 U 0.00103 U 0.000517 U	0.000511 U 0.00102 U 0.000511 U	0.000495 U 0.000990 U 0.000495 U	0.000498 U 0.00196 0.00252	0.000485 U 0.000970 U 0.000485 U	0.000496 U 0.000993 U 0.000496 U	0.000476 U 0.000952 U 0.000476 U		
PCB 110/115 PCB 111	2,3,3',4',6-PeCB + 2,3,4,4',6-PeCB 2,3,3',5,5'-PeCB	μg/L μg/L μg/L	0.00115 0.0194 0.000495 U	0.00127 0.0207 0.000513 U	0.00273 0.000499 U	0.000492 U 0.00387 0.000492 U	0.000498 U 0.000996 U 0.000498 U	0.00373 0.00483 U	0.00505 U 0.00729 0.000505 U	0.000517 U 0.00139 0.000517 U	0.000511 U 0.00102 U 0.000511 U	0.000495 U 0.000990 U 0.000495 U	0.0456 0.00498 U	0.00550 0.00485 U	0.00496 U 0.00136 U 0.000496 U	0.000476 U 0.00194 0.000476 U		
PCB 112 PCB 114	2,3,3',5,6-PeCB 2,3,4,4',5-PeCB	μg/L μg/L	0.000495 U 0.000495 U	0.000513 U 0.000513 U	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.00104	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U	-	
PCB 118 PCB 120	2,3',4,4',5-PeCB 2,3',4,5,5'-PeCB	μg/L μg/L	0.0178 0.000495 U	0.0211 0.000513 U	0.00184 0.000499 U	0.00236 0.000492 U	0.000498 U 0.000498 U	0.00341 0.000483 U	0.00685 0.000505 U	0.00104 0.000517 U	0.000561 0.000511 U	0.000825 0.000495 U	0.0455 0.000498 U	0.00435 0.000485 U	0.00120 U 0.000496 U	0.00109 0.000476 U		
PCB 121 PCB 122	2,3',4,5',6-PeCB 2',3,3',4,5-PeCB	μg/L μg/L	0.000495 U 0.000495 U	0.000513 U 0.000513 U	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.000770	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U	-	
PCB 123 PCB 126	2',3,4,4',5-PeCB 3,3',4,4',5-PeCB	μg/L μg/L	0.000495 U 0.000495 U	0.000513 U 0.000513 U	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000794 0.000526 EMP		0.000496 U 0.000496 U	0.000476 U 0.000476 U	-	
PCB 127 PCB 128/166	3,3',4,5,5'-PeCB 2,2',3,3',4,4'-HxCB + 2,3,4,4',5,6-HxCB	μg/L μg/L	0.000495 U 0.00398	0.000513 U 0.00524	0.000499 U 0.000997 U	0.000492 U 0.00111	0.000498 U 0.000996 U	0.000483 U 0.000965 U	0.000505 U 0.00165	0.000517 U 0.00103 U	0.000511 U 0.00102 U	0.000495 U 0.000990 U	0.000498 U 0.0112	0.000485 U 0.00143	0.000496 U 0.000993 U	0.000476 U 0.000952 U	-	
PCB 129/138/163	2,2',3,3',4,5-HxCB + 2,2',3,4,4',5'-HxCB + 2,3,3',4',5,6- HxCB 2,2',3,3',4,5'-HxCB	μg/L	0.0240	0.0295	0.00512 0.000499 U	0.00551 0.000492 U	0.00149 U 0.000498 U	0.00497 0.000483 U	0.00925	0.00215 0.000517 U	0.00261 0.000511 U	0.00149 U 0.000495 U	0.0639	0.00913 0.000562	0.00174 0.000496 U	0.00657 0.000476 U		
PCB 130 PCB 131 PCB 132	2,2',3,3',4,6-HxCB	μg/L μg/L	0.00146 0.000495 U 0.00724	0.00174 0.000513 U 0.00927	0.000499 U 0.000499 U 0.00188	0.000492 U 0.000492 U 0.00184	0.000498 U 0.000498 U 0.000498 U	0.000483 U 0.000483 U 0.00163	0.000617 0.000505 U 0.00314	0.000517 U 0.000517 U 0.000781	0.000511 U 0.000511 U 0.00116	0.000495 U 0.000495 U 0.000495 U	0.00386 0.000604 0.0194	0.000562 0.000485 U 0.00322	0.000496 U 0.000496 U 0.000610	0.000476 U 0.000476 U 0.00196		
PCB 132 PCB 133	2,2',3,3',4,6'-HxCB 2,2',3,3',5,5'-HxCB	μg/L μg/L	0.00724 0.000495 U	0.00927 0.000513 U	0.00188 0.000499 U	0.00184 0.000492 U	0.000498 U	0.00163 0.000483 U	0.000505 U	0.000781 0.000517 U	0.00116 0.000511 U	0.000495 U	0.00576	0.00322 0.000485 U	0.000610 0.000496 U	0.00196 0.000476 U		

Table 5 Basin 44 Subbasin Stormwater Results

						N River Street						N. Loring Street				NE of Railroad Tracks	_	
			Manhole ABC352	Manhole ABC352			Manhole ABC355	Catch Basin AMX004		Manhole ABC348	Manhole ABC348	Manhole ABC348	Catch Basin APL246	Catch Basin APL236			JSCS S	tormwater SLVs ⁽²⁾
			Downstream in 12"	Duplicate	Manhole ABC349	Manhole ABC355	Upstream in Northeast	Northeast of Manhole	Manhole ABC355	Upstream in 12" Line	Upstream in 8" Line	Upstream in 12" Line	Southeast of Manhole	Southeast of Manhole	Manhole ABC278	Manhole ABC259		
			Line FO095421	FO095435	Downstream in 10" Line FO095422	Upstream in North Lateral FO095433	Lateral FO095432	ABC355 FO095431	Downstream in 10" Line FO095423	Northwest of Manhole FO095424	Northeast of Manhole FO095426	Southeast of Manhole FO095425	ABC348 FO095430	ABC267 FO095429	Downstream in 8" Line FO095428	Downstream in 8" Line FO095427	Human Health	Human Health
Class/IUPAC Number (1)	Analyte/Chemical Name	Units	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	04/01/09	Fish Consumption (3)	
PCB 134/143	2,2',3,3',5,6-HxCB + 2,2',3,4,5,6'-HxCB	μg/L	0.000989 U	0.00105	0.000997 U	0.000984 U	0.000996 U	0.000965 U	0.00101 U	0.00103 U	0.00102 U	0.000990 U	0.00196	0.000970 U	0.000993 U	0.000952 U	-	
PCB 135/151 PCB 136	2,2',3,3',5,6'-HxCB + 2,2',3,5,5',6-HxCB 2,2',3,3',6,6'-HxCB	μg/L μg/L	0.00487 0.00148	0.00691 0.00225	0.00236 0.000637	0.00119 0.000492 U	0.000996 U 0.000498 U	0.00119 0.000483 U	0.00227 0.000763	0.00107 0.000517 U	0.00177 0.000511 U	0.000990 U 0.000495 U	0.0119 0.00369	0.00291 0.000960	0.000993 U 0.000496 U	0.00412 0.000962		
PCB 137	2,2',3,4,4',5-HxCB	μg/L	0.00121	0.00154	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000532	0.000517 U	0.000511 U 0.00102 U	0.000495 U	0.00364	0.000485 U	0.000496 U	0.000476 U		
PCB 139/140 PCB 141	2,2',3,4,4',6-HxCB + 2,2',3,4,4',6'-HxCB 2,2',3,4,5,5'-HxCB	μg/L μg/L	0.000989 U 0.00348	0.00103 U 0.00454	0.000997 U 0.00103	0.000984 U 0.000674	0.000996 U 0.000498 U	0.000965 U 0.000755	0.00101 U 0.00134	0.00103 U 0.000517 U	0.00102 U 0.000511 U	0.000990 U 0.000495 U	0.000996 U 0.00879	0.000970 U 0.00141	0.000993 U 0.000496 U	0.000952 U 0.00188		
PCB 142 PCB 144	2,2',3,4,5,6-HxCB 2,2',3,4,5',6-HxCB	μg/L	0.000495 U 0.000727	0.000513 U 0.00105	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.00183	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U	-	
PCB 145	2,2',3,4,6,6'-HxCB	µg/L µg/L	0.000727 0.000495 U	0.00105 0.000513 U	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.000498 U	0.000485 U	0.000496 U	0.000476 U		
PCB 146 PCB 147/149	2,2',3,4',5,5'-HxCB 2,2',3,4',5,6-HxCB + 2,2',3,4',5',6-HxCB	μg/L	0.00242 0.0138	0.00305 0.0176	0.000686 0.00547	0.000582 0.00318	0.000498 U 0.000996 U	0.000532 0.00304	0.000922 0.00616	0.000517 U 0.00229	0.000511 U 0.00391	0.000495 U 0.00110	0.00568 0.0351	0.00100 0.00718	0.000496 U 0.00126	0.000843 0.00800		
PCB 147/149 PCB 148	2,2',3,4',5,6'-HxCB 2,2',3,4',5,6'-HxCB	μg/L μg/L	0.0038 0.000495 U	0.0176 0.000513 U	0.00547 0.000499 U	0.00318 0.000492 U	0.000996 U 0.000498 U	0.00304 0.000483 U	0.00505 U	0.00229 0.000517 U	0.00391 0.000511 U	0.00110 0.000495 U	0.000498 U	0.00718 0.000485 U	0.00126 0.000496 U	0.00800 0.000476 U		
PCB 150 PCB 152	2,2',3,4',6,6'-HxCB	μg/L	0.000495 U	0.000513 U	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.000498 U	0.000485 U	0.000496 U	0.000476 U		
PCB 152 PCB 153/168	2,2',3,5,6,6'-HxCB 2,2',4,4',5,5'-HxCB + 2,3',4,4',5',6-HxCB	μg/L μg/L	0.000495 U 0.0174	0.000513 U 0.0206	0.000499 U 0.00450	0.000492 U 0.00345	0.000498 U 0.000996 U	0.000483 U 0.00344	0.000505 U 0.00614	0.000517 U 0.00198	0.000511 U 0.00172	0.000495 U 0.00102	0.000498 U 0.0424	0.000485 U 0.00616	0.000496 U 0.00126	0.000476 U 0.00896		
PCB 154	2,2',4,4',5,6'-HxCB	μg/L	0.000495 U	0.000513 U	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.000498 U	0.000485 U	0.000496 U	0.000476 U	-	
PCB 155 PCB 156/157	2,2',4,4',6,6'-HxCB 2,3,3',4,4',5-HxCB + 2,3,3',4,4',5'-HxCB	μg/L μg/L	0.000495 U 0.00320	0.000513 U 0.00382	0.000499 U 0.000997 U	0.000492 U 0.000984 U	0.000498 U 0.000996 U	0.000483 U 0.000965 U	0.000505 U 0.00118	0.000517 U 0.00103 U	0.000511 U 0.00102 U	0.000495 U 0.000990 U	0.000498 U 0.00877	0.000485 U 0.000970 U	0.000496 U 0.000993 U	0.000476 U 0.000952 U	-	
PCB 158	2,3,3',4,4',6-HxCB	μg/L	0.00248	0.00302	0.000499 U	0.000554	0.000498 U	0.000483 U	0.000929	0.000517 U	0.000511 U	0.000495 U	0.00642	0.000944	0.000496 U	0.000622	-	
PCB 159 PCB 160	2,3,3',4,5,5'-HxCB 2,3,3',4,5,6-HxCB	μg/L μg/L	0.000535 0.000495 U	0.000513 U 0.000513 U	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.000498 U	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000608 0.000476 U		
PCB 161	2,3,3',4,5',6-HxCB	μg/L	0.000495 U	0.000513 U	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.000498 U	0.000485 U	0.000496 U	0.000476 U		
PCB 162 PCB 164	2,3,3',4',5,5'-HxCB 2,3,3',4',5',6-HxCB	μg/L μg/l	0.000495 U 0.00145	0.000513 U 0.00179	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000594	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000866 0.00374	0.000485 U 0.000612	0.000496 U 0.000496 U	0.000476 U 0.000476 U		
PCB 165	2,3,3',5,5',6-HxCB	μg/L	0.000495 U	0.000513 U	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.000498 U	0.000485 U	0.000496 U	0.000476 U		
PCB 167 PCB 169	2,3',4,4',5,5'-HxCB 3,3',4,4',5,5'-HxCB	μg/L μg/L	0.00120 0.000495 U	0.00134 0.000513 U	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.00331 0.000498 U	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U		
PCB 170	2,2',3,3',4,4',5-HpCB	μg/L	0.00618	0.00676	0.00216	0.00111	0.000498 U	0.00113	0.00204	0.000536	0.00179	0.000495 U	0.0137	0.00275	0.000496 U	0.00371	-	
PCB 171/173 PCB 172	2,2',3,3',4,4',6-HpCB + 2,2',3,3',4,5,6-HpCB 2,2',3,3',4,5,5'-HpCB	μg/L	0.00176 0.00105	0.00197 0.00108	0.000997 U 0.000499 U	0.000984 U 0.000492 U	0.000996 U 0.000498 U	0.000965 U 0.000483 U	0.00101 U 0.000505 U	0.00103 U 0.000517 U	0.00102 U 0.000511 U	0.000990 U 0.000495 U	0.00391 0.00212	0.000970 U 0.000485 U	0.000993 U 0.000496 U	0.00119 0.000808	-	
PCB 174	2,2',3,3',4,5,6'-HpCB	μg/L μg/L	0.00103	0.00108	0.00298	0.000492 0	0.000498 U	0.00118	0.00233	0.000862	0.00260	0.000495 U	0.00212	0.00310	0.000496 U	0.00780		
PCB 175 PCB 176	2,2',3,3',4,5',6-HpCB 2,2',3,3',4,6,6'-HpCB	μg/L	0.000495 U 0.000613	0.000513 U 0.000716	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000510 0.00127	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000814	-	
PCB 177	2,2',3,3',4',5,6-HpCB	μg/L μg/L	0.00343	0.00372	0.00157	0.000492 0	0.000498 U	0.0004659	0.000505 0	0.000517 U	0.000511 0	0.000495 U	0.00720	0.00161	0.000496 U	0.00330		
PCB 178	2,2',3,3',5,5',6-HpCB	μg/L	0.00100	0.00118	0.000590	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.00210	0.000510	0.000496 U	0.00150		
PCB 179 PCB 180/193	2,2',3,3',5,6,6'-HpCB 2,2',3,4,4',5,5'-HpCB + 2,3,3',4',5,5',6-HpCB	µg/L µg/L	0.00192 0.0136	0.00227 0.0144	0.00139 0.00578	0.000492 U 0.00215	0.000498 U 0.000996 U	0.000483 U 0.00245	0.000739 0.00433	0.000525 0.00135	0.000932 0.00420	0.000495 U 0.000990 U	0.00388 0.0274	0.00108 0.00580	0.000496 U 0.000993 U	0.00348 0.0144		
PCB 181 PCB 182	2,2',3,4,4',5,6-HpCB	μg/L	0.000495 U 0.000495 U	0.000513 U 0.000513 U	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000498 U 0.000498 U	0.000485 U 0.000485 U	0.000496 U 0.000496 U	0.000476 U 0.000476 U		
PCB 183/185	2,2',3,4,4',5,6'-HpCB 2,2',3,4,4',5',6-HpCB + 2,2',3,4,5,5',6-HpCB	μg/L μg/L	0.000495 U 0.00427	0.000513 U 0.00449	0.000499 U	0.000492 U 0.000984 U	0.000498 U 0.000996 U	0.000483 U 0.000965 U	0.000505 U	0.000517 U 0.00103 U	0.000511 U	0.000495 U 0.000990 U	0.000498 U 0.00813	0.000485 U 0.00198	0.000496 U 0.000993 U	0.00476 U 0.00486		
PCB 184	2,2',3,4,4',6,6'-HpCB	μg/L	0.000495 U	0.000513 U	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.000498 U	0.000485 U	0.000496 U	0.000476 U	-	
PCB 186 PCB 187	2,2',3,4,5,6,6'-HpCB 2,2',3,4',5,5',6-HpCB	μg/L μg/L	0.000495 U 0.00651	0.000513 U 0.00755	0.000499 U 0.00379	0.000492 U 0.00114	0.000498 U 0.000498 U	0.000483 U 0.00132	0.000505 U 0.00246	0.000517 U 0.00114	0.000511 U 0.00282	0.000495 U 0.000509	0.000498 U 0.0137	0.000485 U 0.00339	0.000496 U 0.000496 U	0.000476 U 0.0106	-	
PCB 188	2,2',3,4',5,6,6'-HpCB	μg/L	0.000495 U	0.000513 U	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.000498 U	0.000485 U	0.000496 U	0.000476 U		
PCB 189 PCB 190	2,3,3',4,4',5,5'-HpCB 2,3,3',4,4',5,6-HpCB	μg/L ug/L	0.000495 U 0.00122	0.000513 U 0.00125	0.000499 U 0.000499 U	0.000492 U 0.000492 U	0.000498 U 0.000498 U	0.000483 U 0.000483 U	0.000505 U 0.000505 U	0.000517 U 0.000517 U	0.000511 U 0.000511 U	0.000495 U 0.000495 U	0.000512 0.00260	0.000485 U 0.000554	0.000496 U 0.000496 U	0.000476 U 0.000944		
PCB 191	2,3,3',4,4',5',6-HpCB	μg/L	0.000495 U	0.000513 U	0.000499 U	0.000492 U	0.000498 U	0.000483 U	0.000505 U	0.000517 U	0.000511 U	0.000495 U	0.000528	0.000485 U	0.000496 U	0.000476 U		
PCB 192 PCB 194	2,3,3',4,5,5',6-HpCB 2,2',3,3',4,4',5,5'-OcCB	μg/L μg/l	0.000495 U 0.00244	0.000513 U 0.00259	0.000499 U 0.00128	0.000492 U 0.000738 U	0.000498 U 0.000747 U	0.000483 U 0.000724 U	0.000505 U 0.000759	0.000517 U 0.000776 U	0.000511 U 0.000995	0.000495 U 0.000743 U	0.000498 U 0.00496	0.000485 U 0.00106	0.000496 U 0.000744 U	0.000476 U 0.00493		
PCB 195	2,2',3,3',4,4',5,6-OcCB	μg/L	0.000967	0.00120	0.000748 U	0.000738 U	0.000747 U	0.000724 U	0.000757 U	0.000776 U	0.000767 U	0.000743 U	0.00255	0.000727 U	0.000744 U	0.00186		
PCB 196 PCB 197/200	2,2',3,3',4,4',5,6'-OcCB 2,2',3,3',4,4',6,6'-OcCB + 2,2',3,3',4,5,6,6'-OcCB	μg/L μg/L	0.00127 0.00148 U	0.00153 0.00154 U	0.000748 U 0.00150 U	0.000738 U 0.00148 U	0.000747 U 0.00149 U	0.000724 U 0.00145 U	0.000757 U 0.00151 U	0.000776 U 0.00155 U	0.000767 U 0.00153 U	0.000743 U 0.00149 U	0.00269 0.00149 U	0.000727 U 0.00145 U	0.000744 U 0.00149 U	0.00251 0.00143 U		
PCB 198/199	2,2',3,3',4,5,5',6-OcCB + 2,2',3,3',4,5,5',6'-OcCB	μg/L	0.00283	0.00322	0.00179	0.00148 U	0.00149 U	0.00145 U	0.00151 U	0.00155 U	0.00153 U	0.00149 U	0.00579	0.00145 U	0.00149 U	0.00721	-	
PCB 201 PCB 202	2,2',3,3',4,5',6,6'-OcCB 2,2',3,3',5,5',6,6'-OcCB	μg/L μg/l	0.000742 U 0.000742 U	0.000769 U 0.000769 U	0.000748 U 0.000748 U	0.000738 U 0.000738 U	0.000747 U 0.000747 U	0.000724 U 0.000724 U	0.000757 U 0.000757 U	0.000776 U 0.000776 U	0.000767 U 0.000767 U	0.000743 U 0.000743 U	0.000747 U 0.000756	0.000727 U 0.000727 U	0.000744 U 0.000744 U	0.000871 0.00136		
PCB 203	2,2',3,4,4',5,5',6-OcCB	µg/L	0.00157	0.00191	0.000986	0.000738 U	0.000747 U	0.000724 U	0.000757 U	0.000776 U	0.000767 U	0.000743 U	0.00327	0.000818	0.000744 U	0.00415	-	
PCB 204 PCB 205	2,2',3,4,4',5,6,6'-OcCB 2,3,3',4,4',5,5',6-OcCB	μg/L	0.000742 U 0.000742 U	0.000769 U 0.000769 U	0.000748 U 0.000748 U	0.000738 U 0.000738 U	0.000747 U 0.000747 U	0.000724 U 0.000724 U	0.000757 U 0.000757 U	0.000776 U 0.000776 U	0.000767 U 0.000767 U	0.000743 U 0.000743 U	0.000747 U 0.000747 U	0.000727 U 0.000727 U	0.000744 U 0.000744 U	0.000714 U 0.000714 U		
PCB 206	2,2',3,3',4,4',5,5',6-NoCB	μg/L μg/L	0.000742 U	0.000769 U	0.000748 U	0.000738 U	0.000747 U	0.000724 U	0.000757 U	0.000776 U	0.000767 U	0.000743 U	0.00121	0.000727 U	0.000744 U	0.00219	-	
PCB 207 PCB 208	2,2',3,3',4,4',5,6,6'-NoCB 2,2',3,3',4,5,5',6,6'-NoCB	μg/L	0.000742 U 0.000742 U	0.000769 U 0.000769 U	0.000748 U 0.000748 U	0.000738 U 0.000738 U	0.000747 U 0.000747 U	0.000724 U 0.000724 U	0.000757 U 0.000757 U	0.000776 U 0.000776 U	0.000767 U 0.000767 U	0.000743 U 0.000743 U	0.000747 U 0.000747 U	0.000727 U 0.000727 U	0.000744 U 0.000744 U	0.000714 U 0.000714 U		
PCB 209	Decachlorobiphenyl	μg/L μg/L	0.000742 U	0.000769 U	0.000748 U	0.000738 U	0.000747 U	0.000724 U	0.000757 U	0.000776 U	0.000767 U	0.000743 U	0.000747 U	0.000727 U	0.000744 U	0.000714 U		
	Total Monochlorobiphenyls	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	0.000277 ND	ND	ND ND	ND	ND	ND	-	
	Total Dichlorobiphenyls Total Trichlorobiphenyls	μg/L μg/L	0.00139 0.0245	0.00188 0.0308	0.000261 0.00255	ND 0.000551	ND ND	0.00245	0.000726 0.0190	ND ND	ND ND	ND ND	0.00218 0.0403	0.00536	0.000280	ND ND		
	Total Tetrachlorobiphenyls	μg/L	0.0631	0.0790	0.00255	0.00125	ND ND	0.00642	0.0484	ND	ND	ND	0.131	0.0172	0.000528	ND	-	
	Total Pentachlorobiphenyls Total Hexachlorobiphenyls	μg/L μg/L	0.0837 0.0908	0.111 0.114	0.00883 0.0217	0.0123 0.0181	ND ND	0.0139 0.0156	0.0373 0.0355	0.00317 0.00827	0.00112 0.0112	0.000825 0.00212	0.221 0.238	0.0210 0.0355	0.00375 0.00486	0.00578 0.0345		
	Total Heptachlorobiphenyls	μg/L	0.0477	0.0521	0.0205	0.00597	ND ND	0.00675	0.0145	0.00441	0.0152	0.000509	0.102	0.0208	ND	0.0534		
	Total Octachlorobiphenyls Total Nonachlorobiphenyls	μg/L ug/L	0.00908 ND	0.0104 ND	0.00406 ND	ND ND	ND ND	ND ND	0.000759 ND	ND ND	0.000995 ND	ND ND	0.0197 0.00121	0.00188 ND	ND ND	0.0229 0.00219		
	Total Decachlorobiphenyls	μg/L	ND ND	ND ND	ND ND	ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND	ND ND	ND ND	ND		
	Total PCBs ⁽⁶⁾	μg/L	0.320	0.400	0.0604	0.0382	ND	0.0451	0.156	0.0159	0.0287	0.00346	0.755	0.102	0.00943	0.119	0.000064	0.034 0.014

Notes: $\mu mhos/cm = micromhos per centimeter \\ \mu g/L = micrograms per liter \\ mg/L = milligrams per liter \\ MoCB = Monochlorobiphenyl$

MoCB = Monochlorobiphenyl
DiGB = Dichlorobiphenyl
TriCB = Trichlorobiphenyl
TeCB = Tetrachlorobiphenyl
PeCB = Pentachlorobiphenyl
HeCB = Hexachlorobiphenyl
HpCB = Heptachlorobiphenyl
OcCB = Octachlorobiphenyl
NoCB = Nonachlorobiphenyl
NoCB = Nonachlorobiphenyl
NoCB = Sergenina lawal uwa

-- No JSCS screening level available.

EMPC = Estimated Maximum Possible Concentration.

U = The analyte was not detected above the reported sample quantification limit.

ND = not detected.

(1) IUPAC = International Union of Pure and Applied Chemistry.
(2) JSCS SLVs = Portland Harbor Joint Source Control Strategy Screening Level Values (DEQ/EPA Final December 2005, Amended July 2007).
(3) The SLVs for chemicals in water taken up by fish for human consumption represent EPA's NRWQC values. If no NRWQC values are available, then DEQ's AWQC values are listed for the constituent.

(4) The SLVs for chemicals in water for human ingestion represent the most conservative value between EPA's MCLs and Region 9 PRGs.

(5) The SLVs for chemicals in water for ecological exposure represent EPA's NRWQC values. If no NRWQC values are available, then DEQ's AWQC values are available, then Oak Ridge National Laboratory Tier II SCV Technology Benchmark values are listed for the constituent.

(6) Total homolog and total congener concentrations are calculated by assigning "0" to undetected and EMPC-qualified constituents.

= Highlighted values have been selected by DEQ for initial upland source control screening evaluations.

bold = Concentration exceeds DEQ's SLV.

Table 6 Basin 44 Inline Solids Results - N. River Street Area

		Manhole ABC345	<u> </u>	Manhole ABC352			Manhole	ABC355			
		Inline Solids (Sieved < 2000 μ)	Sediment Trap Solids	Inline Solids (Sieved $< 2000 \mu$)	Composite Inline Solids (Sieved < 2000 μ)	Inline Solids (Sieved < 2000 μ)	Inline Solids (Unsieved)	Inline Solids (Sieved $< 2000 \ \mu$)	Inline Solids (Sieved < 2000 μ)		
		Within manhole FO095468	Downstream of manhole in 12" line ST1: FO095661	Catch Basin APD919 northwest of manhole FO095474	Catch Basins APL242, APL243, APL244 east-southeast of manhole FO095557	Within manhole FO095553	Upstream of manhole in north lateral FO095554	Catch Basin AMX004 northeast of manhole FO095555	Catch Basin AMX005 southwest of manhole FO095556		JSCS ⁽¹⁾ ng Level Value
Class Analyte	Units	4/7/2009	6/1/2009	4/8/2009	4/29/2009	4/29/2009	4/29/2009	4/29/2009	4/29/2009	Toxicity	Bioaccumulation
Total Organic Carbon (ASTM D4129-82M)											
TOC	mg/Kg	15,200	83,500	30,000	17,000	11,800	16,900	19,500	15,300		
Total Solids (EPA 160.3M)											
TS	%	77.4	67.2	71.4	75.5	74.5	51.8	74.2	74.9		
Grain Size (ASTM D421/422)											
Grain Size (ASTM D421/422) Gravel (>4750 um)	Fract %	0.1	NA	0.1	0.1	0.1	6.2	0.1	0.1	-	
Coarse Sand (4750-2000 um)	Fract %	0.1	NA NA	0.1	0.1	0.1	2.7	0.1	0.1		
Medium Sand (2000-425 um)	Fract %	13.5	NA NA	26.0	24.9	45.2	9.1	27.9	22.6		
Fine Sand (425-75 um)	Fract %	40.7	NA	49.7	56.9	46.6	18.8	49.4	58.8		
Silt (75-3.2 um)	Fract %	41.3	NA	18.1	16.5	6.5	50.7	19.9	15.8		
Clay (<3.2 um)	Fract %	4.3	NA	6.2	1.8	1.8	12.6	2.8	2.8		
Metals (EPA 6020)											
Arsenic	mg/Kg	2.18	NA	2.36	2.33	2.72	NA	2.40	1.81	33	7
Cadmium	mg/Kg	0.25	NA	0.35	0.40	0.33	NA	0.46	0.36	4.98	1
Chromium	mg/Kg	91.8	NA	46.8	66.2	62.9	NA	64.9	80.5	111	
Copper	mg/Kg	41.9	NA	37.6	36.1	64.8	NA	44.8	29.6	149	
Lead	mg/Kg	24.8	NA	48.0	28.5	37.5	NA	22.5	20.6	128	17
Mercury (EPA 7471A)	mg/Kg	0.015	NA	0.069	0.017	0.049	NA	0.022	0.016	1.06	0.07
Nickel	mg/Kg	81.2	NA	32.9	44.6	50.2	NA NA	45.2	51.8	48.6	
Silver	mg/Kg	0.10 U	NA NA	0.10 U	0.10 U	0.10 U 450	NA NA	0.10 U	0.10 U	5 459	
Zinc (EPA 6010B)	mg/Kg	135	NA	156	165	450	NA	173	129	439	
Organochlorine Pesticides (EPA 8081A)											
4,4'-DDD	μg/Kg	0.22 B	1.4 U	NA	NA	NA	NA	NA	NA	28	0.33
4,4'-DDE	μg/Kg	0.43 B	1.4 U	NA	NA	NA	NA	NA	NA	31.3	0.33
4,4'-DDT	μg/Kg	0.98 B	65	NA	NA	NA NA	NA NA	NA	NA NA	62.9	0.33
Estimated Total DD Aldrin		1.63 B	65	NA	NA NA	NA NA	NA NA	NA	NA NA	40	0.33
Aldrin alpha-BHC (α-BHC)	μg/Kg μg/Kg	0.50 U 0.25 U	6.4 0.99 U	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	40	
beta-BHC (β-BHC)	μg/Kg	0.25 U	0.99 U	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA		
delta-BHC (δ-BHC)	μg/Kg	0.25 U	1.8	NA	NA	NA	NA	NA	NA		
gamma-BHC (y-BHC, Lindane)	μg/Kg	0.25 U	5.8	NA	NA	NA	NA	NA	NA	4.99	
alpha-Chlordane (3)	μg/Kg	5.3	28 U	NA	NA	NA	NA	NA	NA		
beta-Chlordane (3)	μg/Kg	6.9	28	NA	NA	NA	NA	NA	NA		
Total Chlordan	e ⁽⁴⁾ μg/Kg	12.2	28	NA	NA	NA	NA	NA	NA	17.6	0.37
Dieldrin	μg/Kg	2.5 U	2.2 U	NA	NA	NA	NA	NA	NA	61.8	0.0081
Endosulfan I	μg/Kg	0.99 U	14 U	NA	NA	NA	NA	NA	NA		
Endosulfan II	μg/Kg	0.50 U	13 U	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA		
Endosulfan sulfate Endrin	μg/Kg μg/Kg	0.25 U 0.99 U	0.99 U 3.6	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	207	
Endrin aldehyde	μg/Kg μg/Kg	0.50 U	0.99 U	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	207	
Endrin adenyde Endrin ketone	μg/Kg μg/Kg	0.50 U	1.3 U	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA		
Heptachlor	μg/Kg	0.4	14	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	10	
Heptachlor epoxide	μg/Kg	0.50 U	1.1	NA	NA	NA	NA	NA	NA	16	
Methoxychlor	μg/Kg	0.25 U	4.1 U	NA	NA	NA	NA	NA	NA	-	
Toxaphene	μg/Kg	NA	1,100 U	NA	NA	NA	NA	NA	NA		

Table 6 Basin 44 Inline Solids Results - N. River Street Area

Part			Manhole ABC345		Manhole ABC352			Manhole	ABC355			
Part				Sediment Trap Solids								
Registrate lightensyla (CND) 1679-2082-1 Acades 10 10 10 10 10 10 10 1				12" line	northwest of manhole	APL243, APL244 east-southeast of manhole		north lateral	northeast of manhole	southwest of manhole		
Arcele 1616			4/7/2009	6/1/2009	4/8/2009	4/29/2009	4/29/2009	4/29/2009	4/29/2009	4/29/2009	Toxicity	Bioaccumulation
Arcelor 123												
Ancele 1522 mg/Kg 10 U 1												
Access 124												
Ancelor 1284 196 19 19 19 19 19 19 1												
Ancher 154												
Acceler 1500 μμβ/kg 10 U 162 166 39 29 23 29 36 200 Acceler 1502 μμβ/kg 10 U 10 10 U 10 U 10 U 10 U 20 U 10 U 10 U Acceler 1508 μμβ/kg 10 U 10 10 U 10 U 10 U 20 U 10 U 10 U Total PCR μμβ/kg 10 U 10 10 U 10 U 20 U 10 U 10 U Polysystem with the production of the production o												
Amofer 1525												
Access Page												
Food PCRS Page P												
Polycyclic Anomatic Hydrocarbons (EPA 8270-SINC) Poly	1100011200										676	0.39
Accomplehore μg/Kg 87.8 U NA 97.9 U 96.7 U 53.4 U 131 U 97.0 U 98.5 U 300				-				·····				
Accomplish/gene μβ/Kg 87.8 U NA 97.9 U 96.7 U 53.4 U 131 U 97.0 U 98.5 U 200												
Annincence μg/Kg 87.8 U NA 163 96.7 U 53.4 U 131 U 97.0 U 98.5 U 84.5												
Benoxioambracee μg Kg 87 8 U NA 979 U 96.7 U 62.3 131 U 97.0 U 98.5 U 1050												
Benzo(a)pyrene μgKg 87.8 U NA 148 144 106 131 U 97.9 U 107 1450												
Benzed j. Househere 1g/Fg 87.8 U NA 148 144 106 131 U 98.9 152												
Benzo(gh.)perylene ug/Kg 100 NA 146 160 124 153 136 186 300												
Rearoul-Numember 196/Kg 187/8 U NA 97.0 U 96.7 U 77.1 131 U 97.0 U 98.5 U 13000												
Chrysene μg/Kg 105 NA 258 218 137 134 117 150 120												
Diberzo(a)Janifracene μg/Kg 87,8 U NA 97,9 U 96,7 U 53,4 U 131 U 97,0 U 98,5 U 1300												
Florene μφ/Kg 87.8 U NA 212 96.7 U 53.4 U 131 U 97.0 U 98.5 U 55.6												
Floorene μg/Kg 87,8 U NA 212 96,7 U 53,4 U 131 U 97,0 U 98,5 U 556	Fluoranthene								106	147	2230	37000
Naphthalene	Fluorene		87.8 U	NA	212	96.7 U	53.4 U	131 U	97.0 U	98.5 U	536	
Phenanthrene μg/Kg 87.8 U NA 468 96.7 U 75.7 13 U 97.0 U 98.5 U 1170		μg/Kg	87.8 U	NA	97.9 U	104	78.9	131 U	97.0 U	118	100	
Pyrene μg/Kg 124 NA 386 120 134 152 97.0 U 113 1520 1900		μg/Kg	87.8 U	NA	97.9 U	96.7 U	53.4 U	131 U	97.0 U	98.5 U	561	
Polycyclic Aromatic Hydrocarbons (PAHs) (EPA 8270C) 2-Methylnaphthalene		μg/Kg										
Polycyclic Aromatic Hydrocarbons (PAHs) (EPA 8270C) 2-Methylnaphtalene	Pyrene			NA							1520	1900
2-Methylnaphthalene μg/Kg 170 U NA 370 U 5.3 J 250 U NA 250 U 500 U 200 Acenaphthene μg/Kg 170 U NA 370 U 2.9 J 250 U NA 250 U 500 U 300 Acenaphthylene μg/Kg 170 U NA 370 U 8.5 J 250 U NA 250 U 500 U 200 Anthracene μg/Kg 170 U NA 370 U 18 250 U NA 250 U 500 U 845 Benzo(a)anthracene μg/Kg 170 U NA 370 U 18 250 U NA 250 U 500 U 845 Benzo(a)pyrene μg/Kg 170 U NA 370 U 57 250 U NA 250 U 500 U 1450 Benzo(a)pyrene μg/Kg 51 J NA 370 U 57 250 U NA 250 U 500 U 1450 Benzo(b)fluoranthene μg/Kg 74 J NA 140 J 100 250 U NA 160 J 280 J Benzo(b,fi)perylene μg/Kg 97 J NA 140 J 63 250 U NA 160 J 280 J Benzo(b,fi)perylene μg/Kg 170 U NA 370 U 25 250 U NA 250 U 500 U 13000 Benzo(b,fi)perylene μg/Kg 170 U NA 370 U 25 250 U NA 250 U 500 U 13000 Chysene μg/Kg 53 J NA 180 J 97 120 J NA 250 U 500 U 13000 Chysene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U		Total PAH ⁽³⁾ μg/Kg	205		1620	884	894	467	458	860		
2-Methylnaphthalene μg/Kg 170 U NA 370 U 5.3 J 250 U NA 250 U 500 U 200 Acenaphthene μg/Kg 170 U NA 370 U 2.9 J 250 U NA 250 U 500 U 300 Acenaphthylene μg/Kg 170 U NA 370 U 8.5 J 250 U NA 250 U 500 U 200 Anthracene μg/Kg 170 U NA 370 U 18 250 U NA 250 U 500 U 845 Benzo(a)anthracene μg/Kg 170 U NA 370 U 18 250 U NA 250 U 500 U 845 Benzo(a)pyrene μg/Kg 170 U NA 370 U 57 250 U NA 250 U 500 U 1450 Benzo(a)pyrene μg/Kg 51 J NA 370 U 57 250 U NA 250 U 500 U 1450 Benzo(b)fluoranthene μg/Kg 74 J NA 140 J 100 250 U NA 160 J 280 J Benzo(b,fi)perylene μg/Kg 97 J NA 140 J 63 250 U NA 160 J 280 J Benzo(b,fi)perylene μg/Kg 170 U NA 370 U 25 250 U NA 250 U 500 U 13000 Benzo(b,fi)perylene μg/Kg 170 U NA 370 U 25 250 U NA 250 U 500 U 13000 Chysene μg/Kg 53 J NA 180 J 97 120 J NA 250 U 500 U 13000 Chysene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U 13000 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U	Polyanalia Aramatia Hudroaarban	c (DAUc) (EDA 9270C)										
Acenaphthene μg/Kg 170 U NA 370 U 2.9 J 250 U NA 250 U 500 U 300 Acenaphthylene μg/Kg 170 U NA 370 U 8.5 J 250 U NA 250 U 500 U 200 Anthracene μg/Kg 170 U NA 370 U 18 250 U NA 250 U 500 U 200 Benzo(a)anthracene μg/Kg 170 U NA 95 J 39 59 J NA 74 J 169 J 1050 Benzo(a)pyrene μg/Kg 51 J NA 370 U 57 250 U NA 250 U 500 U 1450			170 H	NA	370 II	531	250 II	NA	250 II	500 H	200	
Acenaphthylene μg/Kg 170 U NA 370 U 8.5 J 250 U NA 250 U 500 U 200 Anthracene μg/Kg 170 U NA 370 U 18 250 U NA 250 U 500 U 845 Benzo(a)pytene μg/Kg 170 U NA 95 J 39 59 J NA 74 J 169 J 1050 Benzo(a)pytene μg/Kg 51 J NA 370 U 57 250 U NA 250 U 500 U 1450 Benzo(a)pytene μg/Kg 51 J NA 370 U 57 250 U NA 250 U 500 U 1450 Benzo(g,h)perplene μg/Kg 74 J NA 140 J 100 250 U NA 160 J 250 U NA 160 J 250 U NA 250 U 370 J 300 U </td <td></td>												
Anthracene μg/Kg 170 U NA 370 U 18 250 U NA 250 U 500 U 845 Benzo(a)anthracene μg/Kg 170 U NA 95 J 39 59 J NA 74 J 169 J 1050 Benzo(a)pyrene μg/Kg 51 J NA 370 U 57 250 U NA 250 U 500 U 1450 Benzo(b)thoranthene μg/Kg 74 J NA 140 J 100 250 U NA 160 J 280 J												
Benzo(a)anthracene μg/Kg 170 U NA 95 J 39 59 J NA 74 J 169 J 1050 Benzo(a)pyrene μg/Kg 51 J NA 370 U 57 250 U NA 250 U 500 U 1450 Benzo(g/h.liporalthene μg/Kg 74 J NA 140 J 100 250 U NA 250 U 500 U 1450												
Benzo(a)pyrene μg/Kg 51 J NA 370 U 57 250 U NA 250 U 500 U 1450												
Benzo(β)fluoranthene μg/Kg 74 J NA 140 J 100 250 U NA 160 J 280 J Benzo(g,h)perylene μg/Kg 97 J NA 140 J 63 250 U NA 250 U 370 J 300 Benzo(g,h)perylene μg/Kg 170 U NA 370 U 25 250 U NA 250 U 500 U 13000 Chrysene μg/Kg 53 J NA 180 J 97 120 J NA 85 J 290 J 1290 Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 1300 Dibenzo(aranthene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 100 U					370 U	57	250 U		250 U	500 U	1450	
Benzo(g,h)peylene μg/Kg 97 J NA 140 J 63 250 U NA 250 U 370 J 300 Benzo(k)fluoranthene μg/Kg 170 U NA 370 U 25 250 U NA 250 U 500 U 13000 Chrysene μg/Kg 53 J NA 180 J 97 120 J NA 85 J 290 J 1200 U Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 1300 Dibenzo(anthanthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 1300 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>250 U</td> <td></td> <td></td> <td>280 J</td> <td></td> <td></td>							250 U			280 J		
Chrysene µg/Kg 53 J NA 180 J 97 120 J NA 85 J 290 J 1290 Dibenzo(a,h)anthracene µg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 1300 Dibenzo(a,h)anthracene µg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 1300 Dibenzo(a,h)anthracene µg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U	Benzo(g,h,i)perylene	μg/Kg	97 J	NA	140 J	63		NA		370 J	300	
Dibenzo(a,h)anthracene μg/Kg 170 U NA 370 U 16 250 U NA 250 U 500 U 1300 Dibenzofuran μg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U												
Dibenzofuran pg/Kg 170 U NA 370 U 3.5 J 250 U NA 250 U 500 U												
Fluoranthene µg/Kg 77 J NA 190 J 120 100 J NA 130 J 260 J 2230 37000 Fluorene µg/Kg 170 U NA 120 J 4 J 250 U NA 250 U 500 U 536 Indeno (1,2,3-cd)pyrene µg/Kg 52 J NA 370 U 51 250 U NA 250 U 500 U 100 Naphthalene µg/Kg 170 U NA 370 U 26 250 U NA 69 J 500 U 561 Naphthalene µg/Kg 38 J NA 370 U 26 250 U NA 69 J 500 U 561 Phenanthrene µg/Kg 38 J NA 300 J 48 50 J NA 65 J 500 U 1170 Pyrene µg/Kg 130 J NA 300 J 110 120 J NA 120 J 310 J 1520 1900												
Fluorene µg/Kg 170 U NA 120 J 4 J 250 U NA 250 U 500 U 536 Indeno(1,2,3-cd)pyrene µg/Kg 52 J NA 370 U 51 250 U NA 250 U 500 U 100 Naphthalene µg/Kg 170 U NA 370 U 26 250 U NA 69 J 500 U 561 Phenanthrene µg/Kg 38 J NA 300 J 48 50 J NA 65 J 500 U 1170 Pyrene µg/Kg 130 J NA 300 J 110 120 J NA 120 J 310 J 1520 1900												
Indeno(1,2,3-cd)pyrene µg/Kg 52 J NA 370 U 51 250 U NA 250 U 500 U 100 Naphthalene µg/Kg 170 U NA 370 U 26 250 U NA 69 J 500 U 561 Phenanthrene µg/Kg 38 J NA 300 J 48 50 J NA 65 J 500 U 1170 Pyrene µg/Kg 130 J NA 300 J 110 120 J NA 120 J 310 J 1520 1900												
Naphthalene µg/Kg 170 U NA 370 U 26 250 U NA 69 J 500 U 561 Phenanthrene µg/Kg 38 J NA 300 J 48 50 J NA 65 J 500 U 1170 Pyrene µg/Kg 130 J NA 300 J 110 120 J NA 120 J 310 J 1520 1900												
Phenanthrene μg/Kg 38 J NA 300 J 48 50 J NA 65 J 500 U 1170 Pyrene μg/Kg 130 J NA 300 J 110 120 J NA 120 J 310 J 1520 1900												
Ругепе µg/Kg 130 J NA 300 J 110 120 J NA 120 J 310 J 1520 1900												
10tal PAH 1g/kg 5/0 J 1500 J 794.2 J 449 J 703 J 1679 J	Pyrene			NA				NA				
		10tal PAH μg/Kg	5/0 J		1500 J	/94.2 J	449 J		/03 J	16/9 J		

Table 6 Basin 44 Inline Solids Results - N. River Street Area

		Manhole ABC345		Manhole ABC352			Manhole	ABC355			
		Inline Solids (Sieved $< 2000 \mu$)	Sediment Trap Solids	Inline Solids (Sieved $< 2000 \mu$)	Composite Inline Solids (Sieved < 2000 μ)	Inline Solids (Sieved $< 2000 \mu$)	Inline Solids (Unsieved)	Inline Solids (Sieved $< 2000 \mu$)	Inline Solids (Sieved $< 2000 \ \mu$)		
		Within manhole FO095468	Downstream of manhole in 12" line ST1: FO095661	Catch Basin APD919 northwest of manhole FO095474	Catch Basins APL242, APL243, APL244 east-southeast of manhole FO095557	Within manhole FO095553	Upstream of manhole in north lateral FO095554	Catch Basin AMX004 northeast of manhole FO095555	Catch Basin AMX005 southwest of manhole FO095556		(SCS ⁽¹⁾ g Level Value
Class Analyte	Units	4/7/2009	6/1/2009	4/8/2009	4/29/2009	4/29/2009	4/29/2009	4/29/2009	4/29/2009	Toxicity	Bioaccumulation
Phthalates (EPA 8270-SIM)											
Bis(2-ethylhexyl) phthalate (BEHP)	μg/Kg	1,850	NA	10,900	2,810	2,080	397	1,360	3,180	800	330
Butyl Benzyl Phthalate	μg/Kg	878 U	NA	4,900 U	193 U	712 U	261 U	297	534		
Diethyl phthalate	μg/Kg	878 U	NA	4,900 U	193 U	712 U	261 U	194 U	197 U	600	
Dimethyl phthalate	μg/Kg	878 U	NA	4,900 U	193 U	712 U	261 U	194 U	197 U		
Di-n-butyl phthalate	μg/Kg	878 U	NA	4,900 U	193 U	712 U	261 U	194 U	197 U	100	60
Di-n-octyl phthalate	μg/Kg	878 U	NA	4,900 U	967 U	1,780 U	1,310 U	970 U	985 U		
Phthalates (EPA8270C)											
Bis(2-ethylhexyl) phthalate (BEHP)	μg/Kg	820 J	NA	3,200 J	530	490 J	NA	770 J	890 J	800	330
Butyl Benzyl Phthalate	μg/Kg	170 U	NA	210 J	57	250 U	NA	250 U	500 U		
Diethyl phthalate	μg/Kg	170 U	NA	370 U	2.7 J	250 U	NA	250 U	500 U	600	
Dimethyl phthalate	μg/Kg	69 J	NA	110 J	480	190 J	NA	1100	790		
Di-n-butyl phthalate	μg/Kg	330 U	NA	740 U	9.8 J	500 U	NA	500 U	1000 U	100	60
Di-n-octyl phthalate	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
Semi-Volatile Organic Compounds (EPA8270C)											
1.2.4-Trichlorobenzene	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U	9200	
1,2-Dichlorobenzene	μg/Kg μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U	1700	
1,3-Dichlorobenzene	μg/Kg μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U	300	
1,4-Dichlorobenzene	μg/Kg μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U	300	
2,4,5-Trichlorophenol	μg/Kg μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U		
2,4,5-Trichlorophenol	μg/Kg μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U		
2,4-Dichlorophenol	μg/Kg μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U		
2,4-Dimethylphenol	μg/Kg μg/Kg	820 U	NA NA	1900 U	50 U	1300 U	NA NA	1300 U	2500 U		
2,4-Dinitrophenol	μg/Kg μg/Kg	3,300 U	NA NA	7.400 U	200 U	5,000 U	NA NA	5,000 U	10.000 U		
2,4-Dinitrotoluene	μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U		
2,6-Dinitrotoluene	μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U		
2-Chloronaphthalene	μg/Kg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U		
2-Chlorophenol	µg/Кg	170 U	NA NA	370 U	10 U	250 U	NA NA	250 U	500 U	-	
2-Methyl-4,6-dinitrophenol	μg/Kg	1,700 U	NA	3,700 U	100 U	2,500 U	NA	2,500 U	5,000 U		
2-Methylphenol	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U	-	
2-Nitroaniline	μg/Kg	330 U	NA NA	740 U	20 U	500 U	NA	500 U	1000 U		
2-Nitrophenol	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
3,3'-Dichlorobenzidine	μg/Kg	1,700 U	NA	3,700 U	100 U	2,500 U	NA	2,500 U	5,000 U		
3-Nitroaniline	μg/Kg	330 U	NA	740 U	20 U	500 U	NA	500 U	1000 U		
4-Bromophenylphenyl ether	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
4-Chloro-3-methylphenol	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
4-Chloroaniline	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
4-Chlorophenyl phenyl ether	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
4-Methylphenol	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
4-Nitroaniline	μg/Kg	330 U	NA	740 U	20 U	500 U	NA	500 U	1000 U	-	
4-Nitrophenol	μg/Kg	1,700 U	NA	3,700 U	100 U	2,500 U	NA	2,500 U	5,000 U		
Benzoic acid	μg/Kg	3,300 U	NA	7,400 U	200 U	5,000 U	NA	5,000 U	10,000 U		
Benzyl alcohol	μg/Kg	330 U	NA	740 U	20 U	500 U	NA	500 U	1000 U	-	
	100				. •				-		

Table 6 Basin 44 Inline Solids Results - N. River Street Area

	_	Manhole ABC345		Manhole ABC352			Manhol	ABC355			
		Inline Solids (Sieved < 2000 μ)	Sediment Trap Solids	Inline Solids (Sieved $< 2000 \mu$)	Composite Inline Solids (Sieved $< 2000 \mu$)	Inline Solids (Sieved < 2000 μ)	Inline Solids (Unsieved)	Inline Solids (Sieved $< 2000 \mu$)	Inline Solids (Sieved $< 2000 \mu$)		
		Within manhole FO095468	Downstream of manhole in 12" line ST1: FO095661	Catch Basin APD919 northwest of manhole FO095474	Catch Basins APL242, APL243, APL244 east-southeast of manhole FO095557	Within manhole FO095553	Upstream of manhole in north lateral FO095554	Catch Basin AMX004 northeast of manhole FO095555	Catch Basin AMX005 southwest of manhole FO095556		JSCS ⁽¹⁾ ng Level Value
Class Analyte	Units	4/7/2009	6/1/2009	4/8/2009	4/29/2009	4/29/2009	4/29/2009	4/29/2009	4/29/2009	Toxicity	Bioaccumulation
Bis(2-chloroethoxy) methane	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
Bis(2-chloroethyl) ether	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
Bis(2-chloroisopropyl) ether	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
Hexachlorobenzene	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U	100	19
Hexachlorobutadiene	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U	600	
Hexachlorocyclopentadiene	μg/Kg	820 U	NA	1900 U	50 U	1300 U	NA	1300 U	2500 U	400	
Hexachloroethane	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
Isophorone	μg/Kg	170 U	NA	370 U	15	250 U	NA	250 U	500 U		
Nitrobenzene	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
N-Nitrosodi-n-propylamine	μg/Kg	170 U	NA	370 U	10 U	250 U	NA	250 U	500 U		
N-Nitrosodiphenylamine	μg/Kg	170 U	NA	370 U	3.5 J	250 U	NA	250 U	500 U		
Pentachlorophenol	μg/Kg	1,700 U	NA	3,700 U	100 U	2,500 U	NA	2,500 U	5,000 U	1000	250
Phenol	μg/Kg	490 U	NA	1100 U	10 J	750 U	NA	750 U	1500 U	50	

- J = The result is an estimated concentration that is less than the MRL, but greater than or equal to the MDL.
- B = The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- U = The analyte was not detected above the reported sample quantification limit.
- NA = not analyzed.
- ND = not detected.
- -- No JSCS screening level available.
- $\mu = microns$
- $\mu g/Kg = micrograms \ per \ kilogram.$
- $mg/Kg = milligrams \ per \ kilogram.$
- (1) JSCS Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Amended July 2007).
- $^{\left(2\right) }$ Estimated Total DDx is the sum of DDE, DDD, and DDT.
- $^{(3)}$ Alpha-chlordane is also known as cis-Chlordane. Beta-Chlordane is also known as trans-chlordane and gamma-chlordane.
- (4) Total Chlordane is the sum of alpha- and beta-isomers.
- (5) Total PCBs and PAHs are calculated by assigning "0" to undetected constituents.
- = concentration exceeds JSCS Toxicity Screening Level Value.
- **bold** = concentration exceeds JSCS Bioaccumulation Screening Level Value.

Table 7
Basin 44 Inline and Surface Solids Results - N. Loring Street Area

			Manhole A	ABC343	Manhole A	ABC348		Manhole AMQ287		Manhole	ABC267	Manhole	ABC278	_	
Part		<u></u>												=	
			• /	((((- · · · · · · · · · · · · · · · · · · ·	((((- · · · · · · · · · · · · · · · · · · ·	(()		JSCS ⁽²⁾
The content of the					southeast of manhole	southeast of manhole			Duplicate	southeast of manhole	west of manhole			Screeni	ing Level Value
The color of the			4/7/2009	4/28/2010	3/26/2009	4/8/2009	4/8/2009	10/6/2009	10/6/2009	4/8/2009	4/8/2009	3/9/2009	3/9/2009	Toxicity	Bioaccumulation
Part		,	20,500	26 700	N/A	40.500	56 100	25 500	24.600	24.700	20 100	12.000	14.600		
The content of the	100	mg/Kg	29,600	36,700	NA	49,500	56,100	35,500	24,600	24,700	28,100	12,900	14,600		
Control Cont		%	69.9	55.5	80.8	72.5	52.0	75.4	77	72.5	70.5	86.6	80.5		
Company Comp	Grain Size (ASTM D421/422)														
Manuscript (1987) 1978		Fract %													
The part of the part 1967 1967 1968															
Mart													***		
Part															
March Marc															
Annual		Tract /0	7.0	IVA	IVA	4.0	7.7	IVA	TVA	5.0	7.3	0.2	0.4		
Cognision	Arsenic	mg/Kg													7
Page															1
Part															
Montago Port Port															
Mail															
Shere marker 10,000 ma															
Propuls Prop															
## 4-POOP															
4.4-DDF															
4-F197T with pick 2 18 8.0 NA															
Seminative plays 196															
Additific - 1987s 0.95 U 0.85 U NA NA NA NA NA NA NA															
aphe-BHEC (-848C) 196 196 10.05 1		100												40	
defa-BHC (6 BHC)	alpha-BHC (α-BHC)	μg/Kg	0.062 J	0.85 U	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Page															
Application Park 130															
Peter Chilordume ⁶⁰ 12 kg 170															
Total Chlordane 1925kg 2.5 to 0.85 to NA NA NA NA NA NA NA N															
Deletin		(8)													
Endosulfiar μg/Kg 0.50 U 0.55 U NA NA NA NA NA NA NA															
Flostsuffin															
Endrin	Endosulfan II		0.50 U	0.85 U	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Endrin aldehyde	Endosulfan sulfate	μg/Kg		0.85 U				NA			NA				
Endrin lettone 19/Kg 0.50 U 0.85 U NA NA NA NA NA NA NA															
Heptachlor															
Heptachlor epoxide															
Methoxychlor μg/Kg 0.39 B 0.85 U NA NA NA NA NA NA NA	F		***												
Toxaphene μg/Kg NA 96 U NA NA NA NA NA NA NA															
Polychlorinated Biphenyl Congeners (PCBs) (EPA 1668M) FOR 1668M) FOR 1668M FOR 166															
Polychlorinated Biphenyls(PCBs) (EPA 8082) September Polychlorinated Biphenyls(PCBs) (EPA 8082) Sept			N/A	N/A	1100	N/A	NA	102	102	N/A	N/A	N/A	N/A	(7)	0.20
Aroclor 1016 μg/Kg NA NA 50 U NA	-	,,,,,	NA	NA	1180	NA	NA	192	183	NA	NA	NA	NA	0/0	0.39
Arcolor 1016/1242 μg/Kg 20 U NA NA 200 U 10 U 10 U 10 U 10 U 10 U 10 U Arcolor 1221 μg/Kg 40 U NA 100 U 400 U 20 U Arcolor 1232 μg/Kg 20 U NA 50 U 200 U 10 U 10 U 10 U 10 U 20 U 20 U Arcolor 1242 μg/Kg NA NA <td></td> <td></td> <td>NY A</td> <td>NY A</td> <td>EO II</td> <td>NY A</td> <td>NY A</td> <td>NY A</td> <td>NY A</td> <td>NY A</td> <td>NY A</td> <td>XY.A</td> <td>NY A</td> <td>520</td> <td></td>			NY A	NY A	EO II	NY A	NY A	NY A	NY A	NY A	NY A	XY.A	NY A	520	
Aroclor 1221 μg/Kg 40 U NA 100 U 400 U 20 U 20 U 20 U 20 U 20 U 20 U Aroclor 1232 μg/Kg 20 U NA 50 U 200 U 10 U 10 U 10 U 10 U 20 U 20 U 20 U Aroclor 1242 μg/Kg NA NA </td <td></td>															
Aroclor 1232 μg/Kg 20 U NA 50 U 200 U 10 U 10 U 10 U 10 U 20 U 20 U Aroclor 1242 μg/Kg NA NA <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>															
Aroclor 1242 μg/Kg NA NA SO U NA															
Aroclor 1248 $μg/Kg$ 20 U NA 372 200 U 10 U 10 U 44 10 U 10 U 10 U 1500 Aroclor 1254 $μg/Kg$ 20 U NA 50 U 200 U 18 10 U 10 U 10 U 10 U 11 (%) 15 (%) 300 Aroclor 1260 $μg/Kg$ 20 U NA 423 4390 29 81 46 33 21 10 U 13 (%) 200 Aroclor 1262 $μg/Kg$ 20 U NA 50 U 200 U 10 U Aroclor 1268 $μg/Kg$ 20 U NA 50 U 200 U 10 U															
Aroclor 1260 μg/Kg 20 U NA 423 4390 29 81 46 33 21 10 U 13 (1) 200 Aroclor 1262 μg/Kg 20 U NA 50 U 200 U 10 U Aroclor 1268 μg/Kg 20 U NA 50 U 200 U 10 U 10 U 10 U 10 U 10 U 10 U	Aroclor 1248						10 U			44				1500	
Aroclor 1262 μg/Kg 20 U NA 50 U 200 U 10 U 10 U 10 U 10 U 10 U 10 U	Aroclor 1254	μg/Kg					18	10 U	10 U					300	
Aroclor 1268 μg/Kg 20 U NA 50 U 200 U 10 U 10 U 10 U 10 U 10 U 10 U														200	
Aroclor 1268 μg/Kg 20 U NA 50 U 200 U 10 U 10 U 10 U 10 U 10 U 10 U															
	Aroclor 1268	μg/Kg													

Table 7
Basin 44 Inline and Surface Solids Results - N. Loring Street Area

		Manho	le ABC343	Manhole A	ABC348		Manhole AMQ287		Manhole	e ABC267	Manhole	ABC278		
		Inline Solids (Sieved <2000 μ)	Inline Solids (Unsieved)	Surface Sediment (Unsieved)	Inline Solids (Sieved <2000 μ)	Inline Solids (Sieved <2000 μ)	Inline Solids (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Sieved <2000 μ)	Inline Solids (Sieved <2000 μ)	Inline Solids (Unsieved)	Inline Solids (Sieved)	•	_
		Within manhole FO095467	Within manhole FO105485	Near catch basin APL246 southeast of manhole FO095407	Catch basin APL246 southeast of manhole FO095476	Within manhole FO095475	Within manhole FO095977	Within manhole Duplicate FO095978	Catch basin APL236 southeast of manhole FO095472	Catch basin APL235 west of manhole FO095473	Within manhole ⁽¹⁾ FO095311	Within manhole FO095312		JSCS ⁽²⁾ ng Level Value
Class Analyte	Units	4/7/2009	4/28/2010	3/26/2009	4/8/2009	4/8/2009	10/6/2009	10/6/2009	4/8/2009	4/8/2009	3/9/2009	3/9/2009	Toxicity	Bioaccumulation
Polynuclear Aromatic Hydrocarbon	s (EPA 8270C SIM)													
Acenaphthene	μg/K		NA	NA	92.7 U	127 U	NA	NA	94.3 U	96.3 U	30.4 U	49.8 U	300	
Acenaphthylene	μg/K		NA NA	NA NA	92.7 U	127 U	NA NA	NA NA	94.3 U	96.3 U	30.4 U	49.8 U	200	
Anthracene Benzo(a)anthracene	μg/K; μg/K		NA NA	NA NA	92.7 U 92.7 U	127 U 199	NA NA	NA NA	94.3 U 94.3 U	96.3 U 96.3 U	30.4 U 30.4 U	49.8 U 49.8 U	845 1050	
Benzo(a)pyrene	μg/K μg/K		NA NA	NA NA	122	245	NA NA	NA NA	94.3 U	96.3 U	30.4 U	51.7 U	1450	
Benzo(b)fluoranthene	μg/K		NA	NA	179	316	NA	NA	125	121	30.4 U	70.4 U		
Benzo(g,h,i)perylene	μg/K		NA	NA	236	390	NA	NA	129	135	32.8	112 U	300	
Benzo(k)fluoranthene	μg/K		NA	NA	124	217	NA	NA	94.3 U	96.3 U	30.4 U	49.8 U	13000	
Chrysene	μg/K		NA NA	NA NA	200	545	NA NA	NA NA	183	174	39.6	112 U	1290	
Dibenzo(a,h)anthracene Fluoranthene	μg/Kg		NA NA	NA NA	92.7 U 336	127 U 935	NA NA	NA NA	94.3 U	96.3 U	30.4 U 36.6	49.8 U 124 U	1300 2230	37000
Fluorene	μg/K _j μg/K _j		NA NA	NA NA	92.7 U	935 127 U	NA NA	NA NA	252 94.3 U	173 96.3 U	30.4 U	49.8 U	536	37000
Indeno(1,2,3-cd)pyrene	μg/K μg/K		NA NA	NA NA	135	194	NA NA	NA NA	94.3 U	96.3 U	30.4 U	51.3 U	100	
Naphthalene	μg/K		NA	NA	92.7 U	553	NA	NA	94.3 U	96.3 U	30.4 U	49.8 U	561	
Phenanthrene	μg/K	g 120	NA	NA	315	738	NA	NA	148	108	30.4 U	66.9 U	1170	
Pyrene	μg/K		NA	NA	253	813	NA	NA	229	177	41.8	143 U	1520	1900
	Total PAH ⁽⁸⁾ μg/K ₂	1310	NA	NA	1900	5150	NA	NA	1070	888	151	ND		
Polynuclear Aromatic Hydrocarbon	s (EPA 8270C)													
2-Methylnaphthalene	μg/K	g 200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U	200	
Acenaphthene	μg/K	g 200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U	300	
Acenaphthylene	μg/K		NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	28 J	200	
Anthracene	μg/K		NA NA	NA NA	450 U	87 J	NA	NA NA	180 U	190 U	59 U	36 J	845	
Benzo(a)anthracene Benzo(a)pyrene	μg/K; μg/K		NA NA	NA NA	190 J 280 J	180 J 170 J	NA NA	NA NA	60 J 81 J	55 J 74 J	24 J 36 J	67 J 140	1050 1450	
Benzo(b)fluoranthene	μg/K μg/K		NA NA	NA NA	450	330 J	NA NA	NA NA	140 J	130 J	45 J	240	1430	
Benzo(g,h,i)perylene	μg/K		NA	NA	470	370 J	NA	NA	120 J	120 J	48 J	240	300	
Benzo(k)fluoranthene	μg/K		NA	NA	170 J	90 J	NA	NA	42 J	36 J	18 J	77	13000	
Chrysene	μg/K		NA	NA	400 J	260 J	NA	NA	150 J	95 J	54 J	260	1290	
Dibenzo(a,h)anthracene	μg/K		NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	34 J	1300	
Dibenzofuran Fluoranthene	μg/Kg		NA NA	NA NA	450 U 420 J	510 U 630	NA NA	NA NA	180 U 190	190 U 170 J	59 U 58 J	70 U 380	2230	37000
Fluorene	μg/K; μg/K		NA NA	NA NA	450 U	510 U	NA NA	NA NA	190 180 U	170 J 190 U	59 U	13 J	536	37000
Indeno(1,2,3-cd)pyrene	μg/K		NA	NA	340 J	200 J	NA NA	NA NA	86 J	75 J	33 J	180	100	
Naphthalene	μg/K		NA	NA	450 U	360 J	NA	NA	180 U	190 U	59 U	70 U	561	
Phenanthrene	μg/K	g 85 J	NA	NA	240 J	550	NA	NA	120 J	110 J	36 BJ	220	1170	
Pyrene	μg/K		NA	NA	400 J	720	NA	NA	180 J	170 J	69	440	1520	1900
	Total PAH ⁽⁸⁾ μg/K	g 940 J	NA	NA	3400 J	4000 J	NA	NA	1200 J	1000 J	420 J	2400 Ј		
Phthalates (EPA8270C SIM)														
Bis(2-ethylhexyl) phthalate			NA	NA	1,350	19,700	NA	NA	3,480	2,490	944	1,850	800	330
Butyl Benzyl Phthalate	μg/K		NA NA	NA	927 U	6,370 U	NA	NA	1,890 U	1,930 U	153 U	220		
Diethyl phthalate	μg/Kg		NA NA	NA NA	927 U 927 U	6,370 U 6,370 U	NA NA	NA NA	1,890 U	1,930 U	153 U	165 U	600	
Dimethyl phthalate Di-n-butyl phthalate	μg/K _j μg/K _j		NA NA	NA NA	927 U 927 U	6,370 U 6,370 U	NA NA	NA NA	1,890 U 1,890 U	1,930 U 1,930 U	153 U 153 U	165 U 165 U	100	60
Di-n-octyl phthalate	μg/K		NA NA	NA NA	927 U	14,400	NA NA	NA NA	1,890 U	1,930 U	383 U	496 U		
		,,,,,			7=1-2	- 1,100			2,070	-,,				
Phthalates (EPA8270C)	(DELID) ug/V	1 200 1	N/A	NY A	700 T	12 000	NIA	NIA	1 000 T	970 I	200 1	770	900	220
Bis(2-ethylhexyl) phthalate Butyl Benzyl Phthalate	(BEHP) μg/K		NA NA	NA NA	780 J 450 U	13,000 370 J	NA NA	NA NA	1,000 J 510	870 J 84 J	280 J 59 U	770 70 U	800	330
Diethyl phthalate	μg/K μg/K		NA NA	NA NA	450 U	510 U	NA NA	NA NA	180 U	190 U	59 U	70 U	600	
Dimethyl phthalate	μg/K		NA	NA	120 J	250 J	NA	NA NA	120 J	110 J	580	270		
Di-n-butyl phthalate	μg/K	g 400 U	NA	NA	890 U	1100 U	NA	NA	350 U	370 U	120 U	140 U	100	60
Di-n-octyl phthalate	μg/K	g 200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
Semi-Volatile Organic Compounds	(EPA8270C)													
1,2,4-Trichlorobenzene	μg/K ₁	g 200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U	9200	
1,2-Dichlorobenzene	μg/K	g 200 U	NA	NA	450 U	510 U	NA	NA	180 U	310 U	59 U	70 U	1700	
1,3-Dichlorobenzene	μg/K		NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U	300	
1,4-Dichlorobenzene	μg/K		NA NA	NA NA	450 U	510 U	NA NA	NA NA	180 U	190 U	59 U	70 U	300	
2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	μg/Kg		NA NA	NA NA	450 U 450 U	510 U	NA NA	NA NA	180 U 180 U	190 U 190 U	59 U 59 U	70 U 70 U		
2,4,6-1 richlorophenol	μg/K _i μg/K		NA NA	NA NA	450 U	510 U 510 U	NA NA	NA NA	180 U	190 U	59 U	70 U		<u></u>
2,7 Dichiorophenor	μg/Κ	, 200 0	11/1	1NA	450 0	310 0	110	11/1	100 0	170 0	3, 0	70.0		

Table 7
Basin 44 Inline and Surface Solids Results - N. Loring Street Area

		Manhole	ABC343	Manhole A	ABC348		Manhole AMQ287		Manhole	ABC267	Manhole	ABC278	_	
		Inline Solids (Sieved <2000 μ)	Inline Solids (Unsieved)	Surface Sediment (Unsieved)	Inline Solids (Sieved <2000 μ)	Inline Solids (Sieved <2000 μ)	Inline Solids (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Sieved <2000 μ)	Inline Solids (Sieved <2000 μ)	Inline Solids (Unsieved)	Inline Solids (Sieved)	_	
		Within manhole FO095467	Within manhole FO105485	Near catch basin APL246 southeast of manhole FO095407	Catch basin APL246 southeast of manhole FO095476	Within manhole FO095475	Within manhole FO095977	Within manhole Duplicate FO095978	Catch basin APL236 southeast of manhole FO095472	Catch basin APL235 west of manhole FO095473	Within manhole ⁽¹⁾ FO095311	Within manhole FO095312		JSCS ⁽²⁾ ing Level Value
Class Analyte	Units	4/7/2009	4/28/2010	3/26/2009	4/8/2009	4/8/2009	10/6/2009	10/6/2009	4/8/2009	4/8/2009	3/9/2009	3/9/2009	Toxicity	Bioaccumulation
2,4-Dimethylphenol	μg/Kg	980 U	NA	NA	2300 U	2600 U	NA	NA	870 U	920 U	300 U	350 U		
2,4-Dinitrophenol	μg/Kg	4,000 U	NA	NA	8,900 U	11.000 U	NA	NA	3,500 U	3,700 U	1,200 U	1,400 U		
2.4-Dinitrotoluene	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
2,6-Dinitrotoluene	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
2-Chloronaphthalene	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
2-Chlorophenol	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
2-Methyl-4,6-dinitrophenol	μg/Kg	2,000 U	NA	NA	4,500 U	5,100 U	NA	NA	1.800 U	1,900 U	590 U	700 U		
2-Methylphenol	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
2-Nitroaniline	μg/Kg	400 U	NA	NA	890 U	1100 U	NA	NA	350 U	370 U	120 U	140 U		
2-Nitrophenol	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
3,3'-Dichlorobenzidine	μg/Kg	2.000 U	NA	NA	4,500 U	5.100 U	NA	NA	1.800 U	1,900 U	590 U	700 U		
3-Nitroaniline	μg/Kg	400 U	NA	NA	890 U	1,100 U	NA	NA	350 U	370 U	120 U	140 U		
4-Bromophenylphenyl ether	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
4-Chloro-3-methylphenol	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
4-Chloroaniline	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
4-Chlorophenyl phenyl ether	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
4-Methylphenol	μg/Kg	160 J	NA	NA	450 U	4.600	NA	NA	50 J	190 U	59 U	70 U		
4-Nitroaniline	μg/Kg	400 U	NA	NA	890 U	1,100 U	NA	NA	350 U	370 U	120 U	140 U		
4-Nitrophenol	μg/Kg	2.000 U	NA	NA	4,500 U	5.100 U	NA	NA	1.800 U	1,900 U	590 U	700 U		
Benzoic acid	μg/Kg	4.000 U	NA	NA	8,900 U	11,000 U	NA	NA	3,500 U	3,700 U	1,200 U	1.400 U		
Benzyl alcohol	μg/Kg	400 U	NA	NA	890 U	1100 U	NA	NA	350 U	370 U	120 U	140 U		
Bis(2-chloroethoxy) methane	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
Bis(2-chloroethyl) ether	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
Bis(2-chloroisopropyl) ether	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
Hexachlorobenzene	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U	100	19
Hexachlorobutadiene	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U	600	
Hexachlorocyclopentadiene	μg/Kg	980 U	NA	NA	2300 U	2600 U	NA	NA	870 U	920 U	300 U	350 U	400	
Hexachloroethane	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
Isophorone	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
Nitrobenzene	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
N-Nitrosodi-n-propylamine	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	59 U	70 U		
N-Nitrosodiphenylamine	μg/Kg	200 U	NA	NA	450 U	510 U	NA	NA	180 U	190 U	31 J	43 J		
Pentachlorophenol	μg/Kg	2,000 U	NA	NA	4,500 U	1,200 J	NA	NA	1,000 J	1,900 U	590 U	700 U	1000	250
Phenol	μg/Kg	88 J	NA	NA	1400 U	160 J	NA	NA	520 U	550 U	180 U	210 U	50	

- J = The result is an estimated concentration that is less than the MRL, but greater than or equal to the MDL.
- $B = The \ analyte \ was \ found \ in \ the \ associated \ method \ blank \ at \ a \ level \ that \ is \ significant \ relative \ to \ the \ sample \ result.$
- U = The analyte was not detected above the reported sample quantification limit.

NA = not analyzed.

ND = not detected.

 $\mu = microns$

-- No JSCS screening level available.

μg/Kg = micrograms per kilogram.

mg/Kg = milligrams per kilogram.

= concentration exceeds JSCS Toxicity Screening Level Value.

bold = concentration exceeds JSCS Bioaccumulation Screening Level Value.

 $^{^{(1)}}$ This sample was submitted for analysis unsieved for comparison with the sieved sample (FO095213).

 $^{^{(2)}} JSCS - Portland\ Harbor\ Joint\ Source\ Control\ Strategy\ (DEQ/EPA\ \ Final\ December\ 2005,\ Amended\ July\ 2007).$

 $^{^{\}left(3\right) }$ Estimated Total DDT is the sum of DDE, DDD, and DDT.

 $^{^{(4)}}$ Alpha-chlordane is also known as cis-Chlordane. Beta-Chlordane is also known as trans-chlordane and gamma-chlordane.

 $^{^{(5)}}$ Total Chlordane is the sum of alpha- and beta-isomers.

 $^{^{(6)}}$ The pattern of PCB Aroclor in the sample best matched 1254, but may include some amount of 1260.

⁽⁷⁾ The pattern of PCB Aroclor in the sample indicates a mixture of 1254 and 1260; quantitations are approximate.

 $^{^{(8)}\}mbox{Total PCBs}$ and PAHs are calculated by assigning "0" to undetected constituents.

⁽⁹⁾ Refer to Table 9 for individual PCB congener results

Table 8 Basin 44 Inline Solids Results - Area Northeast of Railroad Tracks

		Manhole	e ABC335		Manhole A	ABC259			Manhole ABC261			
		Inline Solids (Sieved $< 2000 \mu$)	Inline Solids (Unsieved)	Inline Solids (Sieved < 2000 μ)	Inline Solids (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Sieved $< 2000 \mu$)	Inline Solids (Unsieved)	Inline Solids (Unsieved)		
		Within manhole FO095469	Catch Basin APG305 southeast of manhole FO105161	Catch Basin APG312 northwest of manhole FO095470	Catch Basin APG312 northwest of manhole FO105157	Catch Basin APG312 northwest of manhole Duplicate FO105162	Catch Basin APG313 southeast of manhole FO105160	Composite sample from Manhole ABC261 and Catch Basin APG314 FO095471	Catch Basin APG314 northwest of manhole FO105158	Catch Basin APG315 southeast of manhole FO105159		JSCS ⁽¹⁾ ng Level Value
Class Analyte	Units	4/7/2009	1/28/2010	4/7/2009	1/28/2010	1/28/2010	1/28/2010	4/7/2009	1/28/2010	1/28/2010	Toxicity	Bioaccumulation
Total Organic Carbon (ASTM D4129-82M)												
TOC	mg/Kg	25,800	77,300	64,100	86,400	83,400	148,000	36,800	104,000	141,000		
Total Solids (EPA 160.3M)												
TS	%	75.8	54	81.2	56.3	54.6	36.2	71.7	39.3	28.7		
Grain Size (ASTM D421/422)												
Gravel (>4750 um)	Fract %	0.1	NA	0.1	NA	NA	NA	0.1	NA	NA		
Coarse Sand (4750-2000 um)	Fract %	0.3	NA NA	0.1	NA	NA NA	NA	0.1	NA	NA NA		
Medium Sand (2000-425 um)	Fract %	35.1	NA	31.2	NA	NA	NA	47.1	NA	NA		
Fine Sand (425-75 um)	Fract %	26.1	NA NA	39.4	NA NA	NA NA	NA NA	32.6	NA NA	NA NA		
Silt (75-3.2 um)	Fract %	37.2	NA	27.9	NA	NA	NA	18.6	NA	NA		
Clay (<3.2 um)	Fract %	1.1	NA	1.6	NA	NA	NA	1.5	NA	NA		
Metals (EPA 6020)												
Arsenic	mg/Kg	49.0	NA	2.57	NA	NA	NA	3.70	NA	NA	33	7
Cadmium	mg/Kg	1.83	NA	2.71	NA	NA	NA	1.60	NA	NA	4.98	1
Chromium	mg/Kg	87.0	NA	53.6	NA	NA	NA	182	NA	NA	111	
Copper	mg/Kg	93.3	NA	148	NA	NA	NA	69.1	NA	NA	149	
Lead	mg/Kg	255	NA	72.9	NA	NA	NA	66.8	NA	NA	128	17
Mercury (EPA 7471A)	mg/Kg	0.184	NA	0.528	NA	NA	NA	0.053	NA	NA	1.06	0.07
Nickel	mg/Kg	55.3	NA	37.9	NA	NA	NA	29.2	NA	NA	48.6	
Silver	mg/Kg	0.12	NA	0.40	NA	NA	NA	0.40	NA	NA	5	
Zinc (EPA 6010B)	mg/Kg	516	NA	656	NA	NA	NA	314	NA	NA	459	
Polychlorinated Biphenyls(PCBs) (EPA 808)	2)											
Aroclor 1016	μg/Kg	10 U	NA	100 U	NA	NA	NA	10 U	NA	NA	530	
Aroclor 1016/1242	μg/Kg	NA	20 U	NA	20 U	20 U	30 U	NA	30 U	30 U		
Aroclor 1221	μg/Kg	20 U	40 U	200 U	40 U	40 U	60 U	20 U	60 U	60 U		
Aroclor 1232	μg/Kg	10 U	20 U	100 U	20 U	20 U	30 U	10 U	30 U	30 U		
Aroclor 1242	μg/Kg	10 U	NA	100 U	NA	NA	NA	10 U	NA	NA		
Aroclor 1248	μg/Kg	10 U	20 U	100 U	20 U	20 U	30 U	10 U	30 U	30 U	1500	
Aroclor 1254	μg/Kg	11	20 U	100 U	20 U	20 U	30 U	28	30 U	30 U	300	
Aroclor 1260	μg/Kg	22	15 J	2340	35	41	30 U	19	30 U	30 U	200	
Aroclor 1262	μg/Kg	10 U	20 U	100 U	20 U	20 U	30 U	10 U	30 U	30 U		
Aroclor 1268	μg/Kg	10 U	20 U	100 U	20 U	20 U	30 U	10 U	30 U	30 U		
Total Po	CBs ⁽²⁾ μg/Kg	33	15 J	2340	35	41	ND	47	ND	ND	676	0.39
Polynuclear Aromatic Hydrocarbons (EPA 8												
Acenaphthene	μg/Kg	95.7 U	NA	83.2 U	NA	NA	NA	94.9 U	NA	NA	300	
Acenaphthylene	μg/Kg	95.7 U	NA	83.2 U	NA	NA	NA	94.9 U	NA	NA	200	
Anthracene	μg/Kg	95.7 U	NA NA	133	NA NA	NA NA	NA	141	NA NA	NA NA	845	
Benzo(a)anthracene	μg/Kg	116	NA NA	221	NA NA	NA NA	NA NA	158	NA NA	NA NA	1050	
Benzo(a)pyrene	μg/Kg	148	NA NA	238	NA NA	NA NA	NA NA	239	NA NA	NA	1450	
Benzo(b)fluoranthene	μg/Kg	185	NA NA	341 402	NA NA	NA NA	NA NA	281 414	NA NA	NA NA	200	
Benzo(g,h,i)perylene Benzo(k)fluoranthene	μg/Kg μg/Kg	226 140	NA NA	275	NA NA	NA NA	NA NA	183	NA NA	NA NA	300 13000	
Chrysene	μg/Kg μg/Kg	235	NA NA	750	NA NA	NA NA	NA NA	365	NA NA	NA NA	1290	
Dibenzo(a,h)anthracene	μg/Kg μg/Kg	95.7 U	NA NA	83.2 U	NA NA	NA NA	NA NA	94.9 U	NA NA	NA NA	1300	
Fluoranthene	μg/Kg μg/Kg	276	NA NA	921	NA NA	NA NA	NA NA	495	NA NA	NA NA	2230	37000
Fluorene	μg/Kg	95.7 U	NA	83.2 U	NA	NA	NA	94.9 U	NA	NA	536	
Indeno(1,2,3-cd)pyrene	μg/Kg	136	NA NA	199	NA NA	NA NA	NA NA	253	NA NA	NA NA	100	
Naphthalene	μg/Kg	95.7 U	NA	83.2 U	NA	NA	NA	94.9 U	NA	NA	561	
Phenanthrene	μg/Kg	134	NA	560	NA	NA	NA	311	NA	NA	1170	
Pyrene	μg/Kg	235	NA	837	NA	NA	NA	422	NA	NA	1520	1900
		1830		4880				3260				

Table 8 Basin 44 Inline Solids Results - Area Northeast of Railroad Tracks

		Manhole	e ABC335		Manhole A	ABC259			Manhole ABC261			
	_	Inline Solids (Sieved < 2000 μ)	Inline Solids (Unsieved)	Inline Solids (Sieved < 2000 μ)	Inline Solids (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Sieved < 2000 μ)	Inline Solids (Unsieved)	Inline Solids (Unsieved)		
		Within manhole FO095469	Catch Basin APG305 southeast of manhole FO105161	Catch Basin APG312 northwest of manhole FO095470	Catch Basin APG312 northwest of manhole FO105157	Catch Basin APG312 northwest of manhole Duplicate FO105162	Catch Basin APG313 southeast of manhole FO105160	Composite sample from Manhole ABC261 and Catch Basin APG314 FO095471	Catch Basin APG314 northwest of manhole FO105158	Catch Basin APG315 southeast of manhole FO105159		JSCS ⁽¹⁾ ing Level Value
Class Analyte	Units	4/7/2009	1/28/2010	4/7/2009	1/28/2010	1/28/2010	1/28/2010	4/7/2009	1/28/2010	1/28/2010	Toxicity	Bioaccumulation
Polynuclear Aromatic Hydrocarbons (EPA 82		4.50 **		400 77				400.77			200	
2-Methylnaphthalene Acenaphthene	μg/Kg μg/Kg	150 U 150 U	NA NA	620 U 620 U	NA NA	NA NA	NA NA	420 U 420 U	NA NA	NA NA	200 300	
Acenaphthylene	μg/Kg μg/Kg	150 U	NA NA	620 U	NA NA	NA NA	NA NA	420 U	NA NA	NA NA	200	
Anthracene	μg/Kg μg/Kg	38 J	NA NA	120 J	NA NA	NA NA	NA NA	87 J	NA NA	NA NA	845	
Benzo(a)anthracene	μg/Kg	150 J	NA	240 J	NA	NA	NA	140 J	NA	NA	1050	
Benzo(a)pyrene	μg/Kg	170	NA	270 Ј	NA	NA	NA	210 J	NA	NA	1450	
Benzo(b)fluoranthene	μg/Kg	270	NA	500 J	NA	NA	NA	270 J	NA NA	NA		
Benzo(g,h,i)perylene Benzo(k)fluoranthene	μg/Kg μg/Kg	230 89 J	NA NA	430 J 150 J	NA NA	NA NA	NA NA	310 J 73 J	NA NA	NA NA	300 13000	
Chrysene	μg/Kg μg/Kg	260	NA NA	620	NA NA	NA NA	NA NA	260 J	NA NA	NA NA	1290	
Dibenzo(a,h)anthracene	μg/Kg	46 J	NA NA	620 U	NA NA	NA	NA NA	420 U	NA NA	NA	1300	
Dibenzofuran	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
Fluoranthene	μg/Kg	300	NA	1100	NA	NA	NA	280 Ј	NA	NA	2230	37000
Fluorene	μg/Kg	150 U	NA	620 U	NA	NA NA	NA	420 U	NA NA	NA	536	
Indeno(1,2,3-cd)pyrene Naphthalene	μg/Kg	190	NA NA	270 J	NA NA	NA NA	NA NA	230 J 420 U	NA NA	NA NA	100 561	
Phenanthrene	μg/Kg μg/Kg	150 U 160	NA NA	170 J 680	NA NA	NA NA	NA NA	160 J	NA NA	NA NA	1170	
Pyrene	μg/Kg	280	NA	1000	NA NA	NA NA	NA	280 J	NA NA	NA	1520	1900
	AH ⁽²⁾ μg/Kg	2200 J	NA	5600 J	NA	NA	NA	2300 J	NA	NA		
Phthalates (EPA8270C SIM)												
Bis(2-ethylhexyl) phthalate (BEHP)	μg/Kg	3,000	NA NA	59,900	NA NA	NA NA	NA NA	2,580	NA NA	NA NA	800	330
Butyl Benzyl Phthalate Diethyl phthalate	μg/Kg μg/Kg	1,910 U 1,910 U	NA NA	4,170 4,160 U	NA NA	NA NA	NA NA	1,900 U 1,900 U	NA NA	NA NA	600	
Dimethyl phthalate	μg/Kg μg/Kg	1,910 U	NA NA	4,160 U	NA NA	NA NA	NA NA	1,900 U	NA NA	NA NA		
Di-n-butyl phthalate	μg/Kg	1,910 U	NA	4,160 U	NA	NA	NA	1,900 U	NA	NA	100	60
Di-n-octyl phthalate	μg/Kg	1,910 U	NA	4,160 U	NA	NA	NA	1,900 U	NA	NA		
Phthalates (EPA8270C)												
Bis(2-ethylhexyl) phthalate (BEHP) Butyl Benzyl Phthalate	μg/Kg μg/Kg	1,700	NA NA	36,000 3800	NA NA	NA NA	NA NA	840 J 420 U	NA NA	NA NA	800	330
Diethyl phthalate	μg/Kg μg/Kg	160 150 U	NA NA	620 U	NA NA	NA NA	NA NA	420 U	NA NA	NA NA	600	
Dimethyl phthalate	μg/Kg	150 J	NA NA	190 J	NA	NA NA	NA NA	110 J	NA NA	NA		
Di-n-butyl phthalate	μg/Kg	300 U	NA	1300 U	NA	NA	NA	840 U	NA	NA	100	60
Di-n-octyl phthalate	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
Semi-Volatile Organic Compounds (EPA8270		4.50.33		400 11	27.		27.	100.77			0000	
1,2,4-Trichlorobenzene 1,2-Dichlorobenzene	μg/Kg μg/Kg	150 U 150 U	NA NA	620 U 620 U	NA NA	NA NA	NA NA	420 U 420 U	NA NA	NA NA	9200 1700	
1,3-Dichlorobenzene	μg/Kg μg/Kg	150 U	NA NA	620 U	NA NA	NA NA	NA NA	420 U	NA NA	NA NA	300	
1,4-Dichlorobenzene	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA	300	
2,4,5-Trichlorophenol	μg/Kg	150	NA	620 U	NA	NA	NA	420 U	NA	NA		
2,4,6-Trichlorophenol	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
2,4-Dichlorophenol	μg/Kg	150 U	NA NA	620 U	NA NA	NA NA	NA NA	420 U	NA NA	NA NA		
2,4-Dimethylphenol 2,4-Dinitrophenol	μg/Kg μg/Kg	730 U 3,000 U	NA NA	3100 U 13,000 U	NA NA	NA NA	NA NA	2100 U 8,400 U	NA NA	NA NA		
2,4-Dinitrotoluene	μg/Kg	150 U	NA NA	620 U	NA	NA NA	NA NA	420 U	NA NA	NA		
2,6-Dinitrotoluene	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
2-Chloronaphthalene	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
2-Chlorophenol	μg/Kg	150 U	NA NA	620 U	NA NA	NA NA	NA NA	420 U	NA NA	NA NA		
2-Methyl-4,6-dinitrophenol	μg/Kg	1,500 U	NA NA	6,200 U	NA NA	NA NA	NA NA	4,200 U 420 U	NA NA	NA NA		
2-Methylphenol 2-Nitroaniline	μg/Kg μg/Kg	150 U 300 U	NA NA	620 U 1300 U	NA NA	NA NA	NA NA	840 U	NA NA	NA NA		
2-Nitrophenol	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA NA	NA		
3,3'-Dichlorobenzidine	μg/Kg	1,500 U	NA	6,200 U	NA	NA	NA	4,200 U	NA	NA		
3-Nitroaniline	μg/Kg	300 U	NA	1300 U	NA	NA	NA	840 U	NA	NA		
4-Bromophenylphenyl ether	μg/Kg	150 U	NA NA	620 U	NA NA	NA NA	NA NA	420 U	NA NA	NA NA		
4-Chloro-3-methylphenol 4-Chloroaniline	μg/Kg μg/Kg	150 U 150 U	NA NA	620 U 620 U	NA NA	NA NA	NA NA	420 U 420 U	NA NA	NA NA		
4-Chlorophenyl phenyl ether	μg/Kg μg/Kg	150 U	NA NA	620 U	NA NA	NA NA	NA NA	420 U 420 U	NA NA	NA NA		
4-Methylphenol	μg/Kg	150 U	NA	620 U	NA	NA NA	NA NA	420 U	NA NA	NA		
4-Nitroaniline	μg/Kg	300 U	NA	1300 U	NA	NA	NA	840 U	NA	NA		
4-Nitrophenol	μg/Kg	1,500 U	NA	6,200 U	NA	NA	NA	4,200 U	NA	NA		
Benzoic acid	μg/Kg	3,000 U	NA NA	13,000 U	NA NA	NA NA	NA NA	8,400 U	NA NA	NA NA		
Benzyl alcohol	μg/Kg	300 U	NA	1300 U	NA	NA	NA	840 U	NA	NA		

Table 8 Basin 44 Inline Solids Results - Area Northeast of Railroad Tracks

		Manhol	e ABC335		Manhole A	ABC259			Manhole ABC261			
		Inline Solids (Sieved $< 2000 \mu$)	Inline Solids (Unsieved)	Inline Solids (Sieved < 2000 μ)	Inline Solids (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Sieved < 2000 μ)	Inline Solids (Unsieved)	Inline Solids (Unsieved)		
		Within manhole FO095469	Catch Basin APG305 southeast of manhole FO105161	Catch Basin APG312 northwest of manhole FO095470	Catch Basin APG312 northwest of manhole FO105157	Catch Basin APG312 northwest of manhole Duplicate FO105162	Catch Basin APG313 southeast of manhole FO105160	Composite sample from Manhole ABC261 and Catch Basin APG314 FO095471	Catch Basin APG314 northwest of manhole FO105158	Catch Basin APG315 southeast of manhole FO105159		JSCS ⁽¹⁾ ng Level Value
Class Analyte	Units	4/7/2009	1/28/2010	4/7/2009	1/28/2010	1/28/2010	1/28/2010	4/7/2009	1/28/2010	1/28/2010	Toxicity	Bioaccumulation
Bis(2-chloroethoxy) methane	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
Bis(2-chloroethyl) ether	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
Bis(2-chloroisopropyl) ether	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
Hexachlorobenzene	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA	100	19
Hexachlorobutadiene	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA	600	
Hexachlorocyclopentadiene	μg/Kg	730 U	NA	3100 U	NA	NA	NA	2100 U	NA	NA	400	
Hexachloroethane	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
Isophorone	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
Nitrobenzene	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
N-Nitrosodi-n-propylamine	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
N-Nitrosodiphenylamine	μg/Kg	150 U	NA	620 U	NA	NA	NA	420 U	NA	NA		
Pentachlorophenol	μg/Kg	1,500 U	NA	6,200 U	NA	NA	NA	4,200 U	NA	NA	1000	250
Phenol	μg/Kg	440 U	NA	1900 U	NA	NA	NA	1300 U	NA	NA	50	

J = The result is an estimated concentration that is less than the MRL, but greater than or equal to the MDL.

 $\boldsymbol{U} = \boldsymbol{T} \boldsymbol{h} \boldsymbol{e}$ analyte was not detected above the reported sample quantification limit.

NA = not analyzed.

ND = not detected.

-- No JSCS screening level available.

 $\mu = microns$

 $\mu g/Kg = micrograms \ per \ kilogram.$

mg/Kg = milligrams per kilogram.

(1) JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Amended July 2007).

 $^{(2)}\mbox{Total PCBs}$ and PAHs are calculated by assigning "0" to undetected constituents.

= concentration exceeds JSCS Toxicity Screening Level Value.

bold = concentration exceeds JSCS Bioaccumulation Screening Level Value.

Table 9
Basin 44 Inline and Surface Solids - PCB Congeners Results

			Surface Sediment (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Unsieved)		
			Near Catch Basin APL246 southeast of Manhole ABC348 FO095407	Manhole AMQ287 FO095977	Manhole AMQ287 Duplicate FO095978	Screen	JSCS ⁽²⁾ ning Level Value
IUPAC Number ⁽¹⁾	Chemical Name	Units	3/26/2009	10/6/2009	10/6/2009	Toxicity	Bioaccumulation
Chlorinated Biphenyl Congeners PCB 1	2-MoCB	μg/Kg	0.0211 U	0.0240 U	0.0234 U		
PCB 2	3-MoCB	μg/Kg	0.0211 U	0.0240 U	0.0234 U		
PCB 3	4-MoCB	μg/Kg	0.0211 U	0.0240 U	0.0245		-
PCB 4	2,2'-DiCB	μg/Kg	0.154	0.0815	0.0556		
PCB 5 PCB 6	2,3-DiCB	μg/Kg	0.0211 U 0.0867	0.0240 U 0.0330	0.0234 U 0.0248		-
PCB 7	2,3'-DiCB 2,4-DiCB	μg/Kg μg/Kg	0.0867 0.0211 U	0.0330 0.0240 U	0.0248 0.0234 U		
PCB 8	2,4'-DiCB	μg/Kg	0.236	0.146	0.112		_
PCB 9	2,5-DiCB	μg/Kg	0.0211 U	0.0240 U	0.0234 U		
PCB 10	2,6-DiCB	μg/Kg	0.0302 U	0.0240 U	0.0234 U		-
PCB 11 PCB 12/13	3,3'-DiCB 3,4-DiCB + 3,4'-DiCB	μg/Kg	0.301 0.130	0.812 0.0480 U	0.723 0.047 U		-
PCB 12/13	3,5-DiCB + 3,4-DiCB	μg/Kg μg/Kg	0.0211 U	0.0480 U	0.047 U		-
PCB 15	4,4'-DiCB	μg/Kg	2.04	0.149	0.120		-
PCB 16	2,2',3-TriCB	μg/Kg	1.65	0.119	0.0790	-	-
PCB 17	2,2',4-TriCB	μg/Kg	1.20	0.139	0.097	-	-
PCB 18/30	2,2',5-TriCB + 2,4,6-TriCB	μg/Kg	2.40	0.274	0.195		-
PCB 19 PCB 20/28	2,2,6-TriCB 2,3,3'-TriCB + 2,4,4'-TriCB	μg/Kg μg/Kg	0.236 8.61	0.0416	0.0301 0.554		-
PCB 21/33	2,3,4-TriCB + 2,4,4-TriCB	μg/Kg μg/Kg	2.44	0.247	0.187		-
PCB 22	2,3,4'-TriCB	μg/Kg	4.24	0.283	0.222		
PCB 23	2,3,5-TriCB	μg/Kg	0.0211 U	0.0240 U	0.0234 U		
PCB 24	2,3,6-TriCB	μg/Kg	0.0211 U	0.0240 U	0.0234 U		
PCB 25 PCB 26/29	2,3',4-TriCB 2,3',5-TriCB + 2,4,5-TriCB	μg/Kg μg/Kg	0.445 1.00	0.0413 0.0857	0.0350 0.0704		-
PCB 20/29	2,3',6-TriCB + 2,4,5-TriCB	μg/Kg	0.257	0.0300	0.0704 0.0234 U		
PCB 31	2,4',5-TriCB	μg/Kg	5.13	0.458	0.382		
PCB 32	2,4',6-TriCB	μg/Kg	1.17	0.118	0.0956		-
PCB 34	2',3,5-TriCB	μg/Kg	0.0217	0.0240 U	0.0234 U		
PCB 35 PCB 36	3,3',4-TriCB	μg/Kg	0.393 0.0901	0.0291 0.0240 U	0.0234 U 0.0234 U		-
PCB 37	3,3',5-TriCB 3,4,4'-TriCB	μg/Kg μg/Kg	7.48	0.273	0.0234 0		
PCB 38	3,4,5-TriCB	μg/Kg	0.0302	0.0240 U	0.0234 U		
PCB 39	3,4',5-TriCB	μg/Kg	0.0532 EMPC	0.0240 U	0.0234 U		-
PCB 40/41/71	2,2',3,3'-TeCB + 2,2',3,4-TeCB + 2,3',4',6-TeCB	μg/Kg	11.0	0.515	0.450		-
PCB 42 PCB 43	2,2',3,4'-TeCB 2,2',3,5-TeCB	μg/Kg	4.33 0.292	0.225	0.207		-
PCB 43/73	2,2',3,5-TeCB 2,2',3,5-TeCB + 2,3',5',6-TeCB	μg/Kg μg/Kg	0.292 NA	0.0480 U	0.0468 U		-
PCB 44/47/65	2,2',3,5'-TeCB + 2,2',4,4'-TeCB + 2,3,5,6-TeCB	μg/Kg	12.8	0.992	0.894		-
PCB 45/51	2,2',3,6-TeCB + 2,2',4,6'-TeCB	μg/Kg	1.94	0.143	0.115	-	-
PCB 46	2,2',3,6'-TeCB	μg/Kg	0.747	0.0541	0.0468 U		-
PCB 48 PCB 49/69	2,2',4,5'-TeCB 2,2',4,5'-TeCB + 2,3',4,6-TeCB	μg/Kg	2.60 6.81	0.146	0.121 0.500		
PCB 50/53	2,2',4,6-TeCB + 2,3',4,6-TeCB 2,2',4,6-TeCB + 2,2',5,6'-TeCB	μg/Kg μg/Kg	1.22	0.110	0.0974		
PCB 52	2,2',5,5'-TeCB	μg/Kg	12.4	1.57	1.52		-
PCB 54	2,2',6,6'-TeCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U		
PCB 55	2,3,3',4-TeCB	μg/Kg	0.335	0.0480 U	0.0468 U		-
PCB 56	2,3,3',4'-TeCB	μg/Kg	11.4	0.369	0.335		
PCB 57 PCB 58	2,3,3',5-TeCB 2,3,3',5'-TeCB	μg/Kg μg/Kg	0.183 0.128	0.0480 U 0.0480 U	0.0468 U 0.0468 U		
PCB 59/62/75	2,3,3',6-TeCB + 2,3,4,6-TeCB + 2,4,4',6-TeCB	μg/Kg	1.37	0.144 U	0.140 U		
PCB 60	2,3,4,4'-TeCB	μg/Kg	5.24	0.191	0.175		-
PCB 61/70/74/76	2,3,4,5-TeCB + 2,3',4',5-TeCB + 2,4,4',5-TeCB + 2',3,4,5-TeCB	μg/Kg	30.4	1.53	1.50		-
PCB 63	2,3,4',5-TeCB	μg/Kg	0.525	0.0480 U	0.0468 U		-
PCB 64 PCB 66	2,3,4,6-TeCB 2,3',4,4'-TeCB	μg/Kg μg/Kg	6.76 17.8	0.410 0.727	0.374 0.700		-
PCB 67	2,3,4,5-TeCB	μg/Kg μg/Kg	0.491	0.727 0.0480 U	0.0468 U		-
PCB 68	2,3',4,5'-TeCB	μg/Kg	0.0425	0.0480 U	0.0468 U	-	-
PCB 72	2,3',5,5'-TeCB	μg/Kg	0.0660	0.0480 U	0.0468 U		
PCB 73	2,3',5',6-TeCB	μg/Kg	0.0422 U	NA 0.170	NA 0.141		- 0.052
PCB 77 PCB 78	3,3',4,4'-TeCB	μg/Kg	4.89 0.128	0.170 0.0480 U	0.141 0.0468 U		0.052
PCB 78	3,3',4,5-TeCB 3,3',4,5'-TeCB	μg/Kg μg/Kg	0.128	0.0480 U	0.0468 U		-
PCB 80	3,3',5,5'-TeCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U		-
PCB 81	3,4,4',5-TeCB	μg/Kg	0.237 EMPC	0.0480 U	0.0468 U		0.017
PCB 82	2,2',3,3',4-PeCB	μg/Kg	6.09	0.546	0.495		-
PCB 83	2,2',3,3',5-PeCB 2,2',3,3',5-PeCB	μg/Kg	3.51 7.22	0.247	0.279		-
PCB 84 PCB 85/116/117	2,2',3,3',6-PeCB 2,2',3,4,4'-PeCB + 2,3,4,5,6-PeCB + 2,3,4',5,6-PeCB	μg/Kg μg/Kg	12.9	1.23 0.697	1.15 0.640		-
	2,2',3,4,5-PeCB + 2,2',3,4,5'-PeCB + 2,2',3',4,5-PeCB + 2,3,3',4,5'-PeCB						
PCB 86/87/97/108/119/125	+ 2,3',4,4',6-PeCB + 2',3,4,5,6'-PeCB	μg/Kg	29.7	3.02	2.95		-
PCB 88/91	2,2',3,4,6-PeCB + 2,2',3,4',6-PeCB	μg/Kg	4.65	0.593	0.581		
PCB 89	2,2',3,4,6'-PeCB	μg/Kg	0.437	0.0480 U	0.0468 U		-
PCB 90/101/113 PCB 92	2,2',3,4',5-PeCB + 2,2',4,5,5'-PeCB + 2,3,3',5',6-PeCB 2,2',3,5,5'-PeCB	μg/Kg	41.4 6.01	4.88 0.847	4.99 0.846		
		μg/Kg					
PCB 93/98/100/102	2,2',3,5,6-PeCB + 2,2',3',4,6-PeCB + 2,2',4,4',6-PeCB + 2,2',4,5,6'-PeCB	μg/Kg	1.01	0.192 U	0.187 U		-
	2,2',3,5,6'-PeCB	μg/Kg	0.125	0.0480 U	0.0468 U	-	-
PCB 94	2,2,55,6 1005						
PCB 95	2,2',3,5',6-PeCB	μg/Kg	24.2	4.34	4.23		
		μg/Kg μg/Kg μg/Kg		4.34 0.0480 U 1.58	4.23 0.0468 U 1.54		-

Table 9
Basin 44 Inline and Surface Solids - PCB Congeners Results

			Surface Sediment (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Unsieved)		
			Near Catch Basin APL246 southeast of Manhole ABC348 FO095407	Manhole AMQ287 FO095977	Manhole AMQ287 Duplicate FO095978	Screen	JSCS ⁽²⁾ ning Level Value
IUPAC Number(1)	Chemical Name	Units	3/26/2009	10/6/2009	10/6/2009	Toxicity	Bioaccumulation
PCB 104	2,2',4,6,6'-PeCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U		
PCB 105 PCB 106	2,3,3',4,4'-PeCB 2,3,3',4,5-PeCB	μg/Kg μg/Kg	21.0 0.0422 U	1.45 0.0480 U	1.34 0.0468 U		0.17
PCB 107/124	2,3,3',4',5-PeCB + 2',3,4,5,5'-PeCB	μg/Kg	2.26	0.166	0.142		_
PCB 109	2,3,3',4,6-PeCB	μg/Kg	2.66	0.249	0.228		-
PCB 110/115	2,3,3',4',6-PeCB + 2,3,4,4',6-PeCB	μg/Kg	58.2	6.13	5.76		-
PCB 111 PCB 112	2,3,3',5,5'-PeCB 2,3,3',5,6-PeCB	μg/Kg μg/Kg	0.0422 U 0.0422 U	0.0480 U 0.0480 U	0.0468 U 0.0468 U		
PCB 114	2,3,4,4',5-PeCB	μg/Kg μg/Kg	0.927	0.0480 0	0.0557		0.17
PCB 118	2,3',4,4',5-PeCB	μg/Kg	40.4	3.82	3.21	-	0.12
PCB 120	2,3',4,5,5'-PeCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U		-
PCB 121 PCB 122	2,3',4,5',6-PeCB 2',3,3',4,5-PeCB	μg/Kg μg/Kg	0.0422 U 0.810	0.0480 U 0.0631	0.0468 U 0.0490		
PCB 123	2',3,4,4',5-PeCB	μg/Kg μg/Kg	0.737	0.0553	0.0458 U		0.21
PCB 126	3,3',4,4',5-PeCB	μg/Kg	1.33	0.0480 U	0.0468 U		0.00005
PCB 127	3,3',4,5,5'-PeCB	μg/Kg	0.268	0.0480 U	0.0468 U	-	-
PCB 128/166 PCB 129/138/163	2,2',3,3',4,4'-HxCB + 2,3,4,4',5,6-HxCB 2,2',3,3',4,5-HxCB + 2,2',3,4,4',5'-HxCB + 2,3,3',4',5,6-HxCB	μg/Kg	15.0 107	1.35	1.24		
PCB 129/138/163 PCB 130	2,2',3,3',4,5'-HxCB 2,2',3,3',4,5'-HxCB	μg/Kg μg/Kg	5.78	0.534	0.486		-
PCB 131	2,2',3,3',4,6-HxCB	μg/Kg μg/Kg	0.901	0.114	0.114		_
PCB 132	2,2',3,3',4,6'-HxCB	μg/Kg	32.5	3.70	3.41	-	
PCB 133	2,2',3,3',5,5'-HxCB	μg/Kg	1.03	0.121	0.124		
PCB 134/143 PCB 135/151	2,2',3,3',5,6-HxCB + 2,2',3,4,5,6'-HxCB 2,2',3,3',5,6'-HxCB + 2,2',3,5,5',6-HxCB	μg/Kg μg/Kg	3.60 31.5	0.429 6.06	0.438 6.31		
PCB 135/151	2,2,3,3,5,6-HxCB 2,2',3,3',6,6'-HxCB	μg/Kg μg/Kg	10.4	1.72	1.77		
PCB 137	2,2',3,4,4',5-HxCB	μg/Kg	4.12	0.288	0.361		-
PCB 139/140	2,2',3,4,4',6-HxCB + 2,2',3,4,4',6'-HxCB	μg/Kg	1.14	0.125	0.115		-
PCB 141 PCB 142	2,2',3,4,5,5'-HxCB 2,2',3,4,5,6-HxCB	μg/Kg μg/Kg	17.6 0.0422 U	2.93 0.0480 U	2.75 0.0468 U		
PCB 142	2,2',3,4,5',6-HxCB	μg/Kg μg/Kg	2.98	0.0480 0	0.735		-
PCB 145	2,2',3,4,6,6'-HxCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U		_
PCB 146	2,2',3,4',5,5'-HxCB	μg/Kg	12.7	1.46	1.43		-
PCB 147/149	2,2',3,4',5,6-HxCB + 2,2',3,4',5',6-HxCB	μg/Kg	75.8	11.4	11.2		-
PCB 148 PCB 150	2,2',3,4',5,6'-HxCB 2,2',3,4',6,6'-HxCB	μg/Kg μg/Kg	0.0422 U 0.0735	0.0480 U 0.0480 U	0.0468 U 0.0468 U		-
PCB 152	2,2',3,5,6,6'-HxCB	μg/Kg μg/Kg	0.0733 0.0422 U	0.0480 U	0.0468 U		
PCB 153/168	2,2',4,4',5,5'-HxCB + 2,3',4,4',5',6-HxCB	μg/Kg	88.5	11.7	11.4		-
PCB 154	2,2',4,4',5,6'-HxCB	μg/Kg	0.219	0.0612	0.0652		-
PCB 155 PCB 156/157	2,2',4,4',6,6'-HxCB 2,3,3',4,4',5-HxCB + 2,3,3',4,4',5'-HxCB	μg/Kg	0.0422 U 9.74	0.0480 U 0.921	0.0468 U 0.816		0.21
PCB 158	2,3,3',4,4',6-HxCB 2,3,3',4,4',6-HxCB	μg/Kg μg/Kg	9.39	1.03	0.963		0.21
PCB 159	2,3,3',4,5,5'-HxCB	μg/Kg	0.0956 EMPC	0.302	0.269		-
PCB 160	2,3,3',4,5,6-HxCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U	-	
PCB 161	2,3,3',4,5',6-HxCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U		-
PCB 162 PCB 164	2,3,3',4',5,5'-HxCB 2,3,3',4',5',6-HxCB	μg/Kg μg/Kg	0.695 6.07	0.192 0.816	0.175 0.711		
PCB 165	2,3,3',5,5',6-HxCB	μg/Kg	0.0422 U	0.0480 U	0.0536		
PCB 167	2,3',4,4',5,5'-HxCB	μg/Kg	3.15	0.361	0.312		0.21
PCB 169	3,3',4,4',5,5'-HxCB	μg/Kg	0.238 EMPC	0.0480 U	0.0468 U		0.00021
PCB 170 PCB 171/173	2,2',3,3',4,4',5-HpCB 2,2',3,3',4,4',6-HpCB + 2,2',3,3',4,5,6-HpCB	μg/Kg μg/Kg	25.7 7.75	4.96 1.47	4.41		
PCB 172	2,2',3,3',4,5,5'-HpCB	μg/Kg	4.34	1.02	0.951		
PCB 174	2,2',3,3',4,5,6'-HpCB	μg/Kg	31.8	8.25	7.78		-
PCB 175	2,2',3,3',4,5',6-HpCB	μg/Kg	1.17	0.301	0.296	-	-
PCB 176 PCB 177	2,2',3,3',4,6,6'-HpCB 2,2',3,3',4',5,6-HpCB	μg/Kg μg/Kg	3.62 16.9	0.984 3.89	0.968 3.59		<u> </u>
PCB 178	2,2',3,3',5,5',6-HpCB	μg/Kg μg/Kg	5.71	1.71	1.70		
PCB 179	2,2',3,3',5,6,6'-HpCB	μg/Kg	12.2	3.89	3.87	-	
PCB 180/193	2,2',3,4,4',5,5'-HpCB + 2,3,3',4',5,5',6-HpCB	μg/Kg	63.2	16.3	15.1		-
PCB 181 PCB 182	2,2',3,4,4',5,6-HpCB 2,2',3,4,4',5,6'-HpCB	µg/Kg µg/Kg	0.333 0.0422 U	0.0480 U 0.0480 U	0.0468 U 0.0468 U		-
PCB 183/185	2,2',3,4,4',5',6-HpCB + 2,2',3,4,5,5',6-HpCB	μg/Kg	20.6	5.33	4.96		_
PCB 184	2,2',3,4,4',6,6'-HpCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U		-
PCB 186	2,2',3,4,5,6,6'-HpCB	μg/Kg	0.0422 U	0.0480 U	0.0468 U		-
PCB 187 PCB 188	2,2',3,4',5,5',6-HpCB	μg/Kg	36.3 0.0422 U	11.4 0.0480 U	11.3 0.0468 U		
PCB 188	2,2',3,4',5,6,6'-HpCB 2,3,3',4,4',5,5'-HpCB	μg/Kg μg/Kg	0.0422 U	0.0480 U 0.156	0.133		-
PCB 190	2,3,3',4,4',5,6-HpCB	μg/Kg	4.43	1.17	1.07	-	1.2
PCB 191	2,3,3',4,4',5',6-HpCB	μg/Kg	0.984	0.203	0.183	-	-
PCB 192 PCB 194	2,3,3',4,5,5',6-HpCB 2,2',3,3',4,4',5,5'-OcCB	μg/Kg μg/Kg	0.0422 U 9.16	0.0480 U 5.70	0.0468 U 5.48		
PCB 194 PCB 195	2,2',3,3',4,4',5,6-OcCB 2,2',3,3',4,4',5,6-OcCB	μg/Kg μg/Kg	4.06	2.14	2.01		
PCB 196	2,2',3,3',4,4',5,6'-OcCB	μg/Kg	6.50	3.10	3.09		
PCB 197/200	2,2',3,3',4,4',6,6'-OcCB + 2,2',3,3',4,5,6,6'-OcCB	μg/Kg	2.18	1.20	1.17		
PCB 198/199	2,2',3,3',4,5,5',6-OcCB + 2,2',3,3',4,5,5',6'-OcCB	μg/Kg	14.0	8.20	8.08		
PCB 201 PCB 202	2,2',3,3',4,5',6,6'-OcCB 2,2',3,3',5,5',6,6'-OcCB	μg/Kg μg/Kg	1.82	0.960	0.929		
PCB 202	2,2',3,4,4',5,5',6-OcCB	μg/Kg μg/Kg	7.64	4.57	4.52		-
PCB 204	2,2',3,4,4',5,6,6'-OcCB	μg/Kg	0.0633 U	0.0719 U	0.0702 U		-
PCB 205	2,3,3',4,4',5,5',6-OcCB	μg/Kg	0.531	0.272	0.264		-
PCB 206 PCB 207	2,2',3,3',4,4',5,5',6-NoCB	μg/Kg	2.43 0.362	2.30 0.313	2.30 0.327		-
PCB 207	2,2',3,3',4,4',5,6,6'-NoCB 2,2',3,3',4,5,5',6,6'-NoCB	μg/Kg μg/Kg	0.362	0.313	0.327		-
PCB 209	Decachlorobiphenyl	μg/Kg	0.221	0.129	0.123		

Table 9
Basin 44 Inline and Surface Solids - PCB Congeners Results

			Surface Sediment (Unsieved)	Inline Solids (Unsieved)	Inline Solids (Unsieved)		
			Near Catch Basin APL246 southeast of Manhole ABC348 FO095407	Manhole AMQ287 FO095977	Manhole AMQ287 Duplicate FO095978	Screen	JSCS ⁽²⁾ ning Level Value
IUPAC Number ⁽¹⁾	Chemical Name	Units	3/26/2009	10/6/2009	10/6/2009	Toxicity	Bioaccumulation
	Total Monochlorobiphenyls	μg/Kg	ND	ND	0.0245		
	Total Dichlorobiphenyls	μg/Kg	2.95	1.22	1.04		-
	Total Trichlorobiphenyls	μg/Kg	36.8	2.82	2.18		-
	Total Tetrachlorobiphenyls	μg/Kg	134	7.68	7.19		-
	Total Pentachlorobiphenyls	μg/Kg	282	30.0	28.5		-
	Total Hexachlorobiphenyls	μg/Kg	440	57.9	56.3		-
	Total Heptachlorobiphenyls	μg/Kg	236	61.0	57.7		-
	Total Octachlorobiphenyls	μg/Kg	47.9	27.7	26.9		-
	Total Nonachlorobiphenyls	μg/Kg	3.25	3.10	3.10		-
	Total Decachlorobiphenyls	μg/Kg	0.221	0.129	0.123		-
	Total PCBs ⁽³⁾	μg/Kg	1180	192	183	676	0.39

Notes:

MoCB = Monochlorobiphenyl
DiCB = Dichlorobiphenyl
TiCB = Trichlorobiphenyl
TiCB = Hexachlorobiphenyl
TiCB = Hexachlorobiphenyl
TiCB = Hexachlorobiphenyl
NoCB = Octachlorobiphenyl
NoCB = Octachlorobiphenyl
NoCB = Nonachlorobiphenyl
NoCB = Nonachlorobiphenyl
U = The analyte was not detected above the reported sample quantification limit,
TICB = Trichlorobiphenyl
TiCB = Trichlorobiphenyl
NoCB = Nonachlorobiphenyl
NoCB = Nonachlorob

(a) Total homologs and total congener concentrations are calculated by assigning "0" to undetected and EMPC-qualified constituents.

= concentration exceeds JSCS Toxicity Screening Level Value.

bold = concentration exceeds JSCS Bioaccumulation Screening Level Value.

Table 10 Basin 44 Stormwater Data Evaluation Summary

				Add	litional Screening Fa	actors	_	
Analytes with Detection(s) Exceeding JSCS SLVs ⁽¹⁾	Geometric Mean $^{(2)}$ of Concentrations $(\mu g/L)$	JSCS SLV ⁽³⁾ (µg/L)	Geometric Mean > SLV?	DEQ Background ⁽⁴⁾ (μg/L)	Harborwide Source Tracing Category ⁽⁵⁾	NPDES Permit Benchmark ⁽⁶⁾ (µg/L)	Data Indicate Potentially Significant Current Source?	? Rationale
PCB Congeners								
Total PCBs	0.249	0.000064	Yes		3		Yes ⁷	Basin geometric mean concentration falls within the highest source tracing category (BES, 2010d).
Total Metals								
Arsenic	1.85	0.045	Yes	2	1		No	Basin geometric mean concentration is less than the DEQ estimated background concentration.
Cadmium	0.570	0.094	Yes	<1	2		No	Basin geometric mean concentration is less than the DEQ estimated background concentration.
Copper	22.0	2.7	Yes	9	1	100	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Lead	17.9	0.54	Yes	13.3	1	400	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Zinc	173	36	Yes	38	1	600	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Pesticides								
4,4'-DDE	0.00190	0.00031	Yes		NA		No	Analyte was detected in only one stormwater sample, and the single detection was a qualified (flagged)
	0.00170	0.00021						result. The basin geometric mean concentration is only slightly greater than 10 times the JSCS SLV.
4,4'-DDD	0.00111	0.00022	Yes		NA		No	Analyte was detected in only one stormwater sample at an estimated concentration, and the basin geometr
T. 1 Cl.1 1	0.0070	0.00001	***		NY 4			mean concentration is less than 10 times the JSCS SLV.
Total Chlordane Heptachlor	0.0070 0.00301	0.00081	Yes Yes		NA NA		No No	Basin geometric mean is less than 10 times the SLV. Analyte was detected in only sample, and was not detected in the last two samples analyzed.
PAHs (EPA 8270-SIM) Benzo(a)anthracene	0.0215	0.018	Yes		1		No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Benzo(a)pyrene	0.0219	0.018	Yes		1		No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Benzo(b)fluoranthene	0.0373	0.018	Yes		1		No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Benzo(k)fluoranthene	0.0232	0.018	Yes		1		No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Chrysene	0.0728	0.018	Yes		2		No	Basin geometric mean concentration is only slightly greater than the upper confidence interval (UCL) for
Fluoranthene	0.133	0.2	No		Note ⁽⁸⁾		No	lowest source tracing category (0.07 µg/L; BES, 2010d). Basin geometric mean concentration is less than the JSCS SLV.
Indeno(1,2,3-cd)pyrene	0.0203	0.2	Yes		Note		No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Naphthalene	0.0203	0.018	No		Note ⁽⁸⁾		No	Basin geometric mean concentration is less than the JSCS SLV.
Phenanthrene			No				No	·
	0.119	0.2	NA NA		Note ⁽⁸⁾			Basin geometric mean concentration is less than the JSCS SLV.
Total PAHs	0.733		INA		1		No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010d).
Phthalates (EPA 8270-SIM) Bis(2-ethylhexyl)phthalate	1.67	2.2	No		Note ⁽⁸⁾		No	Basin geometric mean concentration is less than the JSCS SLV.
	1.07	2.2	110		note		110	Busin geometre mean concentration is less than the 1900 9L v.
SVOCs (EPA 8270C) 2-Methylnaphthalene	0.192	0.2	No		NA		No	Basin geometric mean concentration is less than the JSCS SLV.
	1.11	0.56	Yes		NA		No	Analyte was detected in only two stormwater samples, and only one detection exceeded (slightly) the JSC
Pentachlorophenol								

NA: Harborwide source tracing categories were not developed for this constituent.

⁽¹⁾ Stormwater analytes for which at least one detected concentration exceeded the corresponding JSCS SLV in the samples collected from manhole ABC352. See Tables 3 and 4.

⁽²⁾ Geometric mean values were calculated using the following conventions: (1) averaging the concentrations for primary and duplicate samples to calculate a single concentration (for each analyte) for the event prior to calculating the overall geometric mean concentration; and (2) setting the value for concentrations reported as below the laboratory method reporting (MRL) limit to 1/2 the value of the laboratory MRL; 1/2 the value of the highest MRL is used in the case of non-detect results for summed analytes (e.g., total PCBs).

⁽³⁾ Joint Source Control Strategy (JSCS) Screening Level Value (SLV) (DEQ/EPA 2005, as updated in July 2007).

⁽⁴⁾ Oregon Department of Environmental Quality (DEQ, 2002). Default background concentrations for metals. Internal DEQ memorandum, to DEQ Cleanup Project Managers, from: Toxicology Workgroup. Dated October 28, 2002.

⁽⁵⁾ Based on data from City and non-City outfalls discharging to the Portland Harbor. Category 1 corresponds to lower concentrations, See City Stormwater Data Evaluation Report (BES, 2010d) for detailed description of source tracing category significance and development.

 $^{^{(6)}}$ NPDES = National Pollution Discharge Elimination System

⁽⁷⁾ Sources have been identified as part of the Phase 2 effort.

⁽⁸⁾ No additional screening warranted (geometric mean concentration is less than JSCS SLV).

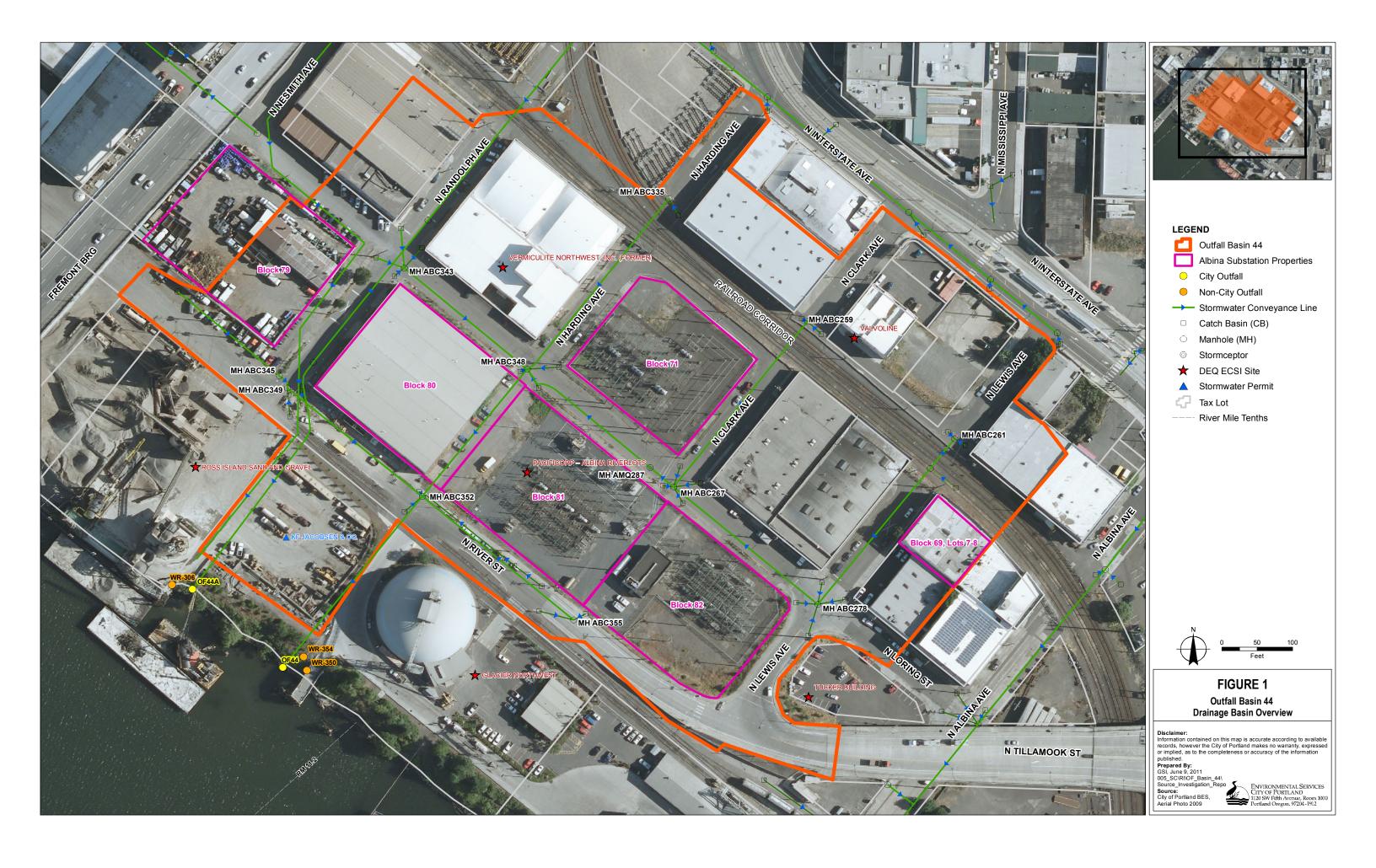
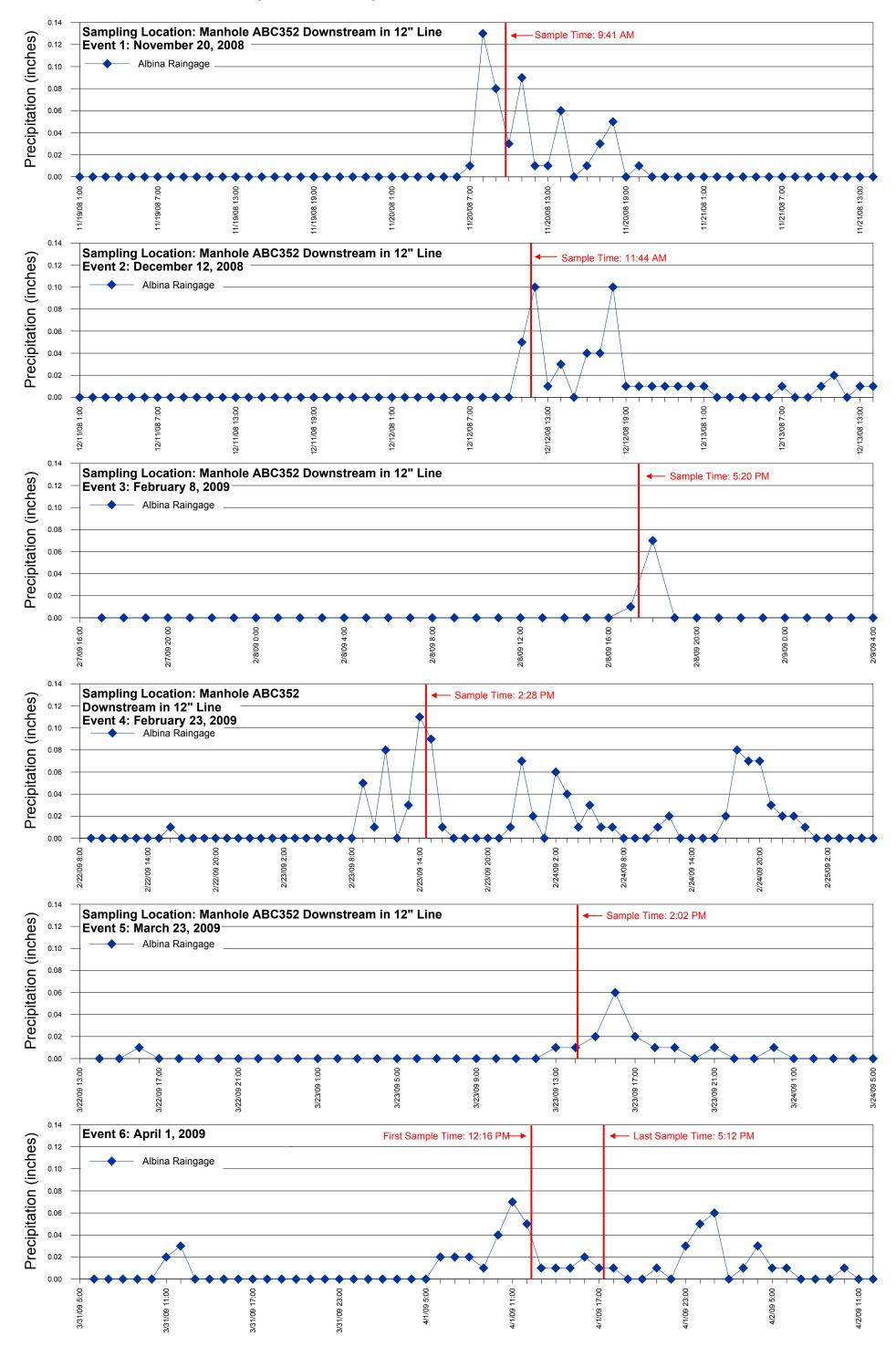
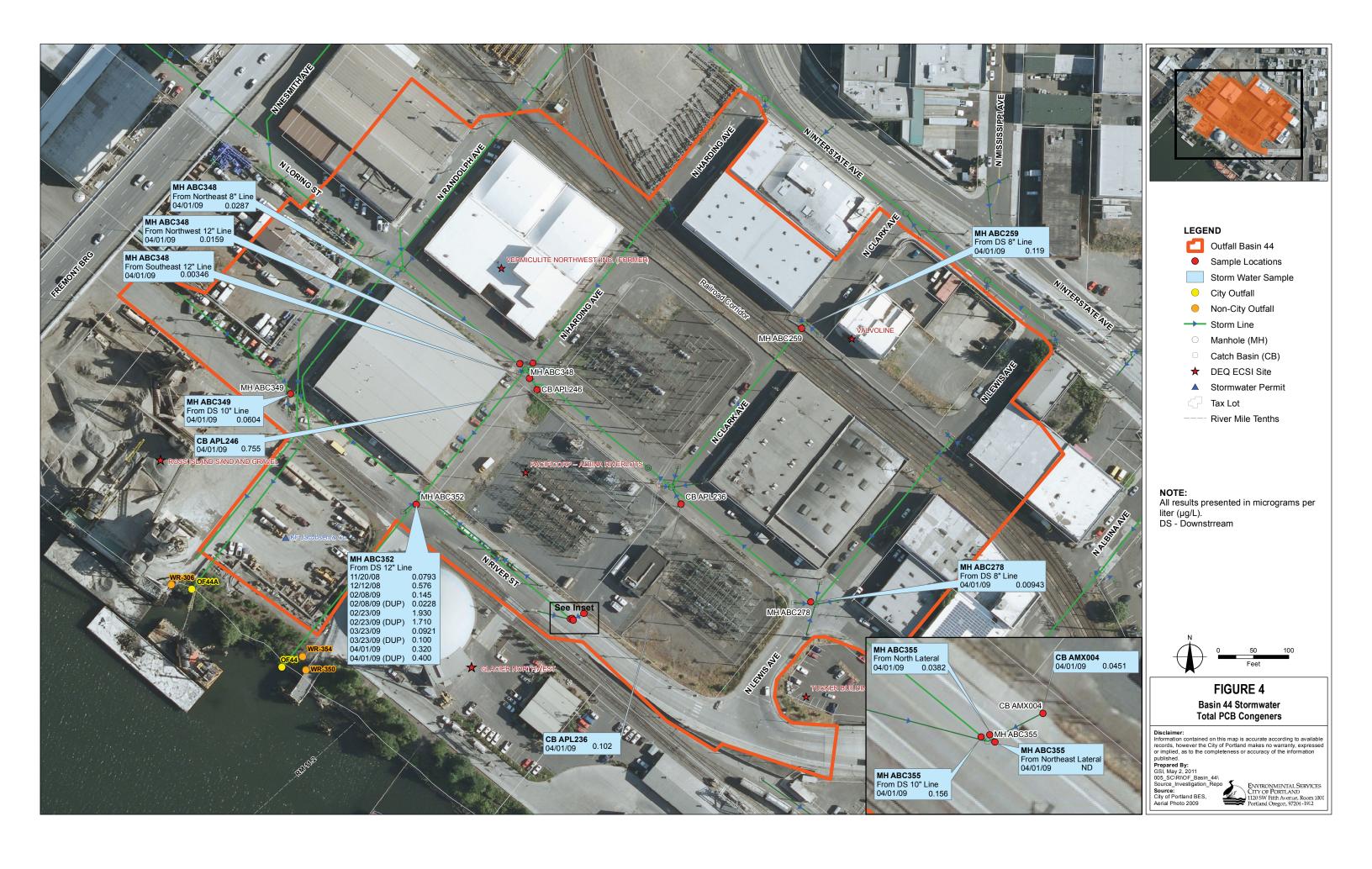
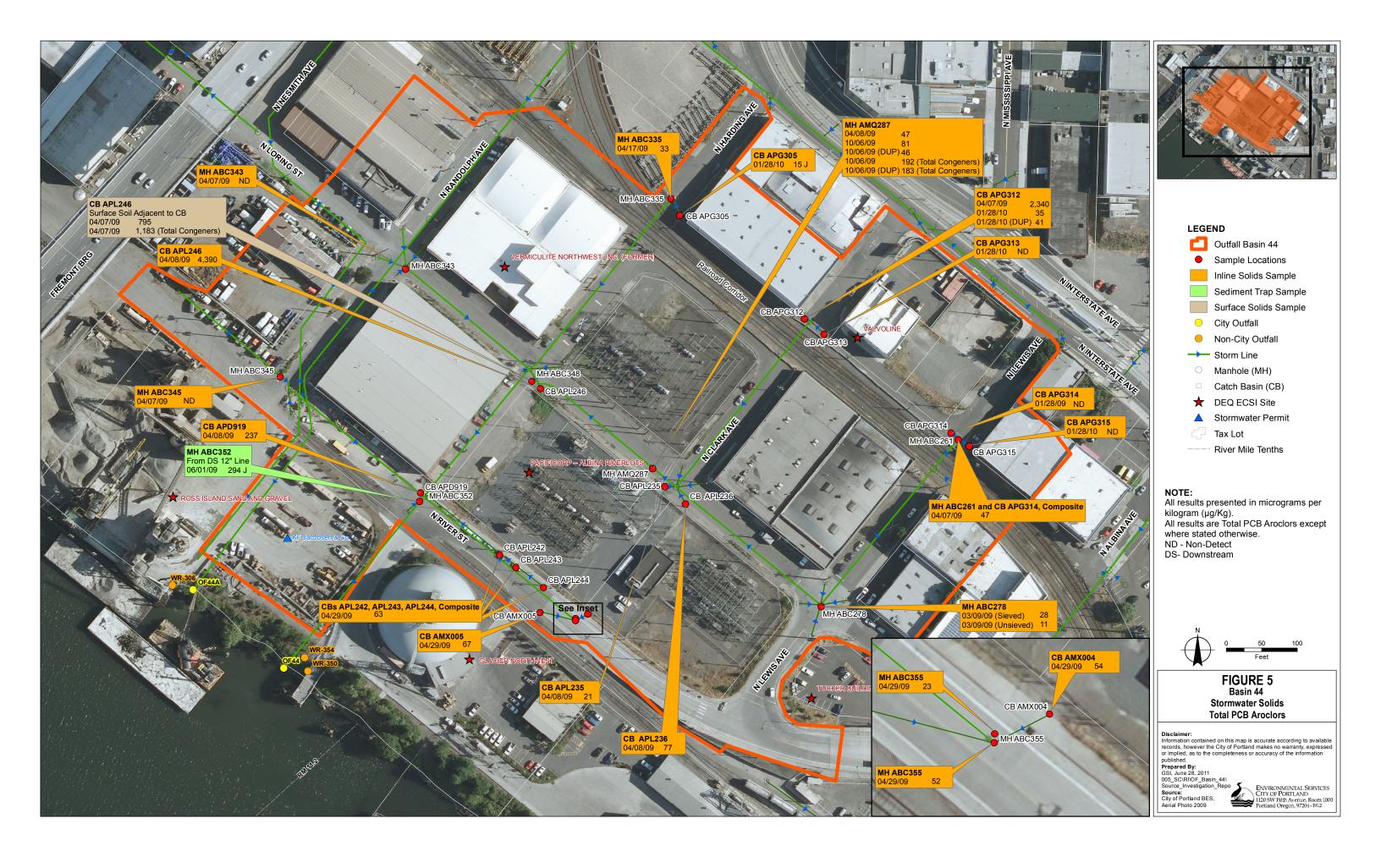


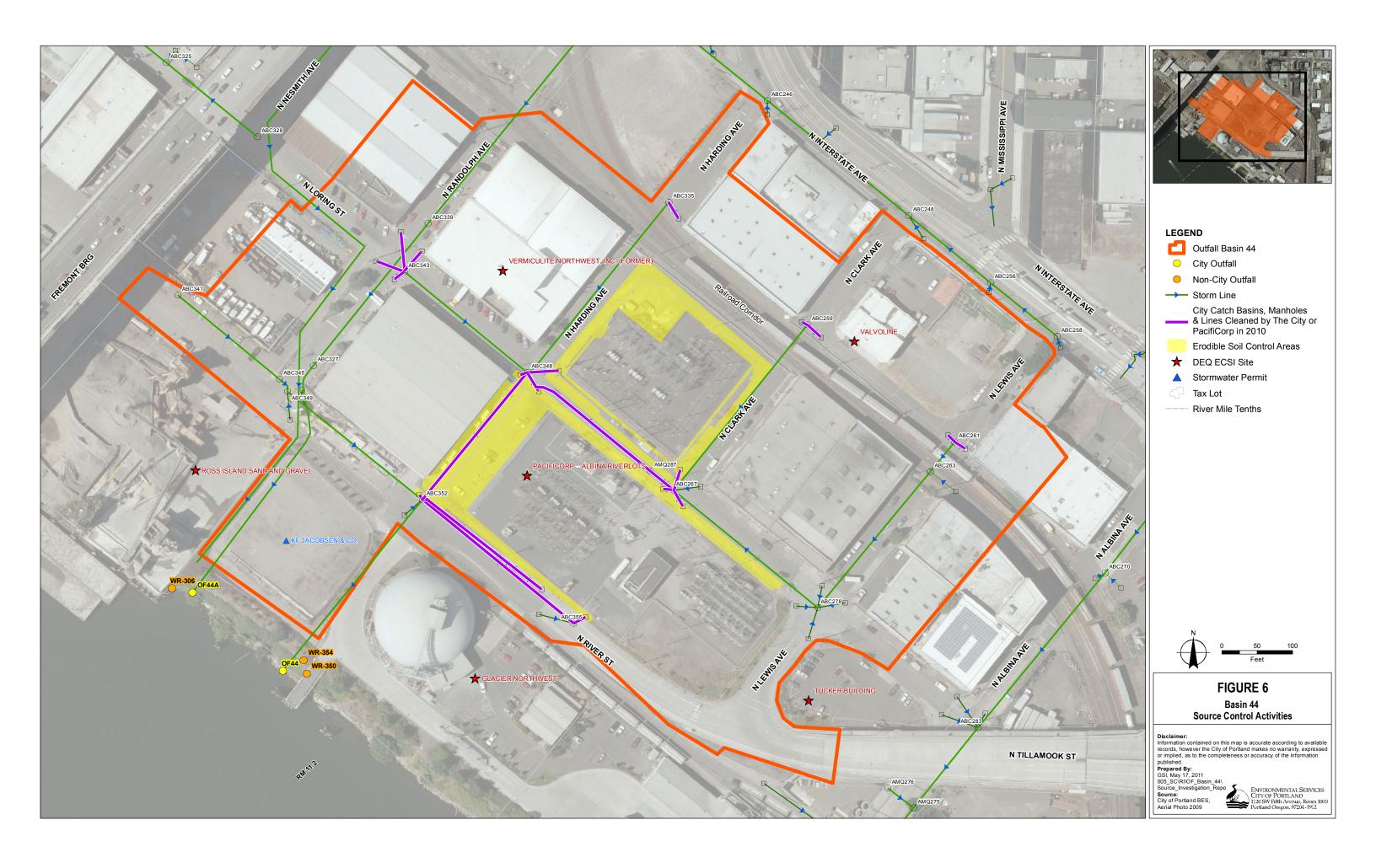


Figure 3Outfall 44
Storm Event Precipitation Graphs











Phase 1 2008-2009 Stormwater Sampling



Photo 1 (November 20, 2008). Manhole ABC352 (sample location 44_SW1), in N. River Avenue, adjacent to PacifiCorp Albina Substation; basin screening sampling location.



Photo 2 (February 23, 2009). Stormwater flowing through Manhole ABC352 during sampling event.

Event 6 Expanded Stormwater Sampling



Photo 3 (April 1, 2009). Event 6 sampling at Manhole ABC352 (44_SW1), near curb adjacent to PacifiCorp Albina Substation driveway in N. River Street.



Photo 4 (April 1, 2009). Sample collected in the outgoing 10" line at Manhole ABC349 (44_SW2).



Photo 5 (April 1, 2009). Sampling flow from lateral entering Manhole ABC355 from the north (44_SW3).



Photo 6 (April 1, 2009). View inside Manhole ABC 348 showing stormwater samples (bottles in bucket) collected from laterals entering from the northwest (44_SW4), southeast (44_SW5), and northeast (44_SW6), and the connecting lateral from catch basin APL246 (44_SW10; see Photo 12).



Photo 7 (April 1, 2009). Manhole ABC259; sample was collected from 8" line exiting manhole (44_SW7).



Photo 8 (April 1, 2009). Catch basin APG312, northwest of Manhole ABC259 (44_SW7) at time of sample collection from manhole.



Photo 9 (April 1, 2009). Catch basin APG313, southeast of Manhole ABC259 (44_SW7) at time of sample collection from manhole.



Photo 10 (April 1, 2009). View inside Manhole ABC278; stormwater sample was collected from 8" line exiting manhole (44_SW8).



Photo 11 (April 1, 2009). Catch Basin APL236, (44_SW9) southeast of Manhole ABC267 and adjacent to PacifiCorp Albina Substation. Note water adjacent to substation fence flowing into catch basin.



Photo 12 (April 1, 2009). Catch Basin APL246 (44_SW10), southeast of Manhole ABC348. Runoff from the Albina Substation (Block 81) access drive is apparent in the right portion of the photo.



Photo 13 (April 1, 2009). View from Manhole ABC348 into lateral from Catch Basin APL246 (44_SW10); note collapsed pipe section with accumulated sediment.



Photo 14 (April 1, 2009). Catch Basin AMX004 (44_SW11) northeast of Manhole ABC355.



Photo 15 (April 1, 2009). View from Manhole ABC355 upstream into lateral entering from the northeast (44_SW12).



Photo 16 (April 1, 2009). View from Manhole ABC355 upstream into lateral entering from the north (44_SW13).

Phase 1 Sediment Trap Deployment



Photo 17 (November 17, 2008). Deployed sediment trap at sampling location ST1 (Manhole ABC352)

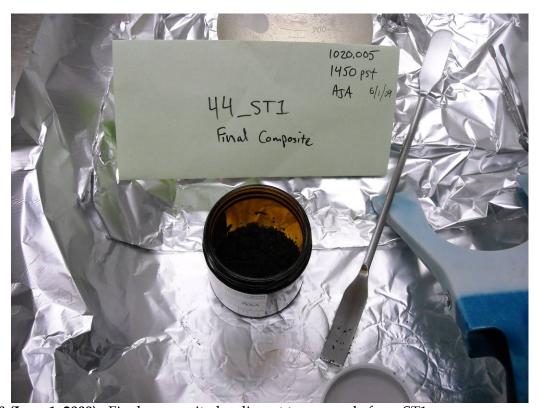


Photo 18 (June 1, 2009). Final composited sediment trap sample from ST1

Phase 2 Source Investigations

March 2009 Pilot Event



Photo 19 (March 9, 2009). Compositing of sample from Manhole ABC278 (in N. Loring Street)



Photo 20 (March 9, 2009). Discarded coarse fraction from sieved sample from Manhole ABC278

March 2009 Surface Sediment Sampling near Catch Basin APL246



Photo 21 (March 26, 2009). Surface sediment near Catch Basin APL246 discharging to Manhole ABC348 (N. Loring Street).



Photo 22 (March 26, 2009). Manhole ABC348; Catch Basin APL246 where adjacent surface soil was sampled is visible in the background.

April 2009 Inline Solids Sampling



Photo 23 (April 7, 2009). Sampling setup at Manhole ABC343 (N. Loring Street)



Photo 24 (April 7, 2009). Solids sample location inside Manhole ABC343



Photo 25 (April 7, 2009). Sampling location at Manhole ABC345 (N. River Street).



Photo 26 (April 7, 2009). Manhole ABC345 sampling location. Solids sample was collected from the base of the manhole and extending 18 inches into the inlet pipe.



Photo 27 (April 7, 2009). Sampling location at Manhole ABC335 (N. Harding Avenue).



Photo 28 (April 7, 2009). View of solids sample location inside Manhole ABC335.



Photo 29 (April 7, 2009). Sampling location at Manhole ABC259 (N. Clark Avenue).



Photo 30 (April 7, 2009). Sampling at Catch Basin APG312, northwest of Manhole ABC259.



Photo 31 (April 7, 2009). Sampling location at Manhole ABC261 (N. Lewis Avenue).

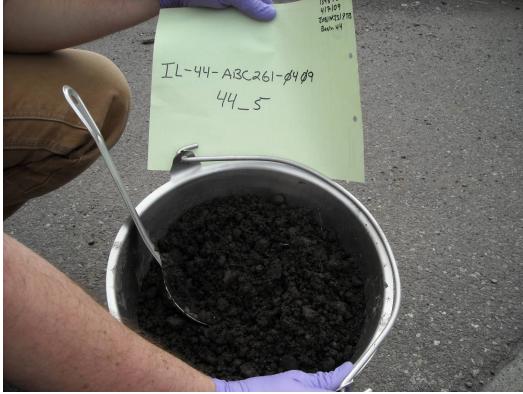


Photo 32 (April 7, 2009). Final sample composited from subsamples collected at Manhole ABC261 and Catch Basin APG314 (northwest of manhole).



Photo 33 (April 8, 2009). Catch Basin APL236, southeast of Manhole ABC267 (N. Loring Street).



Photo 34 (April 8, 2009). Solids sample location inside Catch Basin APL236.



Photo 35 (April 8, 2009). Catch Basin APL235 west of Manhole ABC267 (N. Loring Street).



Photo 36 (April 8, 2009). Sample collected from Catch Basin APL235.



Photo 37 (April 8, 2009). Catch Basin APD919 northwest of Manhole ABC352 (N. River Street).



Photo 38 (April 8, 2009). Material accumulated above filter fabric in Catch Basin APD 919.



Photo 39 (April 8, 2009). Material accumulated (below filter fabric) at inlet pipe into Catch Basin APD919.

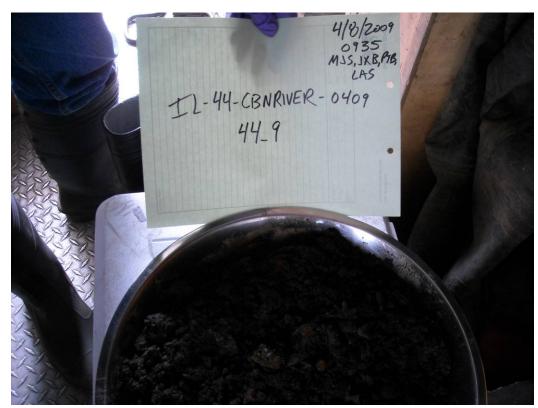


Photo 40 (April 8, 2009). Sample composited from material collected above and below filter fabric in Catch Basin APD919.



Photo 41 (April 8, 2009). Accessing Manhole AMQ287 (sedimentation manhole in N. Loring Street) for sampling.



Photo 42 (April 8, 2009). Sample collected from Manhole AMQ287.



Photo 43 (April 8, 2009). Catch Basin APL246 southeast of Manhole ABC348.



Photo 44 (April 8, 2009). Sediment accumulated at outlet pipe inside Catch Basin APL246.



Photo 45 (April 29, 2009). Sampling setup at Manhole ABC355 (N. River Street).



Photo 46 (April 29, 2009). View of solids sampled from the lateral entering Manhole ABC355 from the north.



Photo 47 (April 29, 2009). Catch Basin AMX004, northeast of Manhole ABC355.



Photo 48 (April 29, 2009). Material sampled from Catch Basin AMX004.



Photo 49 (April 29, 2009). Catch Basin AMX005, southwest of Manhole ABC355.



Photo 50 (April 29, 2009). Material accumulated at opening of inlet pipe inside Catch Basin AMX005.



Photo 51 (April 29, 2009). Catch Basins APL242, APL243, APL244, east-southeast of Manhole ABC352 (N. River Street).



Photo 52 (April 29, 2009). View of composite sample (in bowl) from Catch Basins APL242, APL243 and APL 244.

January 2010 Inline Solids Sampling



Photo 53 (January 28, 2010). Material accumulated on top of filter fabric in Catch Basin APG314 (northwest of Manhole ABC261, N. Lewis Avenue); pictured in place prior to sampling.



Photo 54 (January 28, 2010). Solids inside Catch Basin APG314, sampled and composited with solids from on top of filter fabric (preceding picture).



Photo 55 (January 28, 2010). Catch Basin APG315, southeast of Manhole ABC261 (N. Lewis Avenue).



Photo 56 (January 28, 2010). Homogenized material collected above filter fabric in Catch Basin APG315 (minimal solids were present below filter fabric).



Photo 57 (January 28, 2010). Catch Basin APG313 (under standing water) prior to sampling; catch basin is location southeast of Manhole ABC259, at the upper end of the N. Clark Avenue line.



Photo 58 (January 28, 2010). Submersible pump removing water from Catch Basin APG313.



Photo 59 (January 28, 2010). Solids accumulated on top of filter fabric in Catch Basin APG313.



Photo 60 (January 28, 2010). Solids inside Catch Basin APG313, below filter fabric.



Photo 61 (January 28, 2010). Catch Basin APG305, southeast of Manhole ABC335 (N. Harding Avenue).



Photo 62 (January 28, 2010). Material accumulated inside Catch Basin APG305, below filter fabric.

April 2010 Inline Solids Sampling



Photo 63 (April 28, 2010). Field operations staff accessing manhole ABC343 for sampling. View is to the northwest.



Photo 64 (April 28, 2010). Stormwater solids in incoming stormwater line viewed from inside manhole ABC343.



Photo 65 (April 28, 2010). Plan view of stormwater at bottom of manhole ABC343.



Photo 66 (April 28, 2010). Final homogenized sample from manhole ABC343.

APPENDIX B Field Notes



Stormwater Sampling



Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services



Date: 11/20/08

Page: / of (

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DAILY FIELD REPORT





Page _____ of Project for March Harbor Stormwater Samp Project No. 1020 005 Location Basins 43, 44, 44A Date 1/20/08 Subject 1st sampling event By Reb/PHA 0852: Arrived at 43_SWB to heavy steady rain. Rain began this morning at approx 0700. Visible flow of ~ 0.5 fps in manhole. Collected Saugh plus duplicate. Took photos (1) Flore in MH @ prainage area. Off-site p 0905. Arrived @ 43_SW3 to steady moderate rain. Collected sample 0908 ot 0911, Strong Str Sewage odor in MH and samply. Sample had lots of solids, was turbed and brown in color offsite 0925 Armive at 43.5WI to steady vain. Collected sample @ 0930 Sanitary seep evident in MH, but does not appear to be Plowing at the higher volume observed during previous sed trap install 0928 visits. Offsite @ 0935 Brive @ 05 44-SWI to steady, light rain Collected sample 0939 successfully @ 0941. Laterals Flowing into MH, deflecting off PVE and spraying sed trap in pipe. No sewage odor in sample. Low turbidity, no odor, but very slight sheen present in sample prive @ 44A_SWI. To very light rain. Sample collected 0953 success Bully. Field decon blank collected here as well at 1006. OFF sik to WPLL to relonguish samples.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR STORMWATER SAMP



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Bureau of Environmental Services

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1035 - rain has intensified from steady rain - will go out to sit	very light to moderate
steady rain - will go out to sit	es at this point.
1112 - on site @ 44A-SWI to W	ery heavy consistant
rain and heavy runoff. Flow in	pipe is flavior very
tost and is extremely turned	Collected sample and
tain and heavy runoff. Flow in fost and is extremely turbid. duplicate from 1180-1132. Took and of street near manhole.	protos of Plan in BARC.
and of street man manhole.	
1138 - on sitep 44_5W/_ li	ant but steady vern
conditions entering catch has in a	I hear flow in live
good flow entering catch basin as Collected sample 1144 -1149	
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1155 on site Q 43_SW1. lig still entering catch basins. Son sample is moderately tuck d.	ht rain but runoff
still enterms catch basing san	Med 1157-1205
sample is moderately tucked.	
1205 Rain has stopped	
1276 Rain has stopped, 1276 Rain has storted up again o	and is currently quite
irant	
1255 Rain intensifine	
1306 - on site 0 43 5W4 to m	oderate steady Nara
and good suraff entering estable	rasma, Sample is moderately
441610	
1321 - on siteR 43 SWI to stead	y ran 4-flow, sample.
is the maderately turbed.	
1330 -ONSILED 43 SW3 to	neavy Plan
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DAILY FIELD REPORT





Page $\underline{\mathcal{J}}$ of $\underline{\lambda}$

Project <u>Portland Harbor Stormunter</u> Location Subject <u>Event</u>	Project No. 1 (127) 005 Date 12/12/08 By MJ5, JX3
1344 Collected Field Decon Blank immediately after collecting sample clean heaker. (Did not collect First	b/c we were
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Attachments	

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR STORMWATER SAMP



City of Portland Chain-of-Custody reau of Environmental Services



Date: 3/8/09

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DAILY FIELD REPORT





Page _____ of ____ Project Partland Harbon Stormwater Samp Date 2/8/09 Location __ Subject _ Event 3 By 151, 5 x B Forecast calls for 0.25 to 0.3", although it appears that system has been weakening if it looks like we frage good storm flow me will sample. light spain beginning, 1640 row intenst will head out to stes 714 - orsite at 44-5W1 to heary voin very good, highly turked sunoff in Sampled at 1720 sample was grayish and extremely turbid Collected duplicate for and PUBS of this site on site @ H3-5WI to continued steed Min-1731 collected amount which was was the for colon and quite turpido Good storm flow in the manhole and in curb entering catch basins. te @ 43-5w3 to continued here: 5 same Flow Coming down the pipe, but does no appear to be flowing from entire bosin yet. Wil turn to this site later into the stoom once entire busing flow reallies this sit 1748 - on site @ 43_5WA to war fred flow in the manhole. Sample is slightly tulbed 1802 - on site @ 441_SWI. Rain has stopped but there is Attachments still extremely heavy flow in line. Flowing slightly furbid

DAILY FIELD REPORT





Page 2 of 3

project Portland Hoch of Strong to a Sunt projecture 1000 1005
Project Portland Horbos Stormwater Jung Project No. 1020.005
Location Date $\frac{2/8/09}{6}$
Location Date 3/6/09 Subject 6/4/3 By M55,3/B
1818 on site @ 43_5w4. Rain has stopped but there
is still flow entering catch busins, and storm flow
in the manhole. Sample has very land turbulity
1835 moite @ 43.5w3 again. Will collect FDB of
this site prior to sampling. There is still not very
much flow in the line, actually even less then when
we were on site earlier, and the pipe from the lateral
has dree decreased dramatically but is still is thomas
Slightly. Sample does appear turbed which may be indicative
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Because of law and gentlessin conjunt of flow samples were collected in the fooled irregularities of pthe pipe Floor. This is not the best stormaster sample.
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** * * 2/9/09 Consulted with LAS and will submit only 44-SWI (and associated duplicate) for analysis. Will discard all other samples
44-SW! (and associated duplicate) for analysis. Will discard
<u>alloother Samples was a linear to be a linear to b</u>
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Attachments

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR STORMWATER SAMP



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Requested Analyses

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Page _____ of Project Portland Harbon Stormwater Sand Project No. 1020.005 Location bistus 43, 44, and 44A Date 2/23/04 Subject <u>Event</u> 8 By MJS, JXB 1337 - very heavy rain folling throughout the region - will go to Albina and determine if there is sufficient rain thin off to sample 43_5W4 - on site at 1354 to heavy nam + good sun oft Sample is very turbed and has a pronounced sheen. 43- Swa - on - site at 1406 to contract vair and flow custading from laterals into markole charles water proled M manihole is visibly flowing samples are extremely to obid. 44_SWI - on site @ 1470 to continued moderate vain and very heavy runoff. collected duplicate for TSS + PCBs. Samples are extremely turbed w/ wishte suspended soil wishle entering cotch hasin 43-5W1- on site @ 1439 to continued rain and heavy run-off Samples are again extremely turbed - word frack traffir. 44A-SWI - on site at 1452 to decreasing rain but still very heavy flow. Samples extremety turbid, Rain intersifying agoin--on site @ 1509 to steady woderate rain, Rain. decreased throughout sampling but flow remembed etranely heavy, odor and visual particles in sample may indicate a CSO event organing. FDB Wavew clear baller at 43.5W) **Attachments**

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services

Date: 3/33/04

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Collected By: <u>MJ5, ゴメら</u>

'Inted Name:	xgnature:	d By: 1.	1 5 ulliv	In Brand Bra		FO095378	FO095377			FO095376	FO095375	FO095374	FO095373	F0095372	FO095371	CL Sample I.D.)			FY 2008			File Number: 1020.005	Project Name: PORTLAND HARBOR STORMWATER SAMP	
Date:	Time:	, , , ,	3/33/09	<u> </u>		DUPLICATE	FIELD DECON BLANK			N LARABEE & RANDOLPH	SW-44-ABC352-MMYY N HARDING & RIVER	SW-43-ABC499-MMYY N KERBY & TILLAMOOK	SW-43-ABC552-MMYY N WHEELER PL & KERBY	SW-43-ABC539-MMYY N KERBY & WHEELER	N ALBINA & RIVER	Location		-	Sample Time recorded in PST	FY 2008-09 Stormwater Grab Chain-of-custody			5	LAND HARBOR ST	
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Project Portland Harbon Starmweter Project No. 1020.005 Date 3/23/04 Location Basin 43, 44, and 44a Subject Even + 5 By MJS, JKS PST Light rain beginning, radar shows significant moisture arriving from the wes on ste at busin 43, No rain yet - Sprinkle rain, s now intensifying and to be lebt hot or site P 43 SW/ Still light but at pac Viginle runoff and good flow in the 44-5WI to continued le tunoff enterine catch and duplicate for TGG & PLB. 44A_SWI. Light Nath at 47 5W3 Light rain contin FOR prior to sampling 1445 Light steady rain continuing. There light but 5 us pendled par Attachments very furbid, Measured extremely high tonductivi (552 US/cm). Sample has anoil snear and a trydiscourse ofor petroleum like ofor

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR STORMWATER SAMP





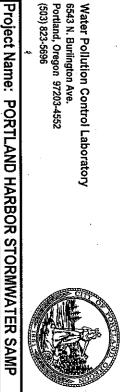
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City of Portland Chain-of-Custody Bureau of Environmental Services

File Number: 1020 005	אַנ	Mot		DAMATT'S				* A E) } } }		
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FO095422	SW-44-ABC349-0409 N RANDOLPH & RIVER	44_SW2	1402		•	•			ا در	E o	7 -
FO095423	SW-44-ABC355-0409 1050 N RIVER ST	44_SW3	1235	S G	•	•			9 0	٠٠	7.6
FO095424	SW-44-ABC348-0409-NW NLORING & HARDING US TO NW	44_SW4	1535	6	•	•			7	_	76
FO095425	SW-44-ABC348-0409-SE N LORING & HARDING US TO SE	44_SW5	1340	(0 G	•	•			2S C	\(\sigma \)	7, X
FO095426	SW-44-ABC348-0409-NE NLORING & HARDING US TO NE	44_SW6	134	o o	•	•			5.0	2/0	7.5
F0095427	SW-44-ABC259-0409 N CLARK AND RR TRACKS	44_SW7	1421	G	•	•			ري ح	Ξ,	7.6
~r 0095428	SW-44-ABC278-0409 N LORING & LEWIS	44_SW8	至	<u>H</u> G	•	•			-	<u>a</u>	00
FO095429	l "'	44_SW9	1312	G G	•	•			0.5	30	,**
FO095430	SW-44-ABC348-CBloS-0409 VLORING & HARDING, CB 7658-274_SW10		1712) G	•	•			-0 O	20	7.7
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Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



Chain-of-Cus Bureau of Environmenta



Date: 4/1/

Collected By: MJS, AJA, PHA WLB, PTB

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S:EID\1000\1020.005 - Portland Harbor Stormwater Samp\Mon&Wo\Attorney-client Priveledged WO's\0F44 Stormwater April 2009\PH Stormwater OF 44 Grab COC (3-31-09) xts



Project Portland Harbor Stormwater	Project No. 1020 005
	Date 4/1/09
Subject Basin 44 Stormwater Sampling	By MIS, PHA, WCR, PTB
1147 PST - Has been raining lightly but	consistently all morning
Rain has intensified over the last few hours	hut remains rather light.
Conversation of Forecasters indicate the	t, contrary to earlier
Forecast, the rainfall will not get sign. [icantly more intense
than what we are currently seeing (wit	h the exception of
possible periods of intense rainfall overning	nt) Because of this
modified forecast and the fact that w	e're currently seeing
good runoff at the lab, we will go	to Basin 44 and
assess runoff conditions there-	
1205 - On site at 44-5Wl to continue	A light rain and
good run-off conditions. There is visit	le flow coming off
of the adjacent Pacific Power lot and	entering the catch
basin to the NE of 44-5wl. Collected	gample From the
downstream end of the channel in the	manhole, immediately
upstream of the sediment trap, at 12	16, sample is very turbid
* collected the duplicate sample at	44-SWI. Split Sample
between the sample and duplicate bottl	e of one analyte at
a time o	
1226 - on-site at manhole ABC 355 F	
44-SWII. The lower 2 laterals from	the NE (44-5W12 and
44-5w13) are discharging into the in	
greater porticularly from 44-5W/3) T	han was Wilnessea
during a recent visit madry day.	
during a recent visit on a dry day. 1230 collected sample from 44-5WII	(lateral From the LB
to the 55 MJs Northeast). There is curr	rently light flow from
Attachments the lateral - sample is mildly	turbid.





	Page 4 of 5
Project Portland Harbor Stormwater	Project No. 1010.005
Location Basin 44	Date 4/1/09
Subject Basin 44 Stormwater Sampling	By MJS, PHA, WCR, PIB
1235 - Collected sample from 44_5W3	(downstream end
of line as it exits the manhole chamber).	. There is several
inches of sediment accumulated roto in t	he bottom of the
main line. Needed to conduct a confin	4
in order to collect sufficient volume	from water Flowing
over the sediment.	
1254 - Onsite at 44-5W8. There so continu	ues to be steady light
rain and abundant run off. Flow is coming	from all laterals
with the exception of the most south-ea	utern line (flowing
parrollel to N Loring St. Collected samp	le From the down-
stream end of the line exiting the n	nanhole. There is
an oily sheen visible on the sample surfa	ace.
보는 하는 사람이 있다. 그리고 하는 사람이 있는 것이 되었다. 그런 사람들은 그 사람들은 사람들은 보고 말했다. 	
1308 - on site at 44-swy. There is no	ow very light-rain, but
There continues to be good flow from	
catch busin. Made CSE to collect sam	ple which was
extremely tuched despite the relatively la	ow flow rate. There
is pooled water adjacent to curb on the and appears that water had left the s the curb upstream of the catch basin p it is not currently flowing off-site w right rains	Partic Power site
and appeals that water had left the s	ite and flowed into
the curb upstream of the catch basin p	reviously, although
it is not currently flowing off-site w	ith the current very
1321 - On site at manhole ABC 348 For si 44-5W6, and 44-5W10. There is only re From 44-5W10, Will hold off on collective	tes 44-5W4, 44-5W5,
44-5W6, and 44-5W10. There is only ve	my minor flow coming
From 44-5W10, Will hold off on collective	g sample from 44-5W10

Attachments in hopes that rain will later intersity and increase flower





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Project Portland Harbor Stormwater	Project No. 1070-005
Location Busin 44	Date 4/1/09
Subject Basin 44 Stormmater Sampling	By MJS, PHA, PTB, WCR
There is significant flow in the other	lines in the manhole,
so will collect those samples.	
1335 - cottented Performed LSE to access	lines in the bottom of
the manhole Collected sample From 44-5W	or the company of th
directly above 44-5W4 is an overflow F	
1340 - collected sample From 44-5W5.	
1344 - collected sample from 44-5W6-5	sample is very turbid.
The perched lateral directly above 44-	swb is an overflow
From the same line.	
1355 - on-site @ 44_SW2, Rainfall int	ensity has decreased to
a light drizzle, but sufficient flow ven	rains to sample. There
is accumulated sediment in the floor o	if the pipe, so will need
to perform a CSE in order to collect &	ample. Moved some
scaliment out of the pipe invest to Fa	cilitate collection
of sample.	
1417 - on -site of 44-SW7 - Rain has i is decent flow entering the adjacent of	ncreased slightly, there
is decent flow entering the adjacent a	eatch basins and
there is sufficient Flow exiting the	
a sample. Performed CSE to collect sa	mple, which has
very low turbidity.	
	하는 사람이 되었다. 그런 사람들은 사람들이 되었다. 그 사람들은 사람들이 보고 있다.
1440 - Rainfall has again diminished	
and hope that rain later resumes.	leave site for now
and hope that rain later resumes.	에는 사이 아름이 있는 것 같아 있어요. 선생들은 사람들은 다음이 사용하 하는 아이들은 사람들은 사람들이 하는 것 같아 있다. 사람들이 있다.
[이 이 집에 하는 것이 하면 하면 없는 것이 되었다. 그리고 있는데 하는데 하는데 하는데 함께 되어 되었다.] 	- 현기 등에 보는 기본 등에 가는 함께 보고 있는데 함께 함께 되었다.
Attachments	교회 : 이미를 사고 있는 것으로 한 살 때문 등살이라요





Page 4 of 5

Project Portland Harbor Stormwater Project No. 1020.005
Location Basin 44
Subject Basin 44 stormwater Sampling By MJS, AJA
1615-back on site at ABC 355 to sample 44-5W12 and 44-5W13
per updated instructions from LAS. Both lines enter the
manhole chamber from the Nort East, with 44-5W12 entering
more From the East and 44-5W13 entering more from the
North- See attached photo for Further clasification. Both lines
are Flowing, but witness at a very low rate.
FHLMSS 1637 - Conducted CSE to collect samples 44_SW13
is Flowing at a low rate, but is very dums turbed despite the
low flow. There is currently significantly more flow than
was witnessed from this pipe during a visit on \$1200 3/30
during a dry period. Appears that several feet up the line
the pipe bends and a originates further to the North East
1640 - Collected sample from 44-SW12. Flow is extremely
low and appears to be the same as during site visit on 3/30
during a dry period. Flow has M very low tuskidity and
appears to have a ground water Source, evidenced by high
conductivity values (293 uspen) and an accumulation of a
precipitate below the end of the pipe
1701 - on-site at 44-5W10. There was abortef period of more
intense (but still quite light) rainfall, will perform CSE in attempt
to assess Flow condition. Appears that there is sufficient
Flow to collect sample
1705 - Collected Field Decon Blank at site 44-SWID using
the same beaker that will be used to sample 44-5W10
1712 - Perform GSE to collect simple from 44-5W10 where
Attachments pipe cascades into the manhole chamber.

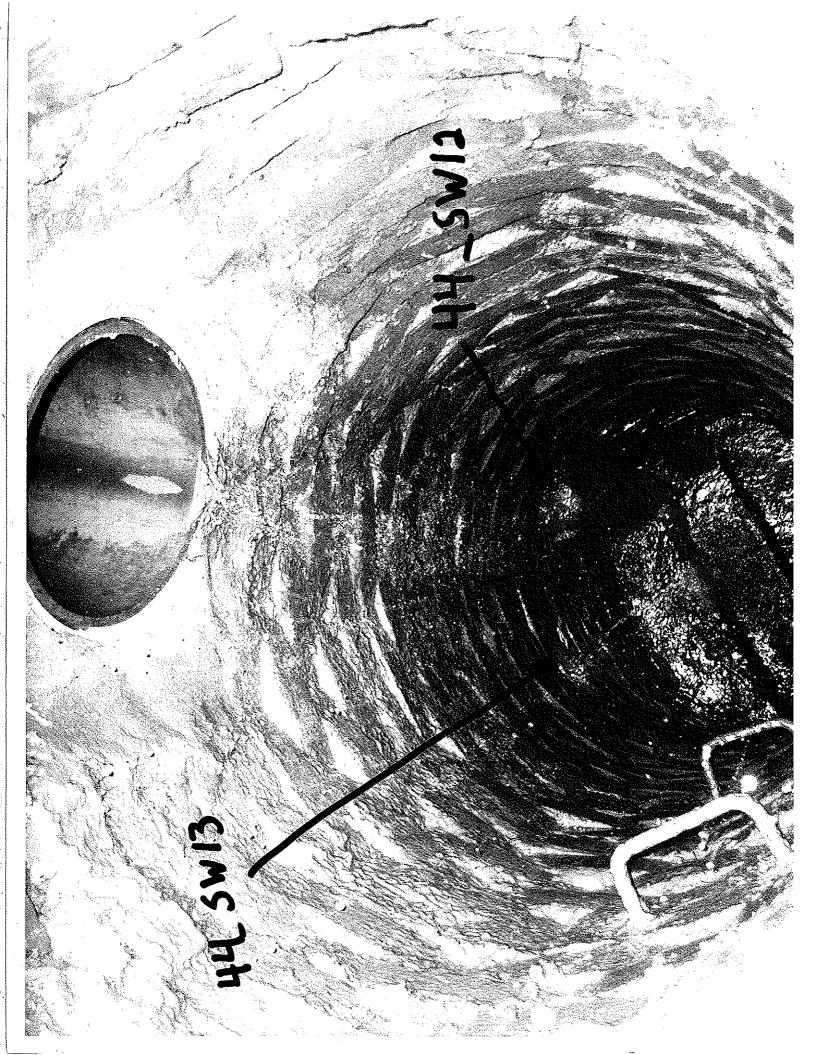
DAILY FIELD REPORT

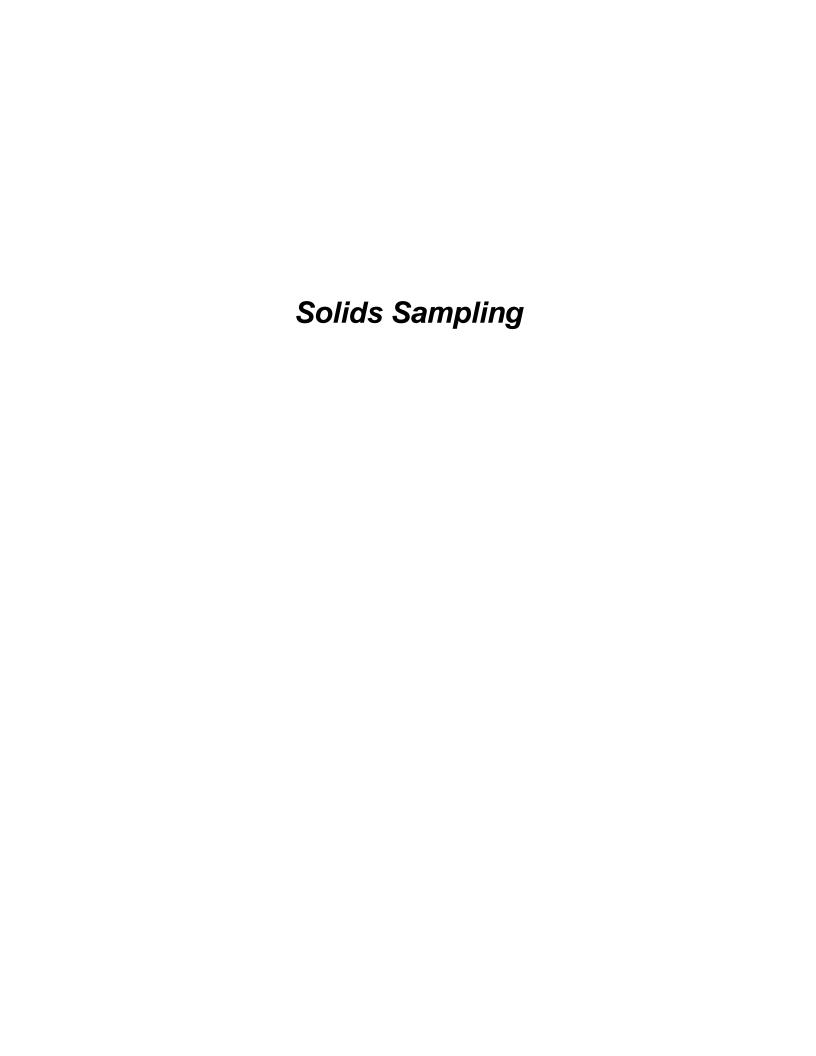




Page <u>5</u> of <u>5</u>

Project Portland Harbor Stormmater Project No. 1020.005
Location Basin 44 Date 4/1/09
Subject Busin 49 Stormmater sampling By MJS, AJA
Sample is extremely turbid; particularly for the relatively low flow rule. There is visible material to apparently from Pacific Power site, that has accumulated adjacent to the source catch basin.
Also, CSE revealed that the pipe between the catch basin and the manhole chamber is partially coldings collapsed and is more than halfmay obstructed by sediment.
and the manhole chamber is partially totals collapsed
and 15 more than holtway Obstructed by sediment.
en la seu esta de la final de la capación de la ca Capación de la capación del capación de la capación del capación de la capa
는 전 시간에 되어 제한 경험 한다. 이 시간 전에 가장하다는 모든 사람들이 하는 사람이 하는 것은 하는 것을 하는 것은 것이다. 그는 것은 것을 하는 것은 것은 것은 것은 것은 것은 것은 것은 것 - 이 제에 되었는 것은 것이다. 이 사람들은 것은 기를 하는 것은 것을 하는
는 사용되는 하는 이 등에 있는 것이 되었다. 그는 사용하는 이 그는 사용하는 그는 사용하는 사용하는 것이 되었다. 그런 사용하는 사용하는 사용하는 사용하는 사용하는 것이 되었다. 그는 사용하는 사용하는 사용하는 사용하는 사용하는 사용하는 사용하는 사용하
Attachments







Solids Sampling: Sediment Trap







Page 1 of 2

	Project Portland Harbor Stormwajer Samp Project No. 1020:005
	Location Various Locations Date 10/1/08
	Subject Basin 43, 44 & 44A Site Recon By JXB/MJS
	All times in PST
	1334- Photos taken of site during recon
Γ	12/16/08 Point Codes for Busin 44 were based on Original work order
トラ	Site 44_573/- Confirmed 10" diameter terra cotta lined pipe entering
	MH chamber from the SE. Terra cotta material has collapsed of
	is deposited in the invert pipe. Debn's extends 11 US from end of pipe
(EOP) to ~4' us of chamber In addition to pipe partially collap-
	sing pipe is too small for existing sed Traps.
	Site 44-ST2 / Confirmed 12" diameter terra corta lined pipe entering
	MH chamber from the NE (main inlet). Pipe material is cracted of
	missing sections. Connot instan sed & traps for enough US
	to mitigate inputs from perched Puc lateral (pipe diameter too small
-	of location of puc perched lateral ix invert of mitchamber)
	495TIT Confirmed 10" diameter terra cotta pipe entering
	MH chamber from NW. Pipe is intact but is too small for
	existing sed traps. Hansen ID ABC352 12116/08 JXB
	Confirmed main outlet as a 12" terra cotta lined pipe. Due to
	large inputs from elevated concretes puc laterals in MIT chamber
	of pipe diameter constraints, as well intermixing of solids particles between sites, FO will advocate to strike all sites of install
	between sites, 10 will advocate to strike all sites of install
	at least one standard sed trap in 12" as outlet.
	1403 - On site @ 43-571 [2100N AIBITO AVE (ARCRES)] Continued pipe
	diameter as 16" terra cotta pipe. Solids (~1-1,5" Indepth) deposited
	in invert of MH chamber of extend the entire length of the autlet. Solids primarily consist of fine silts of chay, as well as angular gravels Attachments 1/41-3/41/minus - construction debris from Esco?
	Solids primarily consist of time silts gray, as well as angular graves
	-AHOUTHOUS 1/4"-314 minus - construction debus from £500!





Project PORTLANT HARDOR STORMWATER STUP Project No. 2020.005 Location BASTAS 43, 44, 441A Subject 08/09 TNITUE SENTRAP INSTALLATION By JXR/MJS BACKLERGUND: High pressure system has moved into the northwest? For four rest conditions turning into Clear sty's 60.65° Last measurable precipe 48 hours All times in PDT 0733 PDT Armine on site N Larabeed Randolph (ABC311) JXR installs Standard Sed traps (44 - ST1) approx. 6-8' Ox from manhole chamber in the 72" main pipe. JXR also installs base plates for see rectangular of equare sed traps (R\$D) approx 9" from standard sed traps." Took photos of sed Trap installation IXR mounts "FPA certified clean narrow menth HOPE bottles in standard pair using clean nitrile glaves, after flushing invert W/NPOL Bottle caps where remared of placed in clean Ziplock bag, look photo of sed traps what bottle caps Soft of the Standard pair using the composition of sed traps what bottle caps Soft of the Standard pair using the composition of sed traps what bottle caps Soft of the Standard pair using the composition of sed traps what bottle caps Soft of the Standard pair using the composition of sed traps what bottle caps Soft of the Standard pair using the composition of sed traps what bottle caps Soft of the Standard of the propers of traps dominations of the composition of the pair of "Standard" and traps domination of the pairs in place but not engaged (only acting library). Nill need to Keep an eye on traps during storm events There is a low probability that traps will get blown out due to small place diameter of slight sag in gippe Large quantity of solds in line may be due to Escap construction activities—talk to Angela Henders MIS completed standard sed trap installed mistream "5:0" from Eop. 413-512-32 installed awastram "16:0" from Eop. 435-512-33 installed awastram "5:0" from Eop.			Page $\underline{1}$ of $\underline{1}$
Fog overast conditions turning into clear sky's 60.65. Last Measurable precipe > 48 hours. All times in PDT 0933 PDT - Arrive on site@ N. Larabeed Roundolph (AB(311). JXR installs "standard" sed traps (44A-571) approx. 6-8 DS from Manhole chamber in the 72" main pipe. IXB also installs base plains for recreatingular of square sed traps (R&D) approx 9" from standard sed traps. All traps (R&D) approx 9" from standard sed traps. All traps (R&D) approx 9" from standard sed traps. All traps (R&D) approx 9" from standard sed traps. All the posters of sed Trap installation. JXB mounts "FPA certified clean narrow month HDPE bottles in standard pair using clean nitrile gloves. After flushing invert w/ NPDT. Bottle caps were removed of placed in clean ziplock bag. Took photo of sed traps wout bottle caps. Bottle 1 mounted in US trap (44A-571-B1) As bottles and Bottle 2 mounted in OS trap (44A-571-B2) PATOR Arrive on site of 2100 N Albina Ave (AB(363)). MTS attempts to install a pair of "standard" sed traps downstream of mH chamber. 16" pipe is clay, making ancier both installation challenging. All hors hours are in place but not engaged (conty acting like peass). Will need to keep an eye on traps during storm events. There is a low probability that traps will get hlown out due to smail pipe diamieter of slight standard sed trap installation. Took photos of SGU. traps w/out bottle caps.	Location BASINS 43, 4	14,44A	Date <u>10/17/08</u>
OS Fromminanhole chamber in the 72" main pipe. TXB also installs base plates for recreangular of square sed traps (R&D) approx 9" From standard sed traps. I Took photos of sed Trap installation. TXB mounts "EPA certified clean" narrow month HDPE bottles in standard pair using clean nitrile gloves, after flushing invert w/4PDT Bottle caps were removed of placed in clean Ziplock bag. Took photo of sed traps w/out bottle caps Bottle 1 mounted in US trap (44A-ST1-B1) BOTTLE DOTTLE BOTTLE BO	Fog of oversost conditions to Last measurable p All times in PDT 0933 PDT - Arnive	itions turning into Cle vecip > 48 hours on site@ N. Larabeet	Par Stys 60-65.
bottles in standard pair using Clean nitrile gloves, after flushing invert W/MPDI. Bottle caps were removed of placed in clean Ziplock bag. Took photo of sed traps W/Out bottle caps is Bottle 1 mounted in US trap (44A-ST1-B1 ST5) of the Bottle 2 mounted in US trap (44A-ST1-B2) of Took of Bottle 2 mounted in US trap (44A-ST1-B2) of Took of Bottle 2 mounted in US trap (44A-ST1-B2) of Took of Bottle 2 mounted in US trap (44A-ST1-B2) of Took of Bottle 2 mounted in US traps (44A-ST1-B2) of Took of Bottle 2 mounted in US traps (44A-ST1-B2) of Took of Bottle 2 mounted in US traps downstream of MI chambers to install a pair of "standard" sed traps downstream of MI chambers 16" pipe is clay, making anchor bott installation challenging Awhor houts are in place but not engages (only acting like pegs). Will need to keep an eye on traps during storm events. There is a low probability that traps will get blown out due to small pipe diameter of slight sag in pipe Large quantity of solids inline may be due to ESCSO construction activities—talk to Angela Henders MJS completed standard sed trap installation. Took photos of SGV. traps W/out bottle caps	installs base-pk traps (R\$D) app Took photos of	chamber in the 72" mates for sea rectangulation 9" From Standard Sed Trap installation	ain pipe TXB also or of Square sed sed traps. 25
150 Arrive on site & 2100 N Albina Ave (AB(363). MTS attempts to install a pair of "Standard" sed traps doministream of MIT chamber. 16" pipe is clay, making anchor both installation challength Awhor boths are in place but not engagest (only acting like pegs). Will need to keep an eye on traps during storm events. There is a low probability that traps will get blown out due to small pipe diameter of slight sag in pipe. Large quantity of solids inline May be due to ESCSO construction activities—talk to Angela Henders MTS completed standard sed trap installation. Took photos of Sed. traps Wout bothe caps	after flushing	lard pair using clean invert w/ uppi Bottle 2 inlock base. Took photo o	e caps were removed Free traps Wout bottle caps.
a low probability that traps will get blown out due to small pipe diameter of slight sag in pipe Large quantity of solids inline may be due to ESCSO construction activities—talk to Angela Henders Mos completed standard sed trap installation. Took photos of Saditraps whole bottle caps	Attempts to install a mit chamber 16"p Awhor holts are in	te & 2100 N Albina An pair of "Standard" sed uipe is clay, making anchor place but not engage of "	o (AB(363). MTS traps donunstream of boil installation challenging only acting like pegs).
	a low probability the diameter of slight may be due to Esce MJS completed sta	at traps will get blown t sag in pipe. Large q so construction activit andard sed trap installat	out due to small pipe nantity of solids Inline ies-talk to Angela Henders
and the state of t			Fream ~5:0" from EOP





<u> 2000 - Professor Barrier, i francisco de la Servicio Barriero de la companio de la Calabacación de la companio della companio de la companio de la companio de la companio della compani</u>	Page <u>I</u> of <u>I</u>
Project Portland Harbor Stermwater Samp	Project No. <u>/02</u> 0.005
Location_N Harding & River	Date 11/17/08
Subject Basin 44 44_ST1 + 44_ST2	By JXB/RCB
1158 PST: Arrived on site to justable sed 1	raps in 12" terra colta live
downstream of node ABC 352 (44	5ti)
JXB enters node. Sed trape installe	
in 12" terra cotta line. Only one tra	p installed due to lack
of space in small pipe. Botthes in	talled, caps removed
ef space in small pipe. Botthes ins and placed in clean plastic boys,	or duration of deployment period
labeled Too	ok photos 12/17/08
1322 Offsite	
1225 Anish + 1, MM0707/Chans	and the mile ST
1325 Arrived at node AMD 287 (Storme	
Venfied stormueptor at this locati	on, 1001cp10105.
	on, τωιεριω 105.
1333 Depart for WPCL	ον, τωιερκώ 105.
	ον, τωι ριω 105.
	ον, τωι ριω 105.
	ο~, τωι ριω 105.
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	ον, τωι φνω (05.
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	ον, του (φρο 105)
	ον, τω (φνω (ος.

Hard Hats Required for all activities

ENMENTAL SE

ENVIRONMENTAL SERVICES

Field Operations 6543 N. Burlington Ave Portland, OR 97203-5452



INLINE SEDIMENT TRAP FIELD DATA SHEET

Project Name:

Portland Harber Stormwater Samp

Project No.: 1020.005

By: JXB/RCB

Site Address:

N. Harding & River

Sample Pt Code:

Basin: - นัน Hansen ID: ABC 352

SECTION 1 - INSTALLATION INFORMATION

Traffic control and/or site access concerns:

High truck traffic area near a construction zone for ESCSO. Parkvehicle in landscaping (nose into fence) and place a traffic come island around MH and back of vehicle.

Describe flow conditions and depth and/or any standing water at time of install (does river appear to back up into this line intermittently?):

Very slow flow in pipe ~0:1 (fps; approx 3" deep.

River does not appear to back up to this location

This should keep us out of hafficedelinery hads Describe sediments in pipe if present (depth, sampleable quantities, lateral extent, etc.):

No sample able seds in pipe

Sediment trap location(s) (pipe size, distance from center of node, proximity to laterals, etc.):

One trap located approve 18" downstream from earlier of node, roughly

wen wil downstream EOF.

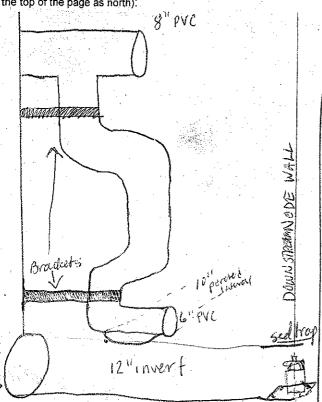
Sed trap bottles installed on 1/1/10 3 4 1/1

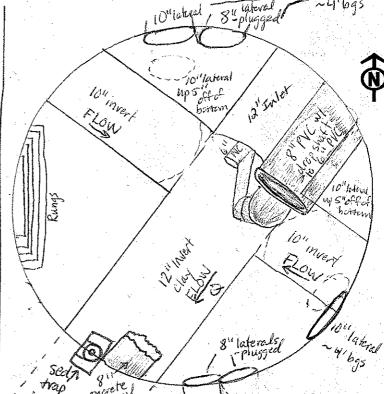
Pipe diameter (inches): 121

Distance from MH node (feet): 46.0

SED TRAP SITE DIAGRAM

(Sketch map of the lateral(s) and layout of manhole, showing approx sed. trap location, manhole elevation and inline sediment if present. Orient drawing using the top of the page as north):





SECTION 2 - MONTHEX FIELD CHECK INFORMATION ACCSST BY Colline a line less: We dolline a line				
Estimated sed. depth per bottle (% by volume & inches): BY: BY: BY: BY: BY: BY: BY: B			FIELD CHECK INFORMATION	
DS Bottle 1 Oct 1 Active 1 DS Bottle 1 Oct 1 Final Removal? YELD 1 STORIE 1 ACTIVE 1			Bottles removed/replaced? (NN) New	
Comments: Substantial oily sheem spill in contement area around site 4-51 places contends the semantial of municial cost along cuts, into parting along 224 N 2000 places contends the semantial of municial cost along cuts, into parting along 224 N 2000 places of burgets property and don't make the parting along 224 N 2000 places of burgets places and along the make the parting along 224 N 2000 places of burgets places and along the make the parting along 224 N 2000 places the parting 224 N 2000		j :-	installed of	Archived ID:
Comments: Substantial oily sheen/Spill in catcherrent area around site of manufact of along cuts, into parting inserting 2012 in 2015		Bottle - Bottle -	Final Removal? YN 115/09(3)	
Obside accommendated soil as desponsed in the bottom of the bottle. Bettle opening as three of opening a difference built of stormwaker was substantial oily additional commends: enem of strong perfolents a destroy of stormwaker was substantial oily additional commends: enem of strong perfolents a destroy of stormwaker was substantial of the bottle was archived bill need to install a new bottlefisher once over levels are perfolent of the bottle was archived bill need to install a new bottlefisher once over levels are perfolent once of the bottle was archived bill need to install a new bottlefisher once over levels are perfolent once of the bottle was from the bottle was freed of the bottle was accommendated by describing the perfolent of the bottle was accommendated by describing the bottle was completely full of stormwaker was included by social performance of the bottle was accompletely full of stormwaker was included by social performance of the bottle was included by social performance of the bottle was included by the the bottle was approx. 3,0" Subject the bottle was found of stormwaker without the bottle was approx. 3,0" Subject to the bottle was subject to be bottle was subject to bottle was subject	Comments: Six Sheen extens Gritacted spoof base from Dayled up:	is us of manhole & manhole CB, along a R. Pungent perroleum oder in mit Buse flow was positive at 14,5" (See field notes).	curb, into parking avea@2004 N. Rivers chamber, Visible sheen on surface of Spear to have	44 571.61 e 486352 e 118103 111403
Photos Taken? (YN) Describe: Oily sheen in catchment area Date: 2/18/09 volume & inches): By: 3KB/BEH Bettle DS Bottle 2- 0.2" Bettle Bottle Bott	DS Bottle - 0	pening was free of abstructions. Bottler	in the borrow of the bottle. Bottle vasfull of stormwater was substantia	lonly
Date: 2/16/09 Estimated sed. depth per bottle (% by volume & inches): By: JS Bottled - DS Bottled - 0.2" Bottle Bottled - DS Bottled - 0.2" Final Removal? (N) Comments: Strong chemical / hydrocarbon odor present in manhole chamber, visible any sheep on surface of turbid baseflow. See Daily Field to Bottle - 0.2" DS Bottle 2 - Sedimont trap bottle, was free of times adhered to inside wills. Bottle was ampliedly full of stormwater wisible only sheep on surface of plugued go activities within catchment of activities within catchment was photos Taken? (N) Describe: photos of plugued go lateral wisible only sheep on surface of activities on the part was instabled on 1/15/07 Date: Estimated sed depth per bottle (% by Stormwater wisible only sheep on policy of activities within catchment was instabled on 1/15/07 Date: Estimated sed depth per bottle (% by Bottles removed/replaced? YN) By: US Bottle - DS Bottled - 20.5" Spart ranges between 0.2" - 0.3" Archived ID:	Photos Taken?	NN	MENO DOTTE ENER ANCE INVENTED IS	rop.
2/16/09 volume & inches): By: Us Bottled: DS Bottle 2-0.2" Final Removal? YM Comments: Strong chemical / hydraarlan odar present in manhole chamber. Visible city sheep on surface of turbid base flow. See Daily Field to Bottle. DS Bottle 2- Schment trap bottle was free of times adhered to inside wills. Bottle was completely full of stormwater w/visible oity sheep on surface of accumulated sedment was photos taken? (In) Describe: Photos of plugged 8" lateral w/solids if from northeost. Date: 3/18/09 Dis Bottle - DS Bottle 2- 0.5" DS Bottle - Bottle - DS Bottle 2- 0.5" DS Bottle - Bottle - Bottle in accumulation of organic material all neved to trap howing. No chemical/hydrocar bon 200 defected in mitting all north of sheen on surface of base flow. Base flow was apprex. 3,0" DB Bottle - 44-571-B2-Bottle was full of stormwater w/ mixer fines adhered bottle. To tail accumulation of approxed bottles in bottom of bottle ranged between 0,2"-0.8" W/an average depth of ploos Taken? (M) Plos Taken? (M) DS Bottle - 44-571-B2-Bottle was full of stormwater w/ mixer fines adhered to the inside walls of the bottle. To tail accumulation of approxed depth of plots Taken? (M) Plos Taken? (M)	Describe: Oil	y sheen in catchment area		
Comments: Strong Chemical / hydrocarbon odor present in manhole chamber. Visible city sheem on surface of turbid baseflow. See Daily Field Export for notes on Escol ppl sub activities within catchment. DS Bottle 2- Sediment trap bottle was free of interest within catchment. DS Bottle 2- Sediment trap bottle was free of interest adhered to inside wills. Bottle was combietely full of stormwater wisible only sheem on surface of captured stormwater. Appear 0,2" of accumulated sediment was photos Taken? Vin Describe: Photos of plugged 8" lakeral "/ solids from northcost. Date: Estimated sed depth per bottle (% by Bottles removed/replaced? VIN) By: US Bottle - DS Bottle 2- 20.5" Supragas between 0,12"-0.8" JXB/NSC Bottle - Bottle 1 photosing. No chemical/hydrocar bon 25 colors delected in Mithing Almon of 20.5 fps. DS Bottle - 44 - 571-B2 - Bottle was full of stormwater "/ minor fines adhered to true inside walls of the bottle. Total accumulation of captured 50 ids in bottom of bottle ranged between 0,2"-0.8" w/an average depth of ploss Taken? VIN) ploss Taken? VIN)	2/18/09	volume & inches):		Archived ID
DS Bottle 2- Sediment trap bottle was free of fines adhered to inside walls, Bottle was completely full of stormwater w/visible only sheep on surface of captured stormwater. Apores o.2" of accumulated sediment was Photos Taken? (IN) Describe: Photos of plugged 8" lateral W/solids from northeast. Date: Estimated sed depth per bottle (% by solids from northeast.) By: US Bottle - DS Bottle 2- 0.5" Depth ranges between 0.1"-0.9" By: US Bottle - Bottle 2- 0.5" Depth ranges between 0.1"-0.9" Bottle - Bottle - Photos of plugged 8" lateral W/solids from northeast. Comments: Gediment frap was intacked W/ no obstructions or organic material at neved to trap housing. No chemical/hydrocar bon alterator detected in mittal at never of the sheet of base flow. Base flow was approx. 3,0" DS Bottle - 44-571-B2 - Bottle was full of stormwater W/minor fines ad hered to true inside walls of the bottle. Total accumulation of captured to plot of bottle ranged between 0,2"-0.8" W/an average depth of plots Taken? YM) plots Taken? YM)	5XB/Beit	BottleBottle		<u> </u>
DS Bottle 2- Sediment trap bottle was free of finos adhered to inside walls, bottle was completely full of stormwater w/visible oily sheen on surface of captured stormwater. Aporex 0,2" of accumulated sediment was photos of plugged 8" lateral w/solids from northeast. Describe: Photos of plugged 8" lateral w/solids from northeast. Date: Estimated sed depth per bottle (% by Bottles removed/replaced? Y/N) If removed which one(s)? By: US Bottle - DS Bottle 2- 20.5" Suprarayes between 0,2"-0.8" JXB/MSC Bottle - Bottle - DS Bottle Removal? Y/N) Comments: Sed invent frap was intacked w/ no obstructions or organic material ad hered to trap housing. No chomical/hydrocar bon 200 of deected in mith w/a flow of 20,5 fps. DS Bottle - 44-571-B2 - Bottle was full of stormwater w/ minor fines sticker DS Bottle - 44-571-B2 - Bottle was full of stormwater w/ minor fines ad hered to the inside walls of the bottle. Total accumulation of captured so lids in bottom of bottle ranged between 0,2"-0.8" w/an average depth of potos Taken? Y/N)	Comments: Si Visible oi Pepost for US Bottle -	rong chemical/hydrocarbon ode iv sheen on surface of turbi randes on ESCSO/PPL sub ac	r present in manhole chamber d baseflow. See Daily Field tivities within catchment	Holding Sticker
Date: Estimated sed depth per bottle (% by Bottles removed/replaced? YM) Stimated sed depth per bottle (% by Volume & inches): Stimated sed depth per bottle (% by Volume & inches): If removed which one(s)?	DS Bottle 2 - 50 NMIS, BOTT Surface of captured by Photos Taken?	Ediment trap bottle was free of e was combletely full of storminater. Aporas 0,2" of sediment trap since new book	frictions adhered to inside water wivisible only sheen on of accumulated sediment was ottle was installed on 1115/09	
3/18/09 volume & inches): By: US Bottle - B	Describe: Phot	os of plugged 8" lateral my soli	(Lateral enters note ABC352) ds? From northeast.	
Oncomber, No Sheen on surface of base flow. Base flow was approx. 3.0" W/a flow of no.5 fps. DS Bottle - 44-571-BZ-Bottle was full of stormwater W/miner fines adhered to the inside walls of the bottle. Total accumulation of captured 50 lids in bottom of bottle ranged between 0,2"-0.8" W/an average depth of potos Taken? Y/N	<i>3/18/09</i> By:	volume & inches): US Bottle - DS Bottle 2 - *0.5"	If removed which one(s)?	Archived ID:
otos Taken? Y/N	ad hered to chamber, No W/a flow of	diment trap was intacked W/ no trap housing. No chemical/hydroca Sheen on surface of baseflora, 5 fps.	obstructions or organic material voon all color detected in mit. N. Baseflow was approx. 3,0"	
	DS Bottle - 44 ad Neved to t Spiras in b	1-571-B2-Bottle was full of s he inside walls of the bottle. Total of bottle ranged between a	tormwater "/ minor fines il accumulation of captured 2,2"-0.8" "/an average depth of	~0.5"
	Describe:			





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350 0
Project PORTLAND HARBOR STORMWATER SAMP Project No. 1020, 005
Location BASIN 43, 44 & 44A Date 1/8/09
[하다] 이번 보고, 대생생활하다 하는 것은 말이 되었다. 이 네티를 하는 다른 사람들이 되었다. 이 네트를 다른 다른
Subject TULTUF SED TRAP CHERS By JXB JECH
BACKGROUND: Large frontal system has moved through the Northwest
"Theavy bands of moisture (Pineapple Express), following a prolonged
artic front throughout the entire plantingst (Rain on snow event).
High pressure ridge beginning to build leading to increased temperature
& a prolonged dry period. This will be the first field check of the
sed traps in Basin 43,44 & 44A following installation
All times in PST
Willamotte River Staff Gauge Reading => 13.14@ 0930 (~16.14')
1951 - Arrive on site @ 44A-ST1 (ACX 311). Ect prepares to enter MH.
Baseflow in pipe measured at ~1.8" \$ 1.5-2.0 fps. Noticeable
petroleum oder observed in MH-chamber. Entrant notes significant
build up of organic debris around primary & secondary sed traps
housing. Fook a photo of debris organizated further upstream
trop. Entrant secured bottle caps, working upstream to downstream,
while wearing clean gloves. Entrant removed sed trap bottles for
visual observations after removing debris. All traps were in tacked.
Primary Sed Trap pour:
· 44A-STI-BI- Had a total accumulation of ~0,5" of solids
Wifines adhered to the inside of the bottle wall. Significant
huildup of organics around trap housing, but bottle opening
was free of obstructions Bottle was completely full of
stormwater W/a visible sheen on the surface of 10
apparent odor.
* 44A-STA-B2 - Had approx. 1.5" of total accumulation of solids"
fines adhered to the inside wall of the bottle. Minor buildup
-Attachments of organics on trap housing; bottle opening free of obstructions.
bottle was tull of Stormwater Wa visible sheen on the surface
& no apparent odor





Page 2 of 4

	그렇게 얼마는 것 같은 얼마는 얼마를 먹었다.
Project PORTLAND HARPOR STERMWATER SAMP	Project No. <u>1020,005</u>
Location BASIN 43,4444A	Date <u>1/8/09</u>
Subject INLINE SEN TRAP CHECKS	By JXB/FCH
94A_ST1 (cont.)	
Secondary Sed Trap Pair:	
· 44A-ST1-B3 - Total accumul	lation of solids was
approx. 0.5" w/ minor fines ad	
of the bottle (adhesions). Org	anic debn's wrapped
around trap housing of particul	ly obstructing bottle
opening (280% obstructed). D	ebris was removed by
entrant. Bottle was full of s	tormwater Wa visible
Sheen on the surface of no	
344A-STI-BY - Total accumu	lation of solids was
approx. 1.0-0.5 Wan averag	e depth of ~0.7"
(captured solids were deposited	In the bottom of the
bottle @ an angle) adhesions	on Inside of bothle
Walls Bottle was full of Stor	muder Wa visible sheen
at on the surface & no app	arent odor. Miror buildux
otorganics on trap housing	
Total accumulation of solids @ 44A-5	
Entrant re-secured trap bottles & ren	noved bottle caps while
wearing clean gloves. Bothe caps we designated Ziplock for duration of	ere placed in clean,
designated Ziplock for duration of	deployment perion.
<u> </u>	
1050 - Left 44A-ST1 for Basin 44 - 44	<i>(</i> _\$71_
1103 - Arrive on site @ 44-ST1 (ABC 352)	. Upon amval, field crew
Observed substantial oily sheen/spill as	round man hove, extending
upstream of MH manhole (MH) CB along	curb, into parring area
Attachments @ 2204 N. River ST. Fook photo	s of sheen.

DAILY FIELD REPORT





	Page3 of
Project PORTLAND HARBOR STORMWATER SAMP Location RASIN 43,44 & 444	Project No. <u>1020.005</u> Date <u>1/8/09</u>
Subject INLINE SEDTRAP CHECKS	By JXB/FKH
44-ST1 (cont.) - Contacted SPCR regarding of Entrant prepares to enter MH. Strong! (odor in MH chamber. Visible sheen on Odor increased when entrant entered flow invert of chamber. Baseflow was positive (downstream) and ~4.5" w/ flow @ 0.3 fps. River does not a up into site at this time (Instantaneous Staff Gauge Reading => 13.31' @ 1100 (~)	surface of baseflow surface of baseflow was disturbed solids in was measured at appear to have backed s Willamette River 16.31')]. Staff gauge
readings show a rapidly rising steep limb sed trap. 44-571-B1 - Total accumulation	of solids was approx.
Oit" in the bottom of the trap adhesions on the inside walls of the free of obstructions and was full visible/substantial oily sheen on the petroleum oder present.	of stormwater Wa
Following visual check of 44-571-B1 by Field determination was made to archive the sam	Operations (FO) the
the presence of the city sheen within the racatchment area, coupled Withe rapidly rish at MH invert = 7/71). Sample bottle was a	with chamber of in the ag river level (elevation placed TXE chilled on site, whited TXE
aboratory fridge. NOTE: Fo will need to install a Attachments 44-571 after viver levels received at a	a new bottle @ site
New Lottine (44-5TL B2) installed on 1/15/09 JXB	



DAILY FIELD REPORT





Page I of I

	Provided a Visit of the Visit Car visit Car and the Visit Car and
Project by Havd Havbor Stormwater Samp	Project No. <u>1020.005</u>
Location 44- STI	Date 1/15/09
2 Pulle hashell char	
Subject Bettle Installation	By <u>RCB/ATA</u>
Arrived on site @ 1054 to install seed trop both	. The first bothe atthis
Mention was pulled my 1/9/09 lin to movilly wish	or over levels that could
have potentially backed up to this location. The f was 11.19 (corrected). ATA enters met and ins narrow mouth bottle in the sed trap housing at 1	iver level this morning
was 11.19 (corrected). AJA enters MH and ins	stalls a standard
narrow mouth bottle in the sed frap housing at 1	107. Offsite P 1112.
\mathcal{J}	
	12 949 109
TILE Basin	you likely
The field camero checks that mas damage that photosis from the field amero checks 199. All photosis was repaired on Iliston successmy pornar sedimentived on success me der 1102 was repaired where success me der 1102 was repaired while whose folder 1102 on the sedimental sediments of soft photos on the sedimental sedimental sediments of sedime	om mesered
are used that photos	ded parbor
The field camero checks that photosupposed trap checks 115109. All photosupposed on sections were successfully portar 102 sediment red on severe successfully portar 102 was repaired where project folder (102 observations drive project folder (102 observations drive project folder (102 of servation of lost photosupposed on the contraction of lost photosupposed servation of lost photosupposed servation of lost photosupposed servations of lost photosupposed ser	nd 005).
The ment red on succes me (100	Field Viller
was reparions drive project	in either
obser 5: Samp	are now
Stormore and on file	
The field trap of 11870 secret fortary Sediment trap on 11870 successfully portary Sediment repaired on Successfully portary was repaired were successfully portary was repaired were successfully portary observations were project folder (102 Stormwater Samp on the services mertion of lost photos All previous mertion of lost photos All previous from 118109 on 115/0 notes or FDS from 118109 Observe. Observe.	4
A1 100 FDS	
notes obselete. JXB	
000	
Attachments	

DAILY FIELD REPORT





Page <u>4</u> of <u>5</u>

	Page 4 of 5
Project Portland Harbor Stormwater Samp.	Project No. <u>1020,005</u>
Location Basing 43, 44 & 44A	Date <u>2/18/09</u> By T√0/504
Subject Inline sediment Trap Checks	By JXB/ECH
BACKUROUND: Extended dry period (5-day acc	umulation=0,06 inches-
Albina Raingage) Wa high pressure system	
throughout the region. (urrent weather	
50°s) and overcast. FO to conduct secon	d inspection of the
inline sediment traps installed in Basins	43,449 44A of for
08/09 wet season.	
*All times in PST	
0952- Amve on site @ 44A-ST1 (N. Lora	
prepares to enter stormwater note ARC311. I	Saseflow was approx.
0.2" W/a flow of 0.5 fps. FCH inspects prin	any & secondary Inline
sediment traps @ 44A_ST1	
44A_ST1_B1&B2-Pamany Sed Traps:	
Organics and plastics were adnered to the	housing of both sed
traps. Bottle openings were free of obstruc	
holdles were full of stormneder up to the	
Entrant observed iron bacteria film ons	
Stormwater Took photo of Ivon bacteria	
44A-ST1-81-Total accumulation of sed in	bottom of sed trap
bottle was approx. 10.8"	
44A-ST1-B2-Total accumulation of sed	in bottom of sed trap
bottle was approx 11.5"	일본 전에 전환되는 것이 발표되었는데 함께 함께 보면 되는 것은 사람들이 발표되었다. 기본 사람들이 함께
[하고요 : 그 : 10 1 : 4 : 10 : 40 : 42 : 10 : 4 : 10 : 4 : 10 : 10 : 10 : 10 :	
44A_ST1-B3&B4-Secondary Sed Traps: Or	ganics and plastics were
Attachments also adhered to the housing of home	commence of the second

DAILY FIELD REPORT





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1.090
Project Portland Harbor Stormwater Samp Project No. 1020,005
Location Basins 43, 444 44A Date 2/18/09
Subject Inline Sediment Trap Checks By JXB/FCH
44A-ST1-838BU-Secondary Sed traps (cont) = Bottle opening for
44A-ST1-B3 was completely obstructed by a paper towel.
Entrant carefully removed obstruction, while wearing clean
nitrile gloves, after taking a photo of bottled obstruction.
Both sed trap bottles are full of stormwater up to the neck of
the bottle. I von bacteria film was also observed on the
surface of the captured stormulater in the secondary sed trapbottles
[제 하다는 사는 하는 사는 게 는데 한 사는 사람들이 나는데 나를 가는데 다른데 사람이 하다는 사람들이 나는데 하다는 것입니다 하는데 가하는데
44A_STI-B3 - Total accumulation of sed in bottom of sed
trap bottle was approx. 10.6"
trap bottle was approx. [0.6"] 44A-ST1-BY-Total accumulation of sed. in bottom of sed. trap bottle was approx. [0.7"]
bottle was approx. 10.7"
도 하는 사람들이 되었다. 그는 사람들은 사람들은 사람들이 가장 하는 것이 되었다. 그런 사람들이 되었다는 것이 되었다는 것이 생각을 받았다. [18] - 19[
1018 - Entrant re-secured primary of secondary sed. trap bottles
in inline stainless housing & removed bottle caps. Entrant observed a minor oily sheen on sufface of baseflow, while
observed a minor only sheen on sufface of baseflow, while
leaving stormwater node.
1037-Leave 44A-ST1 & travel to Basin 44
1007 Leave 977-51 L 9 Fravel to 15031K 99.
1057 - Arming an site of the STA () Harrison do Disposity REC
1057 - Arrive on site @ 44 571 (N. Harding & River ST). BES Inspector, Rick Hyatt on site. Rick informed FO that a PPL
Sub-contractor had performed directional-drilling on 2/17, from
power pole parraiveling N. Riverst north, to Escso micro-tunnel
shaft for a new power pad Rick mentioned that PPL sub
had drilled into 8" plugged lateral entering stormwater node
ABC352 from the north east. Rick was on site when ovisite
Attachments when subsurface lateral was struck; drilling was stopped of drill her
Attachments when subsurface lateral was struck; drilling was stopped & drill her repositioned. Rick observed no visible fines or displaced so il exiting lateral





Page <u>3</u> of <u>5</u>

	rage
Project Portland Harbor Stormwater Samp.	Project No. <u>1020,005</u>
Location Basins 43,448 44A	Date <u>2/18/09</u>
Subject Inline Sediment Trapchecks	By JXBJECH
44_ST1 (cont.)	
1110 - Set-up TC. FCH prepares to enter st	ormwater node AACSSZ
to conduct second inspection of inline	
inspects 8" diameter, plugged lateral, entering	그러워 그는 그리다는 그를 가지 않아 그리다는 그래에 가지 않는 물을 살아내고 있다. 그는
the northeast. Elevated lateral is in tacked	
Solids begin approx. 12" downstream of EOP. No	
lateral.	
	가는 하는 사람이 되는 것은 사람이 되는 것이 없다. 경기 가는 사람이 되었습니다.
Entrant notes pungent chemical/hydrocorbor	odor inside of manhole
chamber of a slight oily sheen on surface o	Abaseflow Baseflow
was fairly slack @ approx, 3,0" deep. Entrar	it observed approx 0,2"
of fine solids deposited along MH chamber inve	nt Basis flow was
extremely turbia.	
Sediment trap bottle was free of fines adher	
of the bottle walls. Bottle was completely fu	M of stormwater W/a
visible sheen on the surface of the capture	ed Stormwater.
	에 보고 있는 생님, 이번 생각이 되었다. 12 분 사람들 보고 있는 보고 보안 되고 있는 12 분 12
44_571_B2-Total accumulation of sed.	in bottom of sed-trap
bottle was approx (0,2")	기업은 10 시간에 보는 그리고 있는 사람이 함께 충분을 함께 밝는 것같 보는 10 전에 된 기업
이 하고 있다고 있는 것이 하는 사람들이 가장 말이 있다. 그는 것이 없는 것이 되는 것이 되었는데 하는 것이 하는 것이다. 그런 그들은 사람들이 하는 것이 되었다는데 하는 것이 되었다. 그런 것이 되었다. 그런 것이 되었다. 그런 것이 되었다.	일은 이번 시간 기간 기간 경기에 가장 이 등에 가장 되었다. 역사 기가 가장 기가 있다면 하는 것은 것은 기가 있다.
1130- Left 44-ST1 for Basin 43	가 있으면 하는 사이 시간 가장 가장 하는데 있었다. 사이 사이 가장 하는 것은 것 같아서 가장 있었다.
<u>는 사람들이 되었다. 그런 그런 그런 사람들은 그는 것이 되는 것이 되었다. 그는 중에 되는 것이 되는 것이다. 모든 것이다. 그는 것이다. 그는 것이다. 그는 것이다. 그는 것이다. 그는 것이다.</u> 그렇게 되었다.	
1141- Arrive on site @ 43_571 (N. River & A)	
access site due to helghtened FSCSO constr	uction activities, 10 by
D& H. Flagging, and grain silo truck traffic. Will	attempt to conduct
Attachments inspection on 2/20.	는데 있는데 그는 얼마가 그는 살아갔다가 불어를 하게 하다.

DAILY FIELD REPORT





Page _ Project Portland Harbor Stormwater Samp. Project No. 1020,005 Location Basins 43, 44 & 44A Date 3/18/09 Subject Inline Sediment Trap Checks By JXB/MJS For background information for weather see Basin 18 R&D notes from 3/18/09 on file. * All times in PST 1010 - Arrive on site @ 44A-STI [N. Larabeed Randolph (ABC311)] to inspect primary & secondary sediment traps. MIs prepares to enter MH. Primary & secondary traps are in tacked & are free of obstructions Observed baseflow was "0.25" Wa Flow of "1.0 fps. Leavest organics were adhered to the trap housing. Entrant capped sediment trap bottles of conducted visual inspection. Primary Sed Traps: No visible sheen on surface of captured stormwater nor was there a discernable odor. 44A-STI-BI- was full of captured stormwater "/a total accumulation of captured solids of approx. 1.25" Minor fines adhered to the inside surface of the bottle (adhesions) 44A-STI-B2- was full of captured Stormwater Wa total accumulation of captured solids of approx. 1,7". "Adhesions were also present in bottle Secondary sal Traps: No visible sheen on surface of stormwater captured in traps, nor was there a discernable odor. 44A-STI-RZ- Was full of captured stormwater Wa total accumulation of aptured solids of approx 1.0" w/visible adhesions on the inside surfaces of he bottle 44A_STI_BU - was full of captured stormwater Watoral accumulation of captured Attachments plids of approx. 0.911. Adhesions were also present in bottle

1033- Entrant secured bottles in traps of removed bottle caps. Left Basin 44A-for Basin 44.

Basin

DAILY FIELD REPORT





Page _____ of _____

Project Portland Harbor Stormwater Samp	Project No. <u>1020,005</u>
Location Basins 43, 44 \$ 44A	Date <u>3//8/09</u>
Subject Inline sediment Trap Checks	By_JXB/MJS
Basinuy	
1053 - Arrive on site @ 44-STI [N. Hardingd	River (ABC352)] to conduct
visual inspection of sediment trap. MJS pro	
notes no sheen on baseflow of no detectable o	
Baseflow was approx. 3.011 W/a flow of "o.	
secured bottle cap of removed bottle for visual	inspection Trap is free of
obstructions Wno organic material adhered t	o trap housing. was
44_5TI_B2- Is full of stormwater, No ode	
Visible sheem on surface of raptured stormwo	nter. Total accumulation of
captured solids in porton of bottle ranges in	depth between 0.2"-0.8"
Wan average depth of approx 0.5". Minor fine	s adhered to inside walls of th
hottle:	
	사이트 : 100 시간 100 시간 200 전 100 시간
12/112- Left 44-571 for Basin 43.	
<u>u3</u> in the second of the seco	. 1
1127 - Amre on site @ 43-STI [N. River of All	그 그러는 그는 그는 이 사람들이 되었다. 그런 그는 그 그들은 그는 일을 하는 것이 없는 것이 없는 것이 되었다.
Visual inspection of sediment traps. se	and the state of t
location were last inspected on 118/09. n	
Traps were in tacked. Organic material & leaves	on trap housing of on the neck
a shoulder of bottles Bottle openings were fro	e of obstructions. Entrant
secured bottle caps of removed bottles for visi	ual inspection.
43_STI-BI- Is tull of Starmwater. No odor	detected; no visible sheen
on surface of captured stormwater observed. Total	
in bottom of bottle was approx. 0.5". Trace fines a	
43_STI_B2 - 18 full of stormwater. No odor o	
surface of captured stormwater observed	
Attachments captured solids was approx. 0.5". inside walls of bottle.	Minor the adhered to
IN DIGG SAMING OF NOVELLE OF COMMENCE OF STREET	

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



Chain-of-Custody Bureau of Environmental Services



Date: 6/2/09

Page: ___/__ of _

llected By: TXA /W/J

Collected By: JXB/MJS
AJA/LAP

					s.xls	ap COC	a Sed Tr	mwater Albina	Harbor Stor	odoc\Portland	r Samp\Sam	S. E.D. Your 1020:000 - Portland Harbor Stormwater SamplSampdockPortland Harbor Stormwater Albina Sed Trap COCs.xis	G.12(1000)1020;003
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イシェ 好で 6 49.7 g Total Wet Weight	7:	•	×	X		×	·	С	1450	6/1/09	44_ST1	ST-44-ABC352-0609 N HARDING & RIVER	FO095661
TOC to be done by CASE		TS*	TOC	Pesticide Grain Siz	SVOCs (e Sample Type	Sample Time	Sample Date	Point Code	Location	WPCL Sample I.D.
- - 3	als (As, Cd (i, Ag, Zn) + H				CAS - Low-le	clors (Low-le	geners (All 2	retain sample	5/27/09 bossible to	5/09 er intrusion); lest aliquot es.	11/17/08; 1/1 d due to Rivo use the sma ow-up analys	Sediment traps installed: 11/17/08; 1/15/09 Sediment traps removed: 1/18/09 (removed due to River intrusion); 5/27/09 be done at WPCL, care should be taken to use the smallest aliquot possible volume for additional follow-up analyses.	Sediment traps installed: 11/17/08; 1/15/09 Sediment traps removed: 1/18/09 (removed due to River intrusion); 5/27/09 * Total Solids to be done at WPCL, care should be taken to use the smallest aliquot possible to retain sample volume for additional follow-up analyses.
Analyses added per costoner 6/5/09 PHD	9					•				ustody	Chain-of-c	Basin 44 Sediment Trap Chain-of-custody	Bas
Comments	Metals	eral	General		nics	Organics							
Analyses	Requested Analyses							ENT	SEDIMENT	Matrix:	•		File Number: 1020.005
•									MP	TER SA	ORMWA	AND HARBOR ST	Project Name: PORTLAND HARBOR STORMWATER SAMP

			*Reduce	44A62	44 6)	601	43 \$	57	Dania			
		n >2	d sample volu	44A ST1 Duplicate		43 ST4			Pt Codo			
		THE THE THE	ume for pesti	ABC3113 ABC311	ABC352	ABC500~	ABC539	ABC290-	Manholo			-
Mec	Set rew	STAT T parts TON 8662 (CAS WELLERSINA)	$\bigcup_{\mathcal{D}^{k}} \int_{\partial r} \int_{\partial r} \mathcal{F}_{k}$ *Reduced sample volume for pesticides (co-extracted) will result in higher MRLs.) 611.9	Jack Tack	1 491.9 x 3€44±63.8	-	ABC290~#@weight (grants)	FO Dewatered			
, r	75 #4	下0少。	يدُم عبد) will result in hig	313.9	33.4	40.8	143.1	102.4	Dry Weight			Proposed /
	g. 77	Face TAX	gher MRLs.	51.3	67.2	63.9 /	44.7	51.6	Percent			Analytical
T	124	Waic+Toc)		10		7	10	10	PCB	/	D	Proposed Analytical Approach - Basin 43, 44, and 44A Sediment Traps
theaktackio	the Porce						-	1		/ S	Race DC JX	Basin 4
tacy	. Le	(C)	4	1/	1 /			1	707	Sample Volume	~ ~	3, 44, ar
	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	J. W.		10/	/ 10/	10	/ 10	/10\	PCB	ume Néeded fo	MAC	nd 44A Sec
	4	K.		30"	/ 22.4ª)	ع (30	30	PCB PAH+	or Eagh Propo	ÇKŚ	diment Trap
		(7	20 20		19.8	20	20	+HAd	sed Analysis	₩ ₩	SC
										(grams)		
2 / P		```	CST OF	15 15		j	15	15	Motele	٨	- [Š
of le Valours		_	tupert	100		001		Grain Oize	Crain Siza		名	ر آ
2	•		7	186 86	33.4	40.8	86	86		-		?

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR STORMWATER SAMP



Bureau of Environmental Services City of Portland Chain-of-Custody



Date

Collected By: \(\sum \text{XB}/W\sqrt{S}\)

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75= 51.3% 49.7 g Total Wet Weight		•	×	×		×	С	1450	6/1/09	44_ST1	N HARDING & RIVER	5661
BTOC to be done by CASKE	1	TS*	Grain Siz	SVOCs (PAH + P		Sample Type	Sample Time	Sample Date	Point Code	Location	WPCL Sample I.D.
	ials (As, Cd Cr i, Ag, Zn) + Hg		e	CAS - Low-lev es (CAS)	hthalates (TA)	ngeners (All 20 clors (Low-lev	*****	/27/09 ssible to rel	/09 r intrusion); 5 est aliquot po es.	1/17/08; 1/15 due to Rive se the small w-up analys	Sediment traps installed: 3/1/17/08; 1/15/09 removed: 4/4/09/2/removed due to River intrusion); 5/27/09 _, care should be taken to use the smallest aliquot possible volume for additional follow-up analyses.	Sediment traps installed: 3/117/08; 1/15/09 Sediment traps removed: **Wellemoved due to River intrusion); 5/27/09 *Total Solids to be done at WPCL, care should be taken to use the smallest aliquot possible to retain sample volume for additional follow-up analyses.
Analyses added for costoner 6/5/09 @AD				el)					ıstody	hain-of-cu	Basin 44 Sediment Trap Chain-of-custody	Basi
Comments	Metals	General	9	Ċ	Organics							
Requested Analyses	Requester						4	SEDIMENT	Matrix:	_		File Number: 1020.005



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave Portland, OR 97203-5452



INLINE SEDIMENT TRAP SAMPLE PROCESSING DATA SHEET

Project Name: PORTLAND HARBO	R STORMWATER SAMP		Project Nun	nber: 1020.00	5
Sample Processing Conducted By:	Sample Pt. Code:	Removal Dat	te:	Processing D	ate:
ASA	44-ST1	5127	409	6/1/00	ો
Basin: 44	Hansen ID: A3C34		Subbasin:	NA	JXB) 6/18/09
Sediment Trap Location Description Stream in the main inv	/Address: A single inli	ine sediment	trap was	s installed	~18" down-
the downstream outlet	end of pipe (EOP).				even w
		N. Hara	ing & Ric	ler	
SED	MENT TRAP PROCI	ESSING/FILTF	RATION NO	OTES	
Filter Equipment/Method: Port	tland Harbor, 90-millimeter (m Id Operations (FO) Standard	nm) stainless steel t Operating Procedu	filter support w	/conical glass m	icrofiltration system f Microfiltration
i Filter brand, grade, porosity in micro	<i>ipment for Phthalates Techni</i> meters (µm) and material	(A a Fisher Scien	titie mustitation	D2 1 5 um oat	lulose filter paper\:
Fisher Scientific	P5 (5-10 yM)) cellulos c	2 filter	paper.	Carpone interest beneficies is
Sediment Trap Bottle ID: 니니 _ <	5T1-B1 - V	Sediment Trap	Bottle ID: ∠	14-511-	B2-
Total Est. Depth of Accumulated Sec	d in Bottle (inches): 0.6"	Total Est. Depth	of Accumula	ated Sed in Bo	ttle (inches): 23
Sample Processing Start Time: (2 10 Time	ple Processing End	Sample Process	sing Start	Sample Pro	ocessing End
Number of Filters Used: 3	,	Number of Filter	s Used: 2		
Est. total volume of Ultra Pure DI used to remobilize adhered stormwater solids within bottle in milliliters (mL):	nl	Est. total volume of DI used to remobil stormwater solids milliliters (mL):	ilize adhered	70 ml	
Tare Weight [empty jar in grams (g)]: 190	1.29	Tare Weight [jar a			grams (g)]: 232. O
Dewatered/Filtered Sed. Weight (g): 3	2.89 131	Dewatered/Filtere	d Sed. Weight	(g): 16.9 c	₁ B2
Sample Processing Notes/Comment Filtered sample lattle Third and final filter h (175ml) All Filtered samp dry, Sandy //clay &s	in three toltogs	Sample Process Filterec S Second an rinses (7	sing Notes/Co sample ad final toml) A	omments: bottle in filter h	two filters ad uppli fre produced produced es y some clay es y some clay
Visual Description of Final Composite		·	and some	organics	present
	otal Dewatered/Filtered Serams (g): 32.89		Sample Jar partial):	s Collected (ກເ 1 8 ອ ຂ	ımber, size, full or
Sample ID: FO09566 affix FO number sticke	1 Duplicate sa	ample collected?ງ ກົວນາວຢ		PLICATE ID	
Duplicate Sample ID on COC: affix F0 number sticker		ons from standard	And the second of the second of the second		Peristaltic pump.





TX Page	of 2
Project Portland Harbor Stormwater Samp 6/18/09 Project No.	1020.005
Location Date 6/1	109
subject Basin 44-ST1- Filtration notes By AJA	
- HEREN HOLD IN THE THE TOTAL OF THE	
Primes in PST	
	1.40
1210 Photographed 44-STI-BI to begin & Filtering Using a P5 Citer (5- 1230 First Citer dry Took photo Sodom	implied !
tiltering Using a PS Citer (5-	10MM)
1230 First Citer dry Took photo Salsa	ent dried
very well affects sandy with silt	and
organics dispersed throught out	Koplaced
Lifer Will an Aller OF TO Ital	I made to
w second aliquot.	
1255 Second Filter dry Contents collect	ed into
W/ Second alignot, 1255 Second Filter dry Contents collect Sample Jar. Sediment dried nicely an ferred very easily.	d trans-
fered very easily.	
used very easily. Used 50 nl upoI to resuspend ad on side of bottle. Powed contents on (5-10 ml) siter a air	hered seds
on side of bottle. Poured contents on	to P5
Using an additional ~25 nl, rinsed	battle valls
into filtration set up. B1 is emptied	of sediments
1317 Third Filter dry B1 comal	ete, Photo
taken Sediment 15 Sandy with C	lan/silt.
Composited into jor Final wt after	A1 = 232.095
JYB) 6/18/19 Jar W 112	on tare-199.29
Processed Wt B1	seds = 32.80
Moving on to B2	
1326 Photographed 44-5T1_R2 against il	nte Roard
Using new P5 (5-10 M) Citter, Littered	all Supernate
and a good sized altour of the sedim	ente
Attachments	

Attachments

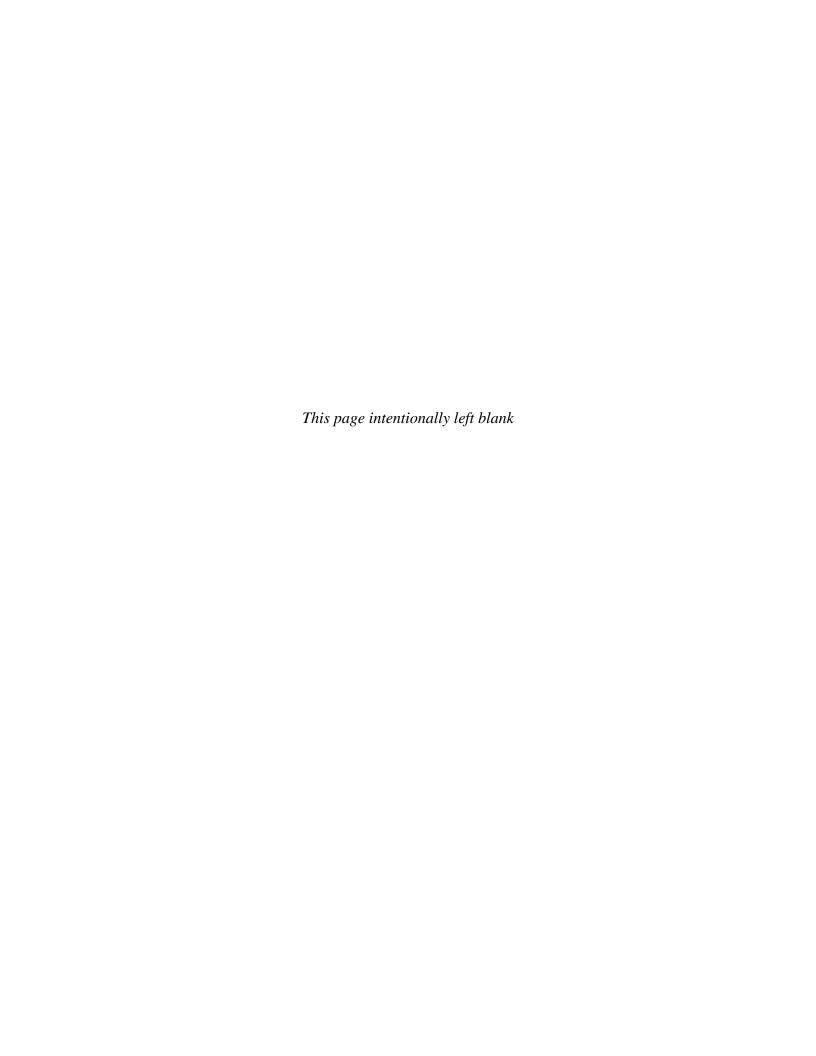
DAILY FIELD REPORT



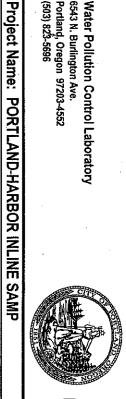


OXE 6/A Bage 1 Harbor Stormwater Samp Project No. 1020.005 Location Find Lab. WACK Date 6 1/09 Subject Basin 44-5TI fiter notes By_ASA 1326 cont dried seds to composite sample Sedment appears to 1440 dry, photographed Solids from BI + jar + 1 i 2 tave weight Dhotographed W/ Sand, some organic Woody

Solids Sampling: Composite Samples



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Bureau of Environmental Service CT OF POHESE



Date: 3-11-09

Page:

Collected By: JXB//RAP/ PHA/PX

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Requested Anal	

Requested Analy	
<u>a</u> <	

THE NUMBER 1020.001		M	Matrix: S	SEDIMEN									Z eq	nes	Requested Analyses	yses	
						ဝ္	Organics	Ś	ଦ୍ର	General		Metals	als.	\blacksquare		Field Comments	
OUTFALLS 4	OUTFALLS 43, 44, and 44A (Albina River Lots)	bina River	Lots)			Δ)	n)		·			Cr, Cu,					
SIEVED	SIEVED / NON-SIEVED PILOT STUDY	OT STUDY					1169 (1									,æ	
				•					****							:	•
WPCL Sample I.D.	Location	Point S	Sample S Date	Sample S Time	Sample Type	PCB Aroo PAHs + P	SVOCs (6		тос	Total Sol	Grain Siz	Total Met Pb, Hg, N					
FO095311 NLOF	IL-44-ABC278-0309 N LORING & LEWIS	44_5	3/9/09	1045	C	•	•		•	•	•	•		Z	Non-sieved sample	sample	
FO095312 NLOPA	N LORING & LEWIS	44_5S	3/9/09	1045	0	•	•		•	•	•	•		2 8	Sample comprise 2mm (#10) sieve.	Sample comprised of solids that passed through a 2mm (#10) sieve.	sed through a
															-		
		r										-					
																H1.	
							,										
						· · · · · · · · · · · · · · · · · · ·	<u> </u>						4				
	·					******	-										
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*TIMES IN M31	Page of
Project Portland Harbor Inline Sed Samp Location N Loring + Lewis - ABC 279-(44-5)	Project No. 10, 20.001 Date 3/9/09
Subject Initial sampling event for sieving test	BY PHA/JXB/PA P/ PTB
1030- Entrant enters MH and confirms in	
	F00 / 1111
5 isters have of my, and I	inlet ~2' above
14 11 11 11 11 11 11 11 11 11 11 11 11 1	1419 760 7010 7010 1
1045- Entrant begings sampling from MH there is approx 1-2" of rearregatine	int accumulation.
When this was defleted tentrant	took 2 standarted Tra
5 inlets in turnifrom inlet direct	
mH rungs (when facing them) and pro	
contex-dockwise direction. The pe	rehed Intern
and sattlet did not have sediment, and were NOT included in the compo	subsampre strengthen The Developed
Intern had base flow @ ~ 0.1" & ~0	1.5 fps Bulk material
1110 DOIN COMPOSITE Samples in composite 00	THEN THE DEEN THE
overed with foil to return to lab Departed for lab.	To: Sprift-road subsequent see
1155-Back at WPCL-compositing commen	ced. Sheen was
decomposings smell. The supernatu	
water collected along with sedimen	
	Using standard
bow and push <2mm diameter soli	totacomposite
Land All Control of the Control of t	roleeding
Sumple due to lach of adequate quantity Attachments	for all desired analyses
Amochinically as a second of the second of t	



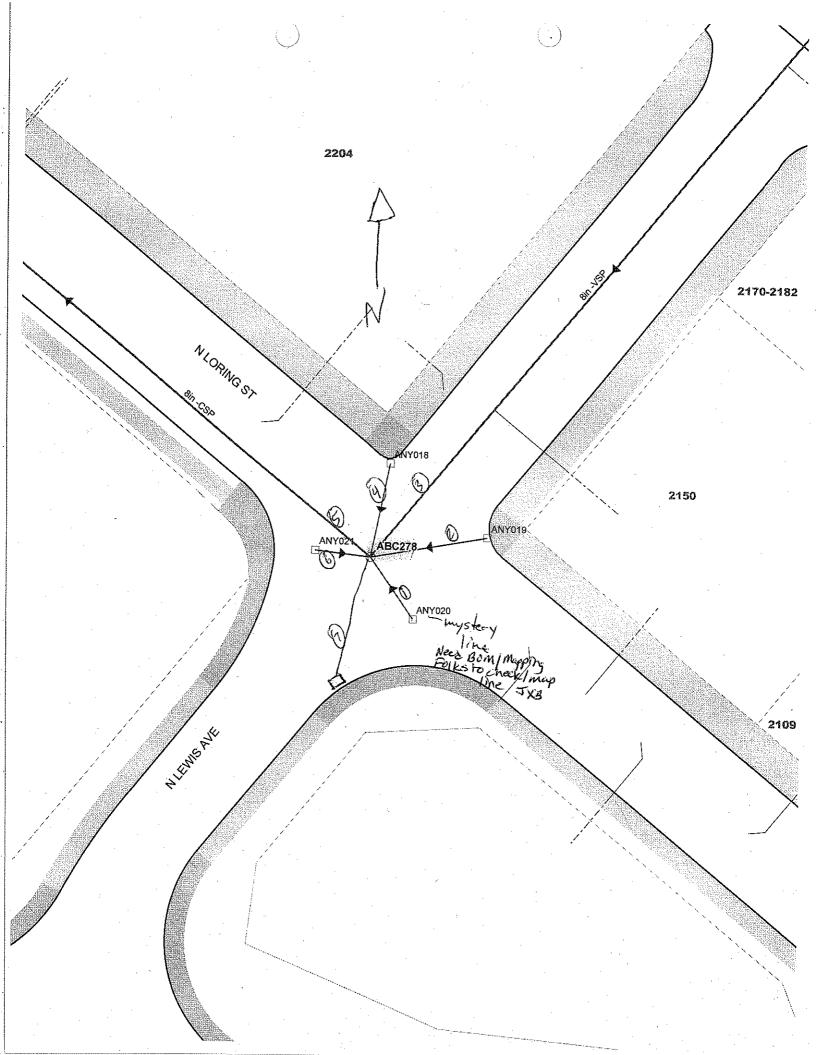


HTIMES IN 1ST Page 2 of 3
Project Por Hund Harbor Inline Sal Samp, Project No. 1020.001
Location N Loring and Lewis - ABCZ70 (44-5) Date 3/9/09 Subject Initial sampling event for sieving test By PHA/JXB/RAP/PTB
1400 - JXB made decision to go whend with sieve process
and fill as many bottles (jors) as there were material for.
During confinuation of sieving R bulk composite - un-sieved jurg were filled for all analytes. Remainder was sieved.
OVERVIEW: 14 of back composite then 1/2 was used to fill composite justs
then remaining 14 was siered.) 1430-Sieved material and yours of va-siered were placed in
Field ops staying fridge The sieved material howas filed over, and will be allowed to settle then supernaturat
will be decanted tomorrow and remaining sediment
Bas many as there are enough material for composite
* Note: Approx 200 mL of Ultrapure deionized water was used to remove
the fines from the bulk composite bould then passed through #10 sieve.
All sieving up to this point, had used notive water captured during solids sub-
sampling to pass slumy through sieve (supernatant in bulk sample material)
OB45-3/10/09 - Attempted to decant supernatant from Spirt sieved composite portion. Sieved composite had a high proportion of fines still in suspension. Unable to decant sieved composite sufficiently in Thoroughly mixed sieved composite of filled sample javs, Starting
Still in suspension. Unable to decant sieved composite sufficiently
10 grain of 20 seemples jats proposition at 301745 16
Supernatant decreased through out the subsampling process withe
Volume. Last two sample jars filled contains \$50% supernatant by total





Page <u>3 3 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </u>
Project Portland Harbor Inline Sed Samp. Project No. 1020,001
Location N. Loring of Lewis - ABX 278 (44-5) Date 3/11/09
Subject Initial Sampling Event for Sieving Test By JyB/PHA/RAP/PTB
Times in POT
[[발생하고 18][[발라 그리고 하는 사람들이 불 때 얼마 하고 있는 사람들 방문하는 사람들 그리고 있는 말을 하는 것 같아요. 그리고 있는 것 같아. 그리고 있는 것 같아. 그리고 있는 것 같아.
0849 - Submitted split composite samples (sieved of UA-sieved) for analyses
for analyses
ng kalipaga at 100 ga tibuk at tuning kalibiran tahun makali mengalan birang mengalah kalipaga tibuh 1909. Kalipagan mengangkan kempada birang mengang birang kang bermungan mengangkan birang ang birang birang birang b
는 보호의 생활하는 경험을 하고 있다면 하면 되었다. 한 경험을 받아 하는 보호에 살아 가는 경험에 가는 것은 말을 하는 것이 되었다. 그는 것이 되었다. 보통 기계 역사들은 경제를 하고 있다. 기계를 위한 경험을 하는 것이 되었다. 보통 기계를 하는 것이 되었다. 그는 것이 되었다. 기계를 하는 것이 되었다.
는 보통 하는 물로 보고 있다는 경기에 하는 수 있는 이 상품을 하는 것이 되는 것으로 보고 있다. 그는 것은 그는 것으로 보고 있는 것으로 보고 있는 것으로 되는 것으로 보고 있다. 그는 것으로 1980년 1일 1980년 1일 1982년 1일
그는 마음에 가는 마음이 되었습니다. 그는 사람들은 사람들은 사람들이 되고 말했다. 그는 사람들은 이 사람들은 바람들은 사람들이 되었습니다. 그는 사람들이 그 나는 사람들이 되었습니다. 이 사람들은 사람들은 사람들이 가득하는 사람들이 가득하는 것이 되었습니다. 그는 사람들이 사람들이 가득하는 것이 되었습니다.
으로 마음하는 것 이번에 무슨데 사람들을 하고 있다. 구역으로 발표하고 있는 학생들에 대한 생각이 함께 보는 사람들은 기계에 들어 되었다. 전에 보다 보는 것 같아. [14] 14] 14] 15] 15] 15] 15] 15] 15] 15] 15] 15] 15
Attachments





ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, OR 97203-5452



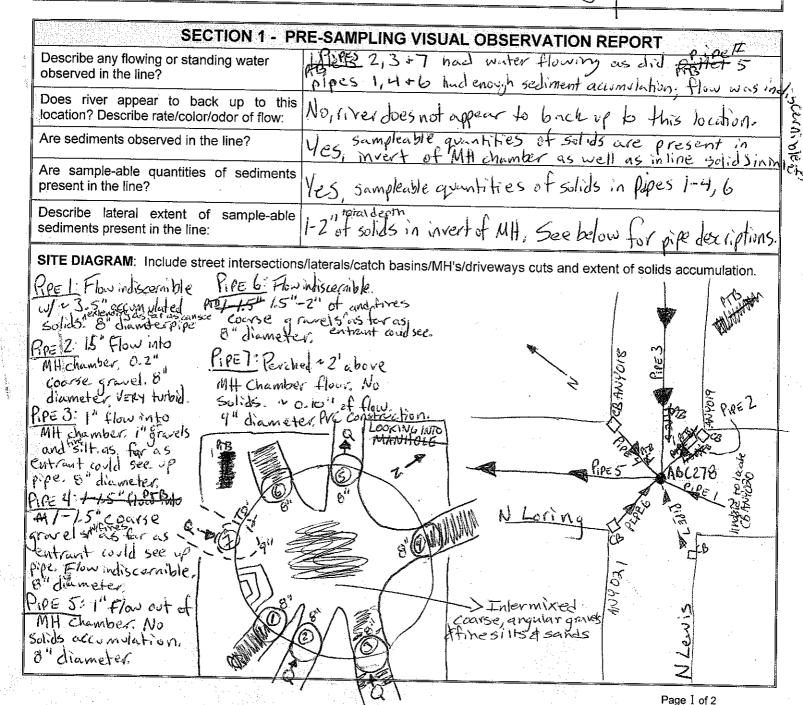
INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portland Hurbor Inline Sed Samp Project Number: /020-001 Sampling Team: Date: Arrival Time: Current Weather Conditions/Last Rain: PHA, JXB, RAP, PTB 1000 PST Overcast/Light Showers Basin: ABC 278 Node: Subbasin:

Sampling Location Description/Address:

M. Hinracenter of the intersection of N Lewis and N Loring.

144_5 \$444.58



Date: 319109	SECTIO)N 2 - SAN	IPLE COLLECTION REP	ORT Node:
Sampling Equipmer	nt:	Stainless steel s Other (Describe	spoon & stainless steel bucket 3) Stainless steel bowl	ABC278
Equipment Deconta	mination process:	(Per SOP7.01a Other (Describe		a trowel
Sample date:	Sample time: S	Sample Identi	fication: (IL-XX-NNNNNN-mmy	y) / 44-5 un-sieved
3/9/09	1045	IL-44-	ABC278-03091-55EV	ED 44-55 Steved
Sample location des	scription: (number of feet	from podo of	anton collected all storm	under sonds (mixed solids) of MH invert. Stormwater EOB from pipes 12,3446
Sample collection te	chnique:	lected all s	plids from center of MHimmoned stanless tronel. To meach Edflot Starmwater	ert (2 Standard scaps) from euch pipe)
Describe Color of sa	mple:	ik composi Ligral pa	te sample was primarily in thickes	place winlet mixed coarse
Describe Texture/Pa	rticle size:	lk composite diameter, a	onstituting 175% of bulk ma	Course angular graves >2.0mm Herial, <500 grassament, 1.02010 are
Describe visual or of bulk sediment sample	factory evidence of contai e (odor, sheen, discolora	mination in tion, etc.):	organic oder & a visi	e had a strong, wet, decomposite oily sheen on surface
Describe depth of so	lids in area where sample		Solids sampled from i approx-1-2" in depth	nvertef mitchamber were
Describe amount and	d type of debris in sample		Large angular graveis > Glessa metal sands <	5 ranged in depth between O.2 2mm in diameter
Amount and type of o	debris removed from final	sample:	Removed ~ 50% of hull	material from a wat have
Compositing notes:	niksample was com	posited be	ELE WACK. HAIT OF TH	gs manual removal processes bulk composite sample wet sieved using mative was
Sample Jars Collecte	d (number, size, full or pa	artial)?	ed of un-sieved compo	site were submitted for
If not enough sample collected and related analyte priority list in	to fill all of the jars, list ja analytes sampled (as per		ved comp. 1111 to Aracians 1x402 Puthalates	Sieved Comp. MIZ
arially to priority not my	work didery.	I	otal solids 18402 Svais 15/11	1X802 hatte grain size PATHS A Phthalates 17 1X402 & TOC
		lx402 T		1x407 SVOCS 1x402 Total met
F _ab !D	O095311		oral Metals	1×402 PCB Arroclars & Total
		Duplicat	e sample collected? Y/N D	upe ID · Sources
Ouplicate sample ider Any deviations from s	tandard procedures.	os, buik s	ample was composited,	and then spirt. Bulk
	com	posite was	sieved and the other h	altwas not sleved.
ieved composive	Same Com SECTI	deviction posite for ON 3 - Pl	was to test two diffe analyses (spirt composite HOTOGRAPH LOG	rent methods in processing resource ments ieved functioned ments
Poverview of node sho	UU3JJ 12		NO	
Plan view of sediment	s inline		yes	
lomogenized sample	(sediment in bowl)		yes	
Other?			yes, sieving procedu	res/processing

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



Chain-of-Custody Bureau of Environmental Services City of Portland



Collected By: 775, PHA

,	Date:	Printed Name:	Date:				Name:	Printed Name:		9	Date:			Printed Name:		スペインででする。
	Time:	Signature:	Time:					Signature:		R	ime		-	oignature:	JUL 1001	Susterior 1
		Received By: 4.				င္ပ	Received By:	Recen					8y: 2.	Received By:		
	Date:	Printed Name:	Date:				Name:	Printed Name:		*	Date:			Printed Name:	3/27/09	Constant of the course
	Ilme:	Signature:					ğ.	Signature:			Ilme			Samanie	(8)	
		Relinquished By: 4.	-			<u>у.</u> 3.	Relinquished By:	Reling	-		<u>.</u>		led By: 2.	Relinguished By:		Kelinguished By 7.
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.]									<i>(</i> 22)	•	ဂ	3/26/09 0935	3/26/09	44_12	N LORING & HARDING	F0095407
			-			,			PCB!	PCB Cor	Sample Type	Sample Time	Sample Date	Point Code	Location	WPCL Sample I.D.
									Araclars L	igeners - (Pa		;				
										ce)						
	nments	Field Comments		is	Metals	ral	General	ió	Organics							
		alyses	Requested Analyses	Requ	_						IN	SEDIMENT	Matrix:	•		File Number: 1020.001
. •	-				٠								MP P	LINE SA	AND HARBOR INL	Project Name: PORTLAND HARBOR INLINE SAMP

s:\eid\1000\1020.001\Sampdoc\Lower Harbbr Sed COC.xls

DAILY FIELD REPORT





Page of

Project Portland Hurban Inline Sampling	Project No. 1020 on
Location N. Lonn + Handing	Date 3/36/09
Subject Scalinant sembling year catchbasin	BY MOS PTB PHA
0930 Arrived on site at intersection of	Nelsong + Harding
0930 Arrived on site at intersection of Sediment was identified adjusent to south of node ABC348.	the cotch basin
south of node ABC348.	
0935 Collected 3 subsamples 1 & from	the Eurn todast SE
of the cotch busin, and I is the NW	if the catch basin.
of the cotch busin and A to the NW of See attached photo for locations	
Combined material in a stainless steel how	I and com homogentend
Combined material in a stainless steel how Filled 402 gar from this homogenized ma	atecial
는 경험 사람은 사람들이 있는 사람들에 경험하는 것이 되는 것이 가능하는 것이 되었다. 그 것이 되었다. 그 것이 되었다. 그는 것이 있는 사용을 경험하는 것이 되었다. 그 사람들이 가는 사람들이 있다는 것이 되었다. 그 사람들이 되었다.	
Inspection of manhales adjacent to the catch	basin revealed that
there are laterals entering both the san	(ASC 510) and
the storm (ABC348) manholes that come f	
of the two laterals has it's source at t	
or two targets say its source at	
Attachments	

Outfall 44

SAMPLE PT (8 char):

44 12

REP ADDR 1 (31 char):

IL-44-ABC348-CBtoSouth-MMYY

REP ADDR 2 (31 char):

N LORING & HARDING



NOTE: Collect sediment sample from area highlighted.
Special instructions, Considerations & Comments.

FIELD OPERATIONS CONFIRMATION:

ABC348

collected subsamples from points 1,2, and 3

(init. & date)

Vater Pollution Control Laboratory 543 N. Burlington Ave. ortland, Oregon 97203-4552 i03) 823-5696

ile Number: 1020.001

Matrix:

SEDIMENT

Requested Analyses



Chain-of-Custody

Date:

Page:

roject Name: PORTLAND HARBOR INLINE SAMP **Bureau of Environmental Services**

														1
Date:	Printed Name:	Date:				Printed Name:	Pri		Date:			Printed Name:	Date: P	ted Name:
Time:		Time:			.*	Signature:	Sign in		Time:	٠.		Signature:	Time:	rature:
	Received By: 4				y: 3.	Received By:	120			,	¥:	Received By:		CEIVED DY:
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Time:	Signature:	Time:		•		Signature:	Sign		e:	·		e Branch C.		#ed Name:
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				•	•	•	•	•	С	1213	4/8/09	44_12 4/8/	N LORING & HARDING	FO095476
	TO MANAGEMENT AND ADMINISTRATION OF THE PARTY AND ADMINISTRATI			•	•	•	•	•	ဂ	1331	4/8/09	44_10	N LORING & CLARK	FO095475
				•	•	•	•	•	င	921	4/8/09	44_9	IL-44-ABC352-CBtoN-0409 N RIVER, CB NEAR ABC352	FO095474`
				•	•	•	•	•	C	818	4/8/09	44_8	IL-44-NLORING-CBIoN-0409 N LORING & CLARK	FO095473
				· .	•	•	•	•	С	752	4/8/09	44_7.	IL-44-NLORING-CBtoS-0409 N LORING & CLARK	FO095472
				•	•	•	•	•	C	1348	4/7/09	44_6	N LEWIS & RR TRACKS	F0095471
-				•	•	•	•	•	C.	1311	4/7/09	44_4	IL-44-ABC259-CBtoNE-0409 N CLARK & RR TRACKS	FO095470
				•	•	•	•	•	С	1147	4/7/09	44_3	IL-44-ABC335-0409 N HARDING & RR TRACKS	FO095469
				•	•	•	•.	•	ဂ	948	4/7/09	44_2	IL-44-ABC345-0409 N RIVER & RANDOLPH	FO095468
			-	•	•	•	•	•	C	848	4/7/09	44_1	IL-44-ABC343-0409 N LORING & RANDOLPH	FO095467
	₩		10,119,11	Total Met	Total Soli	NWTPH-I	PAHs + F SVOCs (0	PCB Aro	Sample Type	Sample Time	Sample Date	Point Code	Location:	WPCL Sample I.D.
			, Ag, 211)	als (As, Cd, Cr, Cu, ii, Ag, Zn)		Σx	Phthalates (TA) CAS)				SIEVE	River Lot D BY #10	OUTFALLS 44 (Albina River Lots) ALL SAMPLES WERE SIEVED BY #10 SIEVE	l b
ents	Field Comments		Metals		General	Н	Organics					i i	11 P. 1	





Page _____ of ___ Project Portland Harbor Inline Samp Project No. 1020,00 Location Basin 44 Date 4/7/09 Subject Albina River Lots - Pacificarp CB Insp. By JXB/MJS/LAS/PTB * All Himes in PST 0730-Arrive at Basin 44 to inspect Pacificorp Catch basins (CB) in the Portland Harbor, Albina River Lots area. Met W/ Linda Scheffler (LAS) from BES, and Jeff Dresser of Bridgeniater of PPAL CB node A 8 on on N. Harding; adjacent to PPAL Substation. CBSIS not in operation. 0741- Inspected PPAL CB node A-12 on southeast corner of N. Harding & Loring; adjacent to PPAL substation. Little-te-no solids present in CB. 0744- Inspected PP&L OB note A-14 on northwest corner of N Loring A Clark the stormwater solids deposited in CB are at an average depth of DIS"-0-75" throughout CB bottom. Sufficient sampleable volume present 0746-Insported PPAL CB node #A-15 on southwest corner of N. Loring & Clark Are Stormwer Solids in CB are deposited at an average depth of 0,5"-0.75" throughout CB floor 0751- Inspected PP&L CB node # A-8 on normeast corner of River. SI CB currently has a filter sock installed, due to Escso-Rivershaft construction CB is connected to MH node ABX 352, Solids in bottom of filter soct 0910- Inspected stormceptor (sedimentation manhole) AMQ287. Solids present in inlet flume & secondary boys. Secondary boys have standing water. Will sample PP&L CBs & stormceptor on 418109. **Attachments**

DAILY FIELD REPORT





Page __ Project Portland Haybor Inline Samp. Project No. 1020,001 Location Basin 44 Date 4/7/09 Subject Inline Sed Samp & CB Solids Sampling. BY JUBINTSILASI PTB *All times in PST 0826- Arrive on site @ ABC343 (N. Loring & Randolph). MJS prepares to enter MH Following TC set up. Sampleable quantity of fines present; extending ~1.0' 05 from 12" diameter, concrete main outlet pipe EOP (end of pipe). 0848 - Subsampled entire extent of fine solids (~1,0' linear extent) Fines sampled were an average cept of ~2,2" [44-1] Arrive on site@ ABC345 (N. River & Randolph). MJS enters MH chamber sampleable quantities of stormwater solids present Coverage depth of solids mas ~0.5-0.75" L'extending evenly both USFB of node in main pipe solids depth Depth of solids is deeper us of node, diminishing significantly downstream of node. Solids are predominately sands & silts W/ < 50/0 coarse gravels in total volume of bulk sample. Sampled solids from ABC345. [44-2] composite w/ solids from ABC341 & ABC345. Solids from an integrated main pipe inlet into ABC345 most likely represent solids from upstream catchment for ABC 3412 Composited making 1 from ABC 345 1034- Break for lunch **Attachments**





	Page <u>d</u> of <u>3</u>
Project Portland Haybor Inline Samp Location Basin 44 Subject Inline Sad Samp & CB Solids Sampling	Project No. <u>1020.001</u> Date <u>4/7-109</u> By JXB/MJS/LAS/DTB
1130-Arrive on site @ ABC335 (N. Harding & prepares to enter node. Sampleable quantition present in main invert of mitchamber.	
1147- MJS begins to subsample stormwater so of all the begins to subsample stormwater so of all the beautiful was selectively rem sample in the field, prior to compositing. I large, coarse angular graves, revamic tiles of pieces of old records. Bulk sample was cover bulk composite was placed into a cooler my subsequent processing of potential sieving bac	noved from the bulk Demoved material include metal of asphalt particle med w/ foil of labeled chilled blue ice for
1222 - Arrive on site @ ABC259 (N.Clark & E to enter manhole. Stormwater solids in floor of a solids are comented. Minor solids (12" deep X 6"11 diameter concrete CB interfrom the northwest.	MH are not sampleable—one) deposited in 8"
BIT- Based on low solids volumes in ABCZSG; 501. CB were sampled (sampleable solids were not prese Southwest CB connected to ABCZSG. Composited Si Filled sample jars w/ thoroughly homogenized composited bulk composite w/ foil, labeled & placed relained jars into a cooler w/ chilled blue ice. Retained sieved back & the WKL. [44-4]	ent in the unmapped ubsample material. Osize. Covered remaining bulk composite & sample
1233 - Amled on site @ ABC261 (N. Lewis & RR to enter node, Sampleable stormwater solids pre-	LTracks). Miss propores sent in manhole chamber

Attachments & man outlet pipe, as well as 8" diameter (Binlet from the north

DAILY FIELD REPORT





Page <u>3</u> of <u>3</u>

Project Portland Harbor Inline Samp	Project No. 1020.001
Location Basin 44	Date <u>417-104</u>
Subject In line sed Sampaca solids sampling	By JXD/MJS/LAS/PTR
ABC261 (cont.)	
1348 - Collected stormwater solids from dow	nstram 13 of mit
chamber invert floor; extending ~2' downer	
main, 8" diameter ontlet pipe, as well as ~8"	us from FOP in
the Bidiameter as met from the north, 5	supplemented bulk
the Bidiameter CB inlet from the north, s subsample Wadditional sollds from the north	CB. Solids contained
In the norther were similiar to stormwater:	solids within ABCZEI
DEVENUE AND	化自己工作的 化二氯化二甲基乙基 医电影 医电影 医二种二种 医毛皮肤氏管 的复数
Note: 44-5 was designated as the (N. Longo Lewis - node ABC 278) that was	pilot sièvesile pticode
(N. Long & Lewis - node ABC 278) that we	s sampled on 3/9/9/
	는 에이스 경기에 가는 경기를 받는 것이 하는 경기를 받았다. 그 기계를 하는 사람이 되는 것이 되는 것이 되었다. 그리고 있다.
는 사람이 되었다. 그는 그의 그리고 있는 것이 되었다. 등 전 등 등을 받았다. 하는 것이 되었다. 등 그 중시간 등이 되었다. 사람이 지역한 제공 중요한 사람이 되었다. 기를 하면 되었다. 하지만 되었다. 이 등의 이 보호를 하는 것을 하는 것이 된다.	고 : '' (1) 전 : '' (1) 한 : '' (2) 전 : '' (2) 전 전 : '' (2) 전 : '' (2) 전 전 : '' (2) 전 : '' (2)
Attachments	



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portland t	larbor Inline	Samo	Project Number: 1020,001
Sampling Team: IXB/MIS/LAS/PTB	Date:	Arrival Time JXB	Current Weather Conditions/Last Rain:
Basin: புபு	Node: ABC343		Subbasin: N/A
Sampling Location Description/A	Address: Site is i	located on so	puthwest corner of N. Loring

SECTION 1 - PE	RE-SAMPLING VISUAL OBSERVATION REPORT
Describe any flowing or standing water observed in the line?	There was ~0.25" of standing water contained in the slight depression/sag in the MH chamber
Does river appear to back up to this location? Describe rate/color/odor of flow:	No, river does not appear to back up to this site.
Are sediments observed in the line?	Solids are present along the MH chamber inverted in
Are sample-able quantities of sediments present in the line?	yes
Describe lateral extent of sample-able sediments present in the line:	Stormwater 50 lids extend upstream of mit chamber as far as can be seen (slowly blacking off pipe), so lids are not present in laterals. Fines deposited in downstream main pipe - 1/1 downstream of FOR slowly becoming courses
	s/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation.
Un-mapped 7	Sample Location Times extending Coasses Graveis 12" diameter ele ECP ARANS ARAN
CB CB	10 - 23" - 2

Date: 9/7-109 SECT	ION 2 - SAM	PLE COLLECTION REPORT	Node: ABC343
Sampling Equipment:	□Stainless steel sp ★Other (Describe)	ooon & stainless steel bucket Stain less steel trawel a	
Equipment Decontamination process:	APer SOP7.01a □ Other (Describe)		
Sample date: Sample time: 0848		ication: (IL-XX-NNNNNN-mmyy) 48 <i>C343 - 64 Ø</i> 9	
Sample location description: (number of fe	et from node of	entry)	
Removed all stormwaters	plids from	12" diameter main pipe outle	-i-extending 1'nsf
Removed all stormwaters Sample collection technique:	Collected all extending 1	fine makrial (12,25" in ave, I downstream of main out	regedepth) EOP.
Describe Color of sample:	Brownish		
Describe Texture/Particle size:	Fine silts W	Some sands & large coarse	angular gravels
Describe visual or olfactory evidence of corbulk sediment sample (odor, sheen, discolu	ntamination in pration, etc.):	Ne discernable odor other organics. Oily sheen preser bulk sample.	r than decomposing nt on surface of
Describe depth of solids in area where sam	ple collected:	Total depth of solids average sample location	ed ~ z, z5" @
Describe amount and type of debris in sam	ple:	Fines (~75%); Sands \$ silt (~	15%); (carse gravels (5-1
Amount and type of debris removed from fi	nal sample:	21% of bulk sample remo	red (coxuse gravels of tra
Compositing notes: Thoroughly mixe	d bulk sav	npie. Filled 6×40zjors & 1x8 For potential sievina.	oziar wi composite
Sample Jars Collected (number, size, full o		B 4/23/09	
f not enough sample to fill all of the jars, lis collected and related analytes sampled (as analyte priority list in work order).	ner	sample javs filled in the field back into Mbuk sample	
manyte priority for in work order).	1	sample was subsequentl	1
		material was then passe	
FO095467	#105	ieve. Steved sample was su	abmitted for analys
.ab ID	Duplicat	e sample collected? Y(N) Dupe ID	
Ouplicate sample identification # on COC:			
any deviations from standard procedures:	NO		

SECTION	N 3 - PHOTOGRAPH LOG
Overview of node showing drainage area	yes
Plan view of sediments inline	yes
Homogenized sample (sediment in bowl)	yes
Other?	





Page Project Portland Harbor Inline Sampling JxB Project No. 1020.001 Location Basin 44 (44-1 IL-44-ABC343-6409)4/23/09Date By MJS, JXR (IL-44-ABC343-0409 sample in preparation for . In preparation jars and return Ultrappine water and supernate somple from Supernate Tingp ultraduce water Measured and after water ad sample pror to sieving - weight was brough Screen Weighed two additional Nurposes. Received instruction to not split any sample by Pacific Power's consultant Symmary of sample mass: raw sample = 4.448 kg (includes 79.99 of ultrapure Di) material excluded posties seve = 1.221 Kg ultrapore water added to sample = 79.99 FO095467 mass of sieved material was not measured **Attachments**



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



INLINE SEDIMENT SAMPLING FIELD DATA SHEET

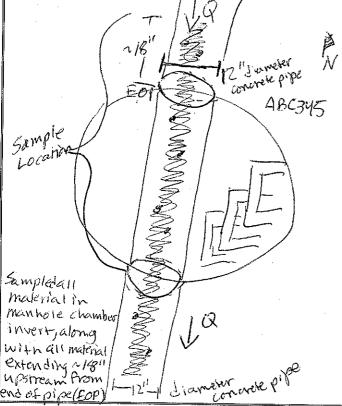
Project Name: Portand	Harbor Inliv	re Samp	Project Number: 1020.001
Sampling Team: 5xB/MJS/LAS/PTB	Date: 417109	Arrival Time: 0932	Current Weather Conditions/Last Rain: Dry & Sunny (Last precip > 5 days ago,
Basin: 44	Node: ABC345		Subbasin: N/A

Sampling Location Description/Address:

oling Location Description/Address: east JXB 4/23/09
Site is located on north west corner @ intersection of N. Randolph & Riverst.

SECTION 1 - PF	RE-SAMPLING VISUAL OBSERVATION REPORT
Describe any flowing or standing water observed in the line?	Pipe was dry
Does river appear to back up to this location? Describe rate/color/odor of flow:	No, river does not appear to back up into this site.
Are sediments observed in the line?	yes, there are some fires; predominately silbst sands wi
Are sample-able quantities of sediments present in the line?	yes
Describe lateral extent of sample-able sediments present in the line:	Lateral extent of sampleable solids is as far as can be seen; both us & Os of MIt chamber,

SITE DIAGRAM: Include street intersections/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation.



ABC341 Note? Unable to locate MHABC341 Solids removed from ABC345. represent an integrated sample upstream Cire, Stormwater socials from the uplant carchment are present indeposited soids sampled @ AB345) 1

		· , · · · · · · · · · · · · · · · · · ·				L	
Sampling Equipment:	⊡Stain ≱(Othe	nless steel sp er (Describe)	oon & stain! Skarryle	ess steel bucket S <u>S Steel Spoor</u>	à bout		
Equipment Decontamination process:	Æ∴Per	SOP7.01a er (Describe)		,	<u> </u>		
Sample date: Sample time: 4/7/09 0948	Samı I L	ple Identific	cation: (IL	-XX-NNNNNN-mm ミ ヒータサ エム	iyy) - 44-A	18C31	45-0409
Sample location description: (number o	f feet from	node of e	entry)	4			
Collected Bolids from invert Sample collection technique:							, o no trem
Describe Color of sample:		yish b		W/ a stainle	ess spo	<u>്</u>	
Describe Texture/Particle size:				nivor fines e	lessi	nan I	50/0 course grave
Describe visual or olfactory evidence of bulk sediment sample (odor, sheen, disc	contamina	ation in	1 -	sheen			jan
Describe depth of solids in area where s	sample co	llected:	Avera	jedepmofs	ગો.ds ≤	ampi	ed ranged from
Describe amount and type of debris in s	ample:	D14	l '`	0x 0,75 0.			مصمأ
Amount and type of debris removed fror	n final sar	nple:	~(,		civity ic i	CIVEN	VCG
Compositing notes: Attempted た co (see notes). They Sample Jars Collected (number, size, fu	mbine Dujhly Il or partia	Solids A	rom A	BC 3414 ABC3 Arona ABC 346	45. Una	ble to howic	Tocate ABC341 ogenized comp
	*****	1 / 2	······				
f not enough sample to fill all of the jars collected and related analytes sampled (analyte priority list in work order).	I (as per		jurs Zjars	Analytes - PCB Arodors	70C Total M	ما اد	PAHS APATHULAND
		1x80	zjar	Ovain Siz	177722110		300Cs
		(2/3 8	mil)				
FO095468 —		Dunlicate	- sample	collected? Y/N	Dupe ID	$\overline{}$	
Duplicate sample identification # on CO	 D:	Dapiloate	- Juliapic V	onected: The	Dupe ID	$\overline{}$	<u> </u>
Any deviations from standard procedure		Ď				$-\!$	
SI	ECTIO	N 3 - Pł	ЮТОС	RAPH LOG	1/		
Overview of node showing drainage area	3		yes	JXB 4/23/09 Note: Sample	iove fills	1 12 +	he field were
Plan view of sediments inline			V&	emptied back	2F(V	Stainl	,
lomogenized sample (sediment in bowl)		V~>			nateri	al was then
			-, -	omposited to	iew Sav	male ic	ars weve

DAILY FIELD REPORT

__ of ____



Page ____



A CONTROL OF THE REPORT OF THE PARTY OF THE
Project <u>Portland Harbor Intime Sed. Samp</u> Project No. 1020.001 Location <u>HH-2 (IL-HH-ABC345-0409)</u> Date <u>H/9/09</u>
Location $\frac{44-2}{11-44-AB(345-0409)}$ Date $\frac{4/9/09}{11-44-AB(345-0409)}$
Subject Sample processing By MJS, PTB
Sample was limited for 44-2, so do not have additional
bulk sample, we have the following for this site: \$ six
402 jais (full) and one 802 jai (partially full ~ 402). Bee note and
Weighted the material prior to sieving = 1.16 Kg
material is mostly said with some fines -very little moterial
excluded with instartly being relatively fine gravel, with
txcluded with ingianity being relatively fine gravel, with some coarser gravel.
Was after necessary to use a relatively large quantity of
ultrapure of to mobilize material from compty jars and
sieve sample has ver low water content but still emough to
regarre wet serving. Ended up with sufficient volume for
only Five- 402 jars and one 802 jar
Summary of sample mass:
Summary of sample mass: but Grample original sample = 1.76 Kg (does not include mater mass)
mess of excluded material = OFFA KG UNING
mass of ultrapare water added = 51.3g
mass of sieved sample = 1.59 kg (includes altrapore water mass)
용하다는 이 가는 이 사람들은 아이는 이 사람들이 하는 것이 되었다. 이 사람들은 사람들은 사람들은 사람들이 하는 것이 하는 것이 하는 것이 되었다. 그는 것이 하는 것이 되었다. - 사람들은 이 사람들은 후, 사람들은 물리를 통해 들어 있다. 그 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은
Attachments

Back of page of sample processing notes for site 44-2.

- in order to minimize sample loss, composited material from jais directly into the sieve (over a bowl). Measured weight of fall jais, then emplied into sieve. Subtracted off weight of unused jais to calculate mass of original sample



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave , Portland, OR 97203-5452



INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portland	Harbor Inli	ne samp	Project Number: 1020,00 j
Sampling Team: TXB/MJS/(AS/PTB	Date: 417-109	Arrival Time:	Current Weather Conditions/Last Rain: Warm & SUNNY Last measurable precip was >5 day
Basin: <i>YY</i>	Node: 48632	35	Subbasin: N/A
Compling Logotian Description	~	1 1 1 1	

Sampling Location Description/Address: abandored
Site is located at the end of alspur on N. Itarding Ave; adjacent to Union
Pacific Rail Road Tracks.

Describe any flowing or standing water observed in the line? Does river appear to back up to this location? Describe rate/color/odor of flow: Are sediments observed in the line? Are sample-able quantities of sediments present in the line? Describe lateral extent of sample-able sediments present in the line: SITE DIAGRAM: Include street intersections/laterals/catch basins/MHs/driveways cuts and extent of solids accumulation and the sediments of faves in the sediments of faves i	TION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT
Are sample-able quantities of sediments present in the line? Describe lateral extent of sample-able chamber, extending as far as can be seen downstream in sediments present in the line: SITE DIAGRAM: Include street intersections/laterals/catch basins/MH s/driveways cuts and extent of solids accumulation with the sum of fires in the second solids accumulation with the second solids accumulation of fires in the second solids accumulation with the second soli	ing water
Are sample-able quantities of sediments present in the line? Describe lateral extent of sample-able stermwater what are present from the invert of the mH sediments present in the line: SITE DIAGRAM: Include street intersections/laterals/catch basins/MH s/driveways cuts and extent of solids accumulation with the sediments of fives in the side of the sediments of fives in the side of the sediments of fives in the side of the side of the sediments of fives in the side of	odor of flow: No, river does not appear to back up to this location
Describe lateral extent of sample-able stermwater wilds are present from the invert of the MH sediments present in the line: SITE DIAGRAM: Include street intersections/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation with the sediments of five in the sediments of five	e line?
SITE DIAGRAM: Include street intersections/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation which have a solid accumulation of fives in the solid accumulation of five fi	yes
SITE DIAGRAM: Include street intersections/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation where the solids accumulation is a street intersections/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation in the solid sol	sample-able Stermwatersolids are present from the invert of the MH chamber, extending as far as can be seen downstream in the main pipe outlet, spilds (mainly coarsell track graveis) are also present; extendive us ~1811 in the silding per injust
Interis perchad above mit Chambris 41.0'	et intersections/laterals/catch basins/MHs/driveways cuts and extent of solids accumulation. The property of fives in Notation of

Sampling Equipment:	ARX 33-5 Stainless steel spoon & stainless steel bucket Other (Describe)
Equipment Decontamination process:	Per SOP7.01a Other (Describe)
Sample date: Sample time:	Sample Identification: (IL-XX-NNNNNN-mmyy) エレー 44ー ABC33らー
Sample location description: (number Removed all material in 8" dia in manhete chamber invert	of feet from node of entry) mejer main outlet pipe ("18" downstream of EOP) & all solids permitted coarse large angular a rawis from main 8" diameter who to suplement composite volume for potential sieving of bulk with
Sample collection technique:	Removed all solids using a flat faced scoop.
Describe Color of sample:	Redish brown
Describe Texture/Particle size:	Coarse sands (50%) W/ fine material (20%) & large coarse anyular gravets (~30%) in bulk sample
Describe visual or olfactory evidence o bulk sediment sample (odor, sheen, di	f contamination in
Describe depth of solids in area where	sample collected: Pepth of solids sampled was approx. 2.0"
Describe amount and type of debris in	sample: "50-60% coarse angular gravels, ~30% sands& silts
Amount and type of debris removed fro	om final sample: Le L'emoved approx. 40-50% of material sampled from bulk sample. Solids removed included levanic in the titles, asphalt, metal, pieces of records d'large, com
Compositing notes:	angular gravels
	ull or partial)? Tx3 4/23/69
Sample Jars Collected (number, size, f f not enough sample to fill all of the jar collected and related analytes sampled	s, list jars Note: Bulk solids & ruple was covered w/ foi) of place in a cooler w/chilled blue ice: Bulk sample
Sample Jars Collected (number, size, f f not enough sample to fill all of the jar collected and related analytes sampled analyte priority list in work order).	s, list jars Note: Bulk solids & uple was covered w/ foi) of place in a cooler w/ chilled blue ice. Bulk sample was taken back to the wPCL to be sieved
Sample Jars Collected (number, size, f f not enough sample to fill all of the jar collected and related analytes sampled	s, list jars Note: Bulk solids & ruple was covered w/ foi) of place in a cooler w/chilled blue ice: Bulk sample
Sample Jars Collected (number, size, f f not enough sample to fill all of the jar collected and related analytes sampled analyte priority list in work order).	s, list jars Note: Bulk solids & suple was covered w/ foi) of ing context in a cooler w/ chilled blue ice: Bulk sample was taken back to the wipch to be sieved using a stainless # 10 sieve. Sieved sample

SECTION	3 - PHOTOGRAPH LOG	
Overview of node showing drainage area	yes	
Plan view of sediments inline	ves	
Homogenized sample (sediment in bowl)	ves	
Other?	No	





Project Portland Harbor Inline Serd. Samp.	Project No. 1020,001
Location & Sample Processing	Date 4/9/09
Subject IL-44_ABC335_0409_44-3	By JJM, AJA
	en de Militaria estado en 1915, eta en entre en entre en 1915, eta en 1916. Estado en 1916
1010 PST Gross weight of bolk 44-3 sample 16.67	kg. Captured photo
Det weite sample.	
Weight of sieve receiving bowl = 0.75 if weigh	
1025 Added 125 L of nano-poved water to receive	。
removing finer material from bulk. Sleved bulk	
lunge decoried stainless steel bowl. Dis carding	
in excluded material jar i jar 2. Jar 2 we	John = 110.39
1050 Moved sieved material into a second receiving	
as 342.0 grams. This mas done to make =	
receiving how leaster.	
1110 Added an additional 0.5 c ultrap	ure HeO Total HeO
is now 1.75 L.	
1145 Composite complete. Full composit	e weight = 9.11kg &
1200 Captured two photos of final composite sieve re	eceiving bowl. "lotal Sieved"
1705 Material excluded from composite in jar 1	
1215 Filled 6 402 Jars 1802 jar and 280	z. Archive jars
1218 Weight of original bolk sample bucket 1.07	La Company of the Com
	· 图1000 · 图10
Original hulk composite weight = 15.55kg	
Sieved Sample weight = 9.11kg (-1.75kg) = 7.3	16 kg
Excluded Material Weight = 8.77kg	ADD 在中央中央中央中央
FO!	095469
Attachments	



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name:			Project Number:	<u>Luis periode vita esquesta a partita</u>
Portland Harbor Inli	ne Samo	1		
Sampling Team:	Date:	Arrival :		
MJS/JXB/LAS/PT3	417-109	•	227	
Basin: iji	Node: ABC 257	Addres	s: N. Clark & P.P. Ti	acts
Current weather and last known rainfall:			The state of the s	5
Worma sunny W last mea	surable precij	p)5 days		
SECTION 1 -	PRE-SAMPLING	VISUAL OBSE	RVATION REPORT	
Describe potential solids or contaminant sources that could impact catch basin (con activities, erosion, vehicles, material storage, processes, etc.):	onsite	ks for Union K imentarec ehicles on N.	Pacific are just of	lounstream
Describe debris and/or clogging around catch basin grate/cover:	l, or in CBgrave	was plugged	~80%. There w.	as a large unts of oganics
Is there standing water in catch basin?	No	SON CIS GYZOR, G	swell as plastics, f	aber a meral yepur
Describe visual or olfactory observation contamination at catch basin if any sheen, discoloration, etc.)	ons of			
Describe depth of sediments present in basin and the total depth of the catch basump:	catch Large propassin or present (si	ortion of organitisands and 18 was 22.0",	nics Wisome min some fires) Avera Total depth of cBi	or sediments age depth of was azy!!
N. Clark Ave 1/23/100	Perched	Total diame	pictor appream parator unmapped eter verete inlet	No.
	meler inlet	ABCZS 8"diameter main concrete outlet	gil diametera CBiniet	No samphabl Solids presen
unmapped CB			nnam	ed street

SECTION 3 -	PHOTOGRAPH LOG
Overview of CB showing drainage area	yes
Catch basin plan view prior to sampling showing solids	yes
Lateral connections to/from CB	yes
Homogenized sample (sediment in bowl)	yes

No

Any deviations from standard procedures:





	Page 1 of 1
Project Portland Harbor Inline Sed. Sann Location 44-4 (IL-44-AB(259-CB-0409)	Project No. <u>1020.00</u>
Location 44-4(IL-44-AB(259-CB-0409)	Date 4/9/09
Subject Sample processing	By 11 J4, PTB
Sample is relatively	dry : 30 will attempt
to dry-sieve the sample. Moteral	was mostly day decompose
Bryanic's which readily presed turnes	h the sieve.
Excluded material consisted of larger	organic material and
a snall amount of trash	
Summary of sample mass	있다. 그는 것 같은 사람들이 하는 것이다. 그런 그런 그런 것이다. 생각하는 것 같은 것이다. 그런 그런 그런 그런 것이 없는 것이다.
Balk raw sample = 3.54 Kg	
excluded material = 1.22 Kg	
sieved sample = 2-31 kg JxB	[20] 20 : 10 : 10 : 10 : 10 : 10 : 10 : 10 :
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
	FO095470
	가지 않는 보내는 지역에 있는 사람들이 하는 것이 되지 않는 것이 되었다. 그는 사람들이 사람들이 가지를 받는 것이다.



ENVIRONMENTAL SERVICES Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, OR 97203-5452



INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portland	Harbor Inlin	ie Samp.	Project Number: 1020.001
Sampling Team:	Date:	Arrival Time:	Current Weather Conditions/Last Rain:
JXB/MJS/LAS/PTB	417109	1222 018	Sunny & warm (last precip >5 daysas
Basin: 44	Node:	FI A8C261	Subbasin: N/A
Sampling Location Description/	Address:		LEWES
Site is located with	e end of air	abanctored spur	on N. Glarte Ave; adjacent to
Union Pacific RR tr	acks/east-of	<u> </u>	, V

SECTION 1 - PR	RE-SAMPLING VISUAL OBSERVATION REPORT
Describe any flowing or standing water observed in the line?	None
Does river appear to back up to this location? Describe rate/color/odor of flow:	No, river dees not appear to back up to this site.
Are sediments observed in the line?	yes
Are sample-able quantities of sediments present in the line?	yes
Describe lateral extent of sample-able sediments present in the line:	Sampleable quantities of solids present in bottom 1/3 of Mit chamber invertification extending as far as can be seen connitream in 8"diameter outlet as well as in 8"diameter outlet, as well as in 8"
SITE DIAGRAM: Include street intersections	Haterals catch basins/MH's/driveways cuts and extent of solids accumulation.
Collected solids from north CB to supplement total bulk volume for subsequent processing potential sieving Average depth of Solids in bortom of CB was -2.0" This is a solid of the solid	8" diameter perched concrete Main pipe inlet
	8"diameter concrete & cBilitet annuaged Sample area =

Date: 4/7/09	SECT	TON 2 - SAMF	PLE COLLECTION REPO	ORT	Node: ABC261
Sampling Equipment:		XStainless steel spo	Stainless steel spoon & stainless steel bucket		
Equipment Decontamination process:		Per SOP7.01a Other (Describe)	(Per SOP7.01a Other (Describe)		
Sample date: Sample time:		내 어디에서 이번 이 사람들은 모양이 가장	cation: (IL-XX-NNNNNN-mmyy - ABC261 - ダイダタ	/)	7
~ 1.5 downs	cription: (number of fe	et from node of e	r	~8"0u	Het & rolling from CB
Sample collection tec	chnique:	Collected al	Collected all solids material from downstream 1/3 of MIH Chamber invertificors extending downstream 121 in 3"diameter man outlet; as well as "man prometer to mell as "man prometer to mell as "man prometer to mell as the more provided to the series of the		
Describe Color of sar	mple:	Park gray			
Describe Texture/Par	rticle size:	~30% Sanc	54 silts; ~ 10% fines;	2109010	arge angular gravels
Describe visual or olfactory evidence of contaminat bulk sediment sample (odor, sheen, discoloration, e		THE THICKNEY IT	None	92/10 N	10n-organics/Plash
Describe depth of solids in area where sample colle		nple collected:	Average depth of sol	lids rem	naved was ~1.5"
Describe amount and	d type of debris in sam	ıple:	< 5% built sample 5	'elective	ly removed
	debris removed from fi	*	Metal, asphalt of lar.		
Compositing notes:	An additional von o increase the tote ple was covered	ume from the Veryme of w/ foils la	ne north CB was added simple for potential propelled a placed into a	1 to the occasine	bulk subsample Isjeving. Bulk Wobilled blue ice
Sample Jars Collecte	ed (number, size, full o		JXB 4/23/09		
analyte priority list in work order).		Bulk sample was using a # 10 (2mm) le was placed into) Stain	1622 2 16 m. 2 16 mg/	
FO095471					
Lab ID Duplicat		Duplicate	e sample collected? Y	Dupe ID	
Duplicate sample ider	ntification # on COC:				
Any deviations from s	standard procedures:	No			

SECTION	l 3 - PHOTOGRAPH LOG
Overview of node showing drainage area	VES
Plan view of sediments inline	YES
Homogenized sample (sediment in bowl)	Ve5
Other?	NO





Page _ of Project No. 1020-00 | Location IL-44-ABC261-8489, Date 4/9/2009 Subject Sample Processing Preparation: began to sieve through No. 10 mesh sieve. Preparation involves weighing bulk Sample, weighing sieved moterial receptacle and weithing & be used it needed. gravelly with moderate adhesion o dark brown and immediately became apparent Nano-oure Ane seeliment bowl tiled with gediment filled in H second amount of water needed for Sieving nevitably ended up in secondary bowl theretore to the supernatant used sieulum bucket supernatar any sediments sample container KULK COMPOSITE: 15.11RG SIEVED SAMPLE: .06 ka FO095471 EXCLUDED SAMPLE: **Attachments**





Page Project Portland Harbor Inline Samp Project No. 1020,001 Location Basin 44 Date <u>4/8/09</u> Subject Inline Sed Samp/CB Solids Sampling By JXB/MJS/LAS/PTB * All times in PST 0746- Arme in Basin 44. Met LAS & JEFF Dresser (Pacificorps consultant) at substation on N. Loring & Clark Ave. Inspected PP&L's CB node # A-15. Took photos of drainage area of cB grede MJS & PTB carefully removed debris from characte of then removed grave, 0752 - Stormwater solids material was removed of placed into a decorned stainless bucket using a decorned spoon. Approx. 1.5 gallons of bulk subsample material was collected Bulk-sample was covered w/foil, labeled & placed into a cooler w/ Chilled blue ice. [44-7-NOTE: All sample jar aliquots of bulk sample moverial collected on 4/7/01/03 well as on 4/8/09 in Basin 44 of 44 will be processed of sieved back at the WPCI prior to submitted JKB (Bis not mapped by BES 0808- Inspected PPal Chnode#A-14, Took photos of drawage area of of CB grater Carefully removed debris (sediments, organics, plastics, etc.) from Cograte of then removed grate. Took photo of solids on bottom of CBO putlets. 0318- Collected ~8096 of all bulk solids from CBA-14. Bulk sample was placed into a decored stainless steel bucket, covered wifeil, labeled & then placed into a cooler w/chilled blue ice. Bulk sample filled a 2.5 gallon bucket [44-8] 0836- Armie at PPAL CB node #A-12 on corner of N. Loninga Harring

Attachments Ave, Inspected or grove trade is plugged ~35%, W/ organic, sed.





Page λ of λ

	Page <u>ス</u> of <u>人</u>
Project Portland Harbor Inline Samp. Location Basin 44 Subject Inline Set Samp/(B Solids Sampling)	Project No. <u>1020,001</u> Date <u>4/8/09</u> By <u>3XB/MJS/LAS/PTB</u>
PP&L CB# A-17 (cont.)	
paper & plastics. Took photo of Charlest drain picture of heavily treated utility pole (Penta).	assumeast of N. Long
& Harding Are, just above CB catchment. Ca	refully removed debris
from cograte of surrounding area.	
Insufficient solids observed in CB. No so	
bottom of CB were < 0.11-0.2" in average de	otn, and tended to be
large coarse groves wonly mirar fines present	
0907- Arrive on site OPPSI node # A-8 on N. R	iverst. Chis unmapped
by BES, but is connected to node AAC352. (Bh	
due to Escso-construction activities. Cb gra	le was clear of debvis
Filtersock contained heavy organis at an a Stormwater solids in Fitter sock tended to be	everage depth of 3:0"
Stormwater solids in fitter socie tended to be!	sandst sills w finesumen
was "1,5" in average depth	<u> 기업 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - </u>
2001 0 JVM	<u> </u>
0921- Removed State solids from hiltersock mil	- 1
corner of CB, as well as stormwater solids from 6	"clameter, iron inlet -
comoving material to a maximum extent of ~18" u	
Placed bulk sample makenal into a decored stainles	
labeled placed into a cooler withined hime ice	but material will be
processed a sieved back weck	
PPAL A-8 cross section =>	
B design appears to not	
Frap Stormwater Solies (intet)	
Attachments ————————————————————————————————————	O STATE
10'ouries	



Page ____ of ___



- CONFIDENTIAL-

Project PORTLAND HARBOR INLINE SAMP Project No. 1020.001
Location BASIN 44 Date 4/8/09
Subject INLINE SED SAMP/CB SOLIDS SAMPLING BY TXB/MTS/LAS/PTB
* All tymes in PST
1155 - Arrive back in Basin 44@ unmapped CB et southwest
corner of N. Loring & Harring Ave Surface soulds & stormwaterge
samples were previously total @ this site. (B grate was
partially plugged (25%) w/organics, sediments of plastics.
Carefully removed debots from grate then removed congrate
Note: consultant, Jeff Diresser
PPAL identified this location under their numbering system as
A-13. (Bisconnected to storm node ABC348 (BES):
으로 하면 그는 사람들은 경기에 가지만 되었습니다. 그런 그리고 있는데, 그런 그리고 있는데, 그리고 그런데 그리고 있는데, 그런데 그리고 있는데, 그리고
1213 - Removed all material from bottom of CB Floor Souds
from outlet (~1" downstream of CB outlet EOP) were also
added to bulk sample Bulk sample to be composited & sièved
back the WPCL prior to submiting for analyses using a #10
(2mm) stainless size size. Bulk sample was correct wiffor it placed
into a cooler W chilled blue ice for [44-12]
transport buch to the NPCL
이 보면 있는 것이 많아 하는 것이 되었다. 그는 것이 없는 것이 없는 것이 되었다. 그런 것이 되었다. 그런 것이 되었다. 그런 것이 없는 것이 없는 것이 없는 것이다.
사용 보다 하나 있다. 그는 사용 사용 사용 전에 가장 보는 사용
는 사람들이 사용되었다. 이 경우 사람들이 사용되었다. 이 경우 사용
Attachments





Page _ ___ of ______ Project PORTLAND HARBOR INLINE SAMP Project No. 1020.00 Location BASIN 44 Date 4/8/09 Subject INLINE SED SAMPICE SOLINS SAMPLING By JXB/MJS/LAS/PTB * All times in PST uqio11247 - Arrive on site @ AMQ287 (sedimentation manhole- stormceptor") located at N. Loring & Clark Ave. PP&L subcontractors were spraying off their boots of some equipment in eatenment area when arriving on site, PP&L substation retrofity construction activities occurring adjacent to sedimentation man hole. MJS prepares to make entry. Entrant notes standing Water in western-most, outside bay of stomceptors ranging in any depth of 13" near flume to nearly 17" along chamber wall. Approx. 5.0" of solids deposited below standing water in westernmost outside bay. Main chamber of stormceptor has ~30" of standing water above deposited Solids Wan unknown total solids depth in main chamber. Solids deposted in main chamber appear to be mainly organics & gravels. Fastern-most outside bay had ~ 10" of standing water above ~ 14" of coarse material deposited in bay. Additionally, the flume also had large, coarse gravels of silts and sands W/an average depth of 2,0" of deposited solids W/an average maximum depth of 25,0" 1331 - MJs proceeds to use an Eckman dradge to capture solids From the center of the western-most, secondary boy. Solids captured during the first deployment of the dredge ranged intotal deprin between 4.5-5.0 The top of the dredge, during the first deployment was "3.0" below the surface of the standing water (Total height of dredge is ~10"). Top 3.0"

Of captured solids primarily consisted of fines of bottom -270 of of captured solids primarily consisted of fines / bottom Attachments Cap haved Solids Consisting of Coarser Fractions. As a results
two more grabs were performed using the dredge. Total depth of material Type
removed from second grab: ~ 500 t 4.5" for the third grab (Third grab had a higher to manner in the solids capture)



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING

	I IELU DATA ON	
Project Name:		Project Number:
Portland Harbor Inl	ine Samo	1020,001
Sampling Team: JXBJMJS/LAS JPTB	Date: 4/8/09	Arrival Time: 0746
Basin: 44	Node: PPAL A-15	Address: N. Loring & Clark Ave
Current weather and last known rainfall:	unmapped CB connected to	0 ASC 267
Overcost & cool. Lo	ist measurable pr	ecip was > sidays
SECTION 1 -	PRE-SAMPLING VISUA	L OBSERVATION REPORT
Describe potential solids or contaminant sources that could impact catch basin (cractivities, erosion, vehicles, material storage, processes, etc.):	onst. Parked vehicle retrofit activitionsite	es. PPAL substation constructions ties within catchment area
Describe debris and/or clogging around catch basin grate/cover:	d, or in Paper, organ surrounding area	ics & sediment on grate cover & on a. Grate was clogged ~20-30%
Is there standing water in catch basin?	No	- J/
Describe visual or olfactory observati contamination at catch basin if any sheen, discoloration, etc.)	ions of .	

contamination at catch basin if any (odor, sheen, discoloration, etc.)

Describe depth of sediments present in catch basin or CB depth of solids in CB was ~0.5."

Basin and the total depth of the catch basin or CB depth was 2.

SITE DIAGRAM: Include street intersections, inlets and outlets, catch basin dimensions, etc.

CB ANYO25

ABC267

BY

N. Lovingst.

Polit A-15 by BES

Material In CB.

CB A-14

Sidewalk

PP&L SUBSTATION

Page 1 of 2

Date: SECTION	N 2 - SAMPLE COLLECTION REPORT Node:
Sampling Equipment:	Distainless steel spoon & stainless steel bucket OTHER (DESCRIBE) Unmapped CB Connect OTHER (DESCRIBE)
Equipment decontamination procedure:	Per SOP7.01a DOTHER (DESCRIBE)
Sample date: 4/8/09	Sample time: 0752
Sample Identification Code: JB -5-0449 LL-44-EBNIFORING 6489	Sample collection technique and if/how overlying water was removed: No overlying water. All solids material from PPAL CB A-15 was removed w/a stainless spoon of Placed into a decorded stainless binchest
Subsample number and location: Pygo TI-44 - NLorma - CB los - gygo	Removed all solids from CB
Color of sample:	Brownish
Texture/particle size:	75% Silts sands; 15% Course graves; 8% Fines & <2%
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	None
Amount and type of debris in bulk sample:	41% trash
Amount and type of debris removed from final sample:	barbage (plustics), Large organics d some very large
Compositing notes: Bulk makenal win b	e composited back of the WKL of then sieved prior to analysis
Sample jars collected (number, size, full or pa	rtial)? 115 gallons of bulk medorial
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).	
FO095472	
Lab ID	Duplicate sample collected? Y/N Dupe ID
Duplicate sample identification # on COC:	
Any deviations from standard procedures:	lo

SECTION 3 - F	PHOTOGRAPH LOG
Overview of CB showing drainage area	ves
Catch basin plan view prior to sampling showing solids	yes
Lateral connections to/from CB	yes
Homogenized sample (sediment in bowl)	yes





Project Portland Harbon Inline Samp Project No. 1020,001
Location 44_7 (IL-44-68 APLORMS-5-6407) Date 4/9/09 Subject Sample Processing IL-44-NLoving-coros-ough By 7005 FTB JJM, AJA
1400 Started Sieving processing; sample is dry and should be easily sieved
1403 Starting welight of holk 8.52 kg.
Weight of receiving bowl 0.51kg.
1430 Sieve is chogging up with sediment Added
1.51 ultrapure water to elutriate seds t
S: (ts
1503 Rinsed vernalning bulk in sieve W/DI (nanopove) squirt bottle.
Sowit bottle starting weight 252.5, 7 Final guirt bottle weight 276.3 g Southerence 26.2 g
Final golf bottle weight 276.3 g (Difference 26.29)
1511 Excluded material 2.49 kg
Final sleved weight (including water inappore) and bowl) 6.48kg
Ly minus receiving bout = 6.47kg
Ly minus receiving bowl = 16.47kg [Final Sleved Weight]
1520 Weight of original bolk to Jam bucket = 1.07kg
Weight of original bulk sample 8.52kg-1.07kg = 7.45kg
1528 Captured photo of sleved composite sample. No photos were aptured
of original sample bucket prior to sieve, sample was mostly dry w/
ample organic material much like 44-4.
1530 Filled 6 40z. javs, 1 80z. jav and Z 80z. Archive javs.
Wrighnal raw sample weight = 7.45kg
sieved sample weight = C.44kg (-15kg DI) - 4.94kg
Excluded material weight = 2.49 kg
FO095472
Attachments

ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452

CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name:		Project Number:
Portland Harbor In	inc Samp.	1020,001
Sampling Team: JXB/MJS/LAS/PTB	Date: 4/6/09	Arrival Time: 0808
	Node: PP&L A-14	Address: No Long & Clark Ave
Current weather and last known rainfall:	1 for scattered	£367
Overcast & cocl. Light -	sprinkles, Last meas	urable precip was >5 days.
	•	

SECTION 1 - PRE-	SAMPLING VISUAL OBSERVATION REPORT
Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	Parked vehicles. PPAL substation construction/ retrofit activities within cutchmentarea
Describe debris and/or clogging around, or in catch basin grate/cover:	Paper, plastics, organics & sediment on grade cover don surrounding area. Grate was clayged ~5%
Is there standing water in catch basin?	No
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	None
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	Average depth of solids in CB was ~2,25" & CB depth was ~2'
N. Loring St Pemores Sample 1 80% Of all material from CB Floor	ets and outlets, catch basin dimensions, etc. CB ANYOZS ABC267 ABC267 CO B' main line N Loring St Unmapped CB by BES ppt LATS sampled as yu.
Sidewalle A-1	L -> CBisinmapped y BES

Date: SECTION	N 2 - SAMPLE COLLECTION REPOR	Node:
Sampling Equipment:	Stainless steel spoon & stainless steel bucket OTHER (DESCRIBE)	unmapped CB connected to
Equipment decontamination procedure:	Per SOP7.01a OTHER (DESCRIBE)	
Sample date: 4/8/09	Sample time: 0818	
Sample Identification Code: The HACKING TORING -N - BANG Subsample number and location:	Sample collection technique and if/how over NO overlying water. Solids were of collection remaining solids were sampled randomly. Removed	e first collected from comes one composited in CB of necession all bulk solids f
Color of sample:	Removed 180% of all solids for randomly throughout entire CB	
Texture/particle size:	Publication of the same was to strait from	(Firest material concentrated
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	on toployers decorners "Icawser make layers = 8500 Sands & silts; ~10 ~500 fires & organics None	Plu coarse, angular gravels
Amount and type of debris in bulk sample:	Trash (plastics) & a few large	proces of coarse grands
Amount and type of debris removed from final sample:	210/0 lorganics of largercoars	
Compositing notes: Bulk material will	The composited of sieved back &	the well for subsequent
Sample jars collected (number, size, full or pa	irtial)? Full bucket 2.5 gallo	
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).		
FO095473		
	Duplicate sample collected? Y Dupe II	D .
Duplicate sample identification # on COC:		
Any deviations from standard procedures:	NO	

SECTION 3 - I	PHOTOGRAPH LOG
Overview of CB showing drainage area	yes .
Catch basin plan view prior to sampling showing solids	yes
Lateral connections to/from CB	V <i>es</i>
Homogenized sample (sediment in bowl)	yes

of



Page



Larbor Inline Sedimen. Project No. _ CBNLORING NO CHO Location I Subject Sample Sieving MES By Regin compositing <u>ef</u> 5 gallons of mater. W selected siexing, w/ brown Sandy sil organics Content consisting organics. nanopure T of N a secontar 250 ml As sieving progresses in the screen consists of course angular gravels accomplated sieve moteria ook photo. I used DI nanopure squit bottle to rinse secondary receptacles filling sample fors taking care to a Scoop middle & bottom of am immediate have occurred MATERIAL STEVED = SIEVED MATERIAL = EXCLUDED MATERIAL 1.28 *These values account for/exclude in final weights the weight use FO095473 **Attachments**



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name:		Project Number:	
Portland Harbor Int	ine Samp	1020.001	
Sampling Team:	Date:	Arrival Time:	
JXB/MJS/LASIPTB	4/8/09	0836	
Basin: 'V'	Node: PPAL A-12	Address: N. Loring & Harding Apo	
Current weather and last known rain	fall: Unmapped CB -maybe conv	leded to ARC348	
Overcast & cool w/ last	- measurable precin	>5 days	

SECTION 1 - PRE-	SAMPLING VISUAL OBSERVATION REPORT
Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	- Particed vehicles - PP&L Substation construction/retrofit- activities further upstream in abordistance.
Describe debris and/or clogging around, or in catch basin grate/cover:	CB grate ~35% plugged w/ organics, sediment, paper plastics, etc.
Is there standing water in catch basin?	NO
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	Next to CB
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	Coarse, angular gravels wisome minor fires present.
SITE DIAGRAM: Include street intersections, inle	ets and outlets, catch basin dimensions, etc. Post Substation Sidewalk Post A-12 N. Loring ST NO Sample

PP&L Substation

Date: SECTION	N 2 - SAMPLE COLLECTION REPORT Node:
Sampling Equipment:	□Stainless steel spoon & stainless steel bucket □ OTHER (DESCRIBE)
Equipment decontamination procedure:	□ Per SOP7.01a □ OTHER (DESCRIBE)
Sample date:	Sample time:
Sample Identification Code:	Sample collection technique and if/how overlying water was removed:
Subsample number and location:	
Color of sample:	
Texture/particle size:	
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	
Amount and type of debris in bulk sample:	
Amount and type of debris removed from final sample:	
Compositing notes:	
Sample jars collected (number, size, full or pa	artial)?
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).	
Lab ID	Duplicate sample collected? Y/N Dupe ID
Duplicate sample identification # on COC:	
Any deviations from standard procedures:	
U SECT	TION 3 - PHOTOGRAPH LOG
Overview of CB showing drainage area	
Catch basin plan view prior to sampling showi	/ing solids
Lateral connections to/from CB	
Homogenized sample (sediment in bowl)	



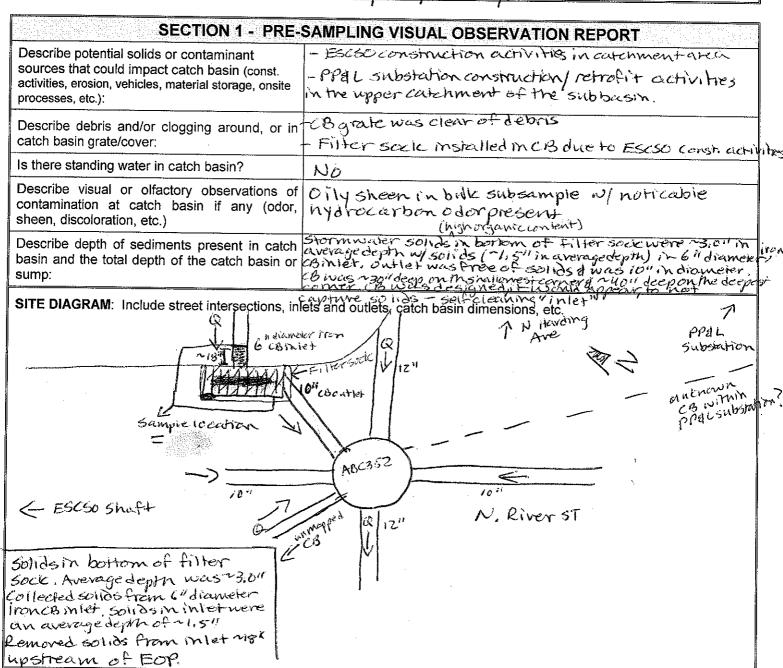
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name:		Project Number:	riche reterrete titrappende
Portland Harbor Inli	nesamp	1020.001	
Sampling Team: JXAIMJS/LAS/PTB	Date: 4/8/09	Arrival Time:	
Basin: 44 Current weather and last known rain	Node: PPALA-8 Unmapped CB from the NE	E Address: N River ST - ESCSOS	ha fit
Current weather and last known rain	fall: connected to note ABC3:	357	Z 8/ X 1
Overast & cool W/1a	st measurable precip	>5-days.	



Date: 4/8/89 SECTION	12-SAMPLE COLLECTION REPORT Node: PPAL A-8 Un mapped CB
Sampling Equipment:	Stainless steel spoon & stainless steel bucket OTHER (DESCRIBE)
Equipment decontamination procedure:	Per SOP7.01a
Sample date: 4/8/09	Sample time: 0921
Sample Identification Code: IL-MN-A-8C352-CBION-\$469	Sample collection technique and if/how overlying water was removed:
IL-44-CENRIVER BYBG	Minor fines from Northwest corner of CB & sollds from
	Removed all material from bostom of filter sock of normwest 30% of bulk subsample.
Color of sample:	Dark brown w/ a lot of red oxidized making/present
Texture/particle size:	Mostly large coarse organic particles in filtersat Inlet had "80% sands & silts \$20% fires
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	lysheen & hydrocarbon odor present
Amount and type of debris in bulk sample:	Large proportion of organica in filter sock w/ ~8000 sandst silt from inlet subsample of ~2000 fires
Amount and type of debris removed from final sample:	Mainly lorg eorganized transegravels) will be composited a sieved back at the WPCL
Compositing notes: Bulk subsample me	algerial will be composited of sieved back at the WPCL algorisms wing & #10(zmm) stainless steel sieve
Sample jars collected (number, size, full or pa	rtial)? Full Stainless bowl
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).	
Lab ID FO095474	Duplicate sample collected? Y/N Dupe ID
Duplicate sample identification # on COC:	
Any deviations from standard procedures: Nz	>

SECTION 3 - I	PHOTOGRAPH LOG
Overview of CB showing drainage area	YES
Catch basin plan view prior to sampling showing solids	yes
Lateral connections to/from CB	yes
Homogenized sample (sediment in bowl)	yes

of



Page



Project No. Processing IL-44-ABC352-CBION-\$444By P emple betere removing port Sample oil hed consistency of wol FO095474 **Attachments**



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave.; Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name:		Project Number:	
Portland Harbor Inl	ire sed Samp	1020,001	
Sampling Team: ゴ <u>X&/MJS/LAS/PTの</u>	Date: 4/8/09	Arrival Time:	
Basin: 44	Node: PP&LA-13 rested	Address: N. Loring & Harding Ave	
Current weather and last known rail	nfall: Node ABC348? 349		
ool govercast W/ las	t measurable precips	Sdave	

SECTION 1 - PRE-	SAMPLING VISUAL OBSERVATION REPORT
Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	Parked vehicles, ESCSO-River shaft construction of PPAL Substation contruction/Retrofit activities in cB catchment area
Describe debris and/or clogging around, or in catch basin grate/cover:	CB grate was partially plugged (~5%) w/ organics, sediment & plastics
Is there standing water in catch basin?	No
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	None
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	Average depth of solids in CB was ~3.00" w/a maximum depth of solids of ~3.5" in the southwest corner of the CB. Total CB depth was ~30"
SITE DIAGRAM: Include street intersections, inl	
	The Area of the Ar
12" (2346) 3'3' 12" Asc352	where they solids ed ? N. Loring ST where they solids ed ? N. Loring ST where they solids ed ? Sidewalk

RPAL SubstationPage 1 of 2

Sampling Equipment:	Stainless steel spoon & stainless steel bucket OTHER (DESCRIBE)	Connected to ABC3
	- CHIER (DEGORIDE)	1
Equipment decontamination procedure:	CPer SOP7.01a	
Sample date: 4/8/09	Sample time: ルスノろ	
Sample Identification Code: Southwest CB on N. Lenny coneces L-44 CBNLORING ABC3US? Subsample number and location:	Sample collection technique and if/how overlying No overlying water. Removed at of cB & ~1"downstream of 8"dian Removed all material	
Color of sample:	Add Bossana	
Fexture/particle size:	80% sands & silts ; 15% acquele	20/2 Come : 20/4 d.
/isual or olfactory evidence of contamination in bulk sediment sample odor, sheen, discoloration, etc.)	80% sands & silts; 15% gravels;	(plastics, gia
Amount and type of debris in bulk sample:	Sandst silts, fres, gravels, tro	*\$h.
Amount and type of debris removed from inal sample:	<2% (coarse large gravels & pi	eshes)
compositing notes: Bulk sample will bush analysi	be composited of then sieved back. S USING a #10 (2mm) stainless	at the wpcl for
ample jars collected (number, size, full or par	tial)? 1/2 Full sgallon bucket	
not enough sample to fill all of the jars, list ars collected and related analytes sampled as per analyte priority list in work order).		
FO095476		
ab ID	Duplicate sample collected? Y(N) Dupe ID	<u> </u>
uplicate sample identification # on COC:		

SECTION 3 - PHOTOGRAPH LOG	
Overview of CB showing drainage area	yes
Catch basin plan view prior to sampling showing solids	Yes
Lateral connections to/from CB	yes
Homogenized sample (sediment in bowl)	yes

City of Portland Environmental Services

DAILY FIELD REPORT





Pageof
Project Portland Harbor Inline Sed. Samp. Project No. 1020,001
Location IL-44-ABC348_CB+65-0409 YY-12 Date 4/10/09
Subject Sample processing. 4/24/09 By JTM, PTB, RAP
1237 Mixed composite sample to have a more homogenized sample to
sub-sample approximate volume needed for analysis.
Collected sofficient volume/weight needed into decond stainless
steel bowl from which sieve material will originate.
1748 Captured photo of pre-sieved Material.
1250 Attempted dry sieving wlout success Added 1.06 of manim
Ultrapure DI water to assist w/ sleving.
1306 Added additional 500ml of ultrapure DI to further assist
sieving, Total added ultrapure DI 1500ml (1.5L)
1336 Completed sieving.
Captured photo of sieved material. Weighted sieved material and
exclude material.
1340 Filled 640z Javs and 380z. Javs
는 이 사람들이 많아 다른 사람들이 되었다. 그는 사람들의 등에 가는 사람들이 되었다면 보고 하는 사람들이 되었다면 하는 것을 모르는 것을 모르는 것을 모르는 것을 받았다. - 1980년 1987년 1월 1일
는 하다는 사이에게 가능하는 것으로 되었다. 하는 것이 하는 것이 되었다면 가장에 가장한 것이 되었는데 보고 있는데 보고 있다면 되었다. 현실 보고 있다는 것이 되었다. 그는 사람들에 모르는 사람들 - 1987년 1988년 1일 - 1987년 1일 대한 1987년 1일 대한 1987년 1987년 1987년 1987년 1987년 1987년 1일 대한 1987년 1987년 1987년 1987년 1
Total Composite Weight = 8.58kg
Sieved sampleweight = 4.942g F0095476
Exaltated Material weight = 3.44 kg
는 사용하는 것으로 보고 있는 것으로 하는 것으로 되었다. 그는 사용하는 사람들이 모든 이렇게 하는 것으로 하는 것으로 하는 것으로 하는 것으로 가장 하는 것으로 함께 되었다. 그는 것으로 함께 생 하는 것은 것은 것으로 있는 것으로 가장 있는 것으로 되었다. 한 것으로 하는 것은 것은 것으로 모든 것으로 함께 함께 되었다. 그는 것으로 가장 한 것은 것으로 참가 되었다. 그는 것으로 함께 생각하는 것이
도로 보고 있다. 그는 그는 그리고 하는 것은 사람들이 하는 것이 되었다. 그런 그런 그는 사람들은 사람들이 되었다. 그는 것은 사람들이 하는 것을 모든 사람들은 사람들은 사람들은 사람들은 사람들은 - 사람들은 사용하는 사람들이 있는 것이 가는 것은 것은 사람들은 사람들은 사람들이 있다. 그런 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들이 사용하는 사람들은 사람들이 되었다.
[1] 그는 사용
는 사람들이 되었다. 그런 그는 사람들이 되었다. 그는 사람들이 가장 보고 있는 것이 되었다. 그는 사람들이 되었다. 그는 사람들이 되었다. 그는 것이 되었다. 그는 것이 되었다. 그는 사람들이 가장 그는 것이 되었다. 그는 사람들이 되었다. 그는 사람들이 되었다. 그는 사람들이 가장 그는 것이 되었다. 그는 것이 되었다. 그는 사람들이 사람들이 사람들이 되었다. 그는 것이 나를 다 되었다.
Attachments



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Number: 1020,001 Portland Harbor Inline Samp Sampling Team: Date: Arrival Time: Current Weather Conditions/Last Rain: 418109 1247 JXB/MJS/LAS/PTB Cool tovercast What measurable precip Basin: UU Subbasin: NIA >5 dw/5

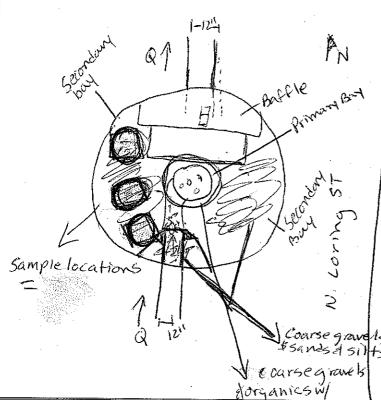
Sampling Location Description/Address:

Sedimentation manhole (stormceptor) is located adjacent to ppd L substation on N. Loving ST., just north of Nichark Are.

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT		
Describe any flowing or standing water observed in the line?	~30" of standing within the primary buy of the sed manhoe 10-17" of standing water within secondary buys (west a east)	
Does river appear to back up to this location? Describe rate/color/odor of flow:	No	
Are sediments observed in the line?	yes, solids are present in the stormceptor flume, primary bay wisamps secondary bays (westers)	
Are sample-able quantities of sediments present in the line?	Yes, sambleable quantities are present throughout the storm eptor's flume, internal bay doutside containment bays (west feast	
Describe lateral extent of sample-able sediments present in the line:	N/A	

SITE DIAGRAM: Include street intersections/laterals/catch basins/ 's/driveways cuts and extent of solids accumulation.

As built 06295 sheet \$2 (See for more information)



3011 of Standing wester

Date: 4/8/09 SE0	CTION 2 - SAN	IPLE COLL	ECTION RE	PORT	Node: AWG5) \$ 7		
Sampling Equipment:	□Stainless steel	ess steel spoon & stainless steel bucket (Describe) Stainless Steel Eckman dredge & bucket						
Equipment Decontamination process:	Per SOP7.01a			7 4 9 9 9	New F.C.			
Sample date: Sample time:	Sample Ident エL-	fication: (IL-X) ー AM Q 2を	K-NNNNNN-mr 37-15499	nyy)				
Sample location description: (number of			•					
Sample collection technique:	Collected solids Frank	solids from	west seco	onday ba	y. Base	d on		
Describe Color of sample:	13/0CK 8 1	/1500us -	rabs were c	collected in	The S.	fferent la		
Describe Texture/Particle size:	lerompused Urganics e	fines		25	مرو (م			
Describe visual or olfactory evidence of obulk sediment sample (odor, sheen, disc	contamination in oloration, etc.):	Substan Standing	tral oily si water in we f captured	st most sa	irface o condany e malen	baydon		
Describe depth of solids in area where s	ample collected:	Removed	#top 4,5 bsample la	-5,01100	50118S	trom		
Describe amount and type of debris in sa	ample:	19800 decomposed organics of fires (390 sands)						
Amount and type of debris removed from	•	· v ·/e						
Compositing notes: Bulk sample in Compositing notes: Bulk sample in Compositing notes:	ill be comp a #10(2mi	osited \$51 m) stainle	eved back.	at the wr	CL for	subsequen		
Sample Jars Collected (number, size, ful	or partial)? /×	full 5,00	allon star	nless skei	bucke	F		
f not enough sample to fill all of the jars, collected and related analytes sampled (analyte priority list in work order).	list jars							
analyte phonty list in work order).								
4. 4								
ab ID FO095475								
Ouplicate sal concation # on COC	ate sample col	ected? Y/N	Dupe ID		-			
ny deviations from standard procedures	· · · · · · · · · · · · · · · · · · ·			-				

SECTION 3 - PHOTOGRAPH LOG						
Overview of node showing drainage area	yes					
Plan view of sediments inline	VES					
Homogenized sample (sediment in bowl)	yes					
Other?	Solids in Eckman Dredge					



Page ____ of ___



Harbar Juline Sarplin Bosin 44 Project No. 1070.001 Date 4/9/09 Location IL-44-AMQ287-0409, 44-10 Subject Sample Vrocessing By PHA JJM \$56-Mix sample before removing partish for here were had alor we believe it is a senitory was Is There are no grave's consistency Sesin Sicvine sample. Sample is composed of mostly fine materials. pressing Original bulk composite sample weight = 8.58 kg Sieved sample weight Excluded material weight = FO095475 Attachments

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services



Date: 4/30/09

Collected By: PTB, MS, JKB,

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Tinted Warner	Ignature: Colon Colon	eceived By:	12th / R/	ignature://// Lynn	elinguished By: 1.						FO095557 "	FO095556	FO095555		FO095553	WPCL Sample I.D.		ALL SAMPLES		,	File Number: 1020.001	Project Name: PORTLAND HARBOR INLINE SAMP
	J 1100 727		+ Date: 4/30/09	_							1050 N RIVER ST	IL-44-AMX005-0409 1050 N RIVER ST	IL-44-AMX004-0409 1050 N RIVER ST	1050 N RIVER ST	IL-44-ABC355-0409 1050 N RIVER ST	Location		WERE SIEVED BY #10 S	OUTFALLS 44 (Albina I		•	AND HARBOR INC
Printed Name	Signature:	Received	Printed Name	Signature:	Relinquis	,					44_16	44_15	44_14	44_13	44_11	Point Code		SIEVE, EX	River Lot			INE V
	,	Ву: 2.	. "		ned By: 2.						4/29/09	4/29/09	4/29/09	4/29/09	4/29/09	Sample Date		CEPT SIT	īs.		Matrix:	A MT
				:		<u>.</u> .:					1120	1052	1030	950	842			E 44_13			SEDIME	
Date:	Time:		Date:	Time:					***		C	ဂ	ဂ	ဂ	ဂ	Sample Type					TN	
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rinted Name:	ignature:	Received By: 4.	rinted Name:	ignature:	elinquished By: 4.	A TOTAL STATE OF THE STATE OF T								fficient sample vo						Field Comn	lyses	
Date:	Time:		Date:	Time:		f I			-					olume this sample was			.			nents		
	Date: Date: Printed Name: Date: Printed Name: Date: Printed Name:	COLD WAY Time: Signature: Time: Signature: Time: Signature: Time: Signature: Oate: Printed Name: Oate: Printed Name:	Received By: 2. Received By: 3. Received By: 4. Received By: 4.	Printed Name: Date: Date	Time: Signature: Time: Signature: Time: Signature: Signature: Signature: Signature: Signature: Signature: Date: Printed Name: Date: Printed Name: Date: Printed Name: Signature: Time: Signature: Time: Signature: Time: Signature: Time: Signature: Oate: Printed Name: Oate: Oate: Printed Name: Oate: Oat	Relinguished By: 2. Relinguished By: 3. Relinguished By: 4. Received By: 4.	Shed By: 1. Time:	Shead By: 1. Time: 1522 Relinquished By: 2. Relinquished By: 3. Relinquished By: 3. Relinquished By: 4. Signature: Time: Signature: Date: Printed Name: Date: Printed Name: Received By: 4. Signature: Time: Signature: Time: Signature: Date: Printed Name: Date: Printed Name: Received By: 4.	Sheadby: 1. Sheadby: 1. Sheadby: 1. Sheadby: 1. Sheadby: 1. Sheadby: 2. Relinquished By: 2. Relinquished By: 4. Signature: Signature: Signature: Signature: Signature: Signature: Signature: Signature: Signature: Time: Signature: Signature:	Shedby: 1. Relinquished By: 2 Relinquished By: 3. Relinquished By: 4.	Relinquished By: 2. Relinquished By: 3. Relinquished By: 3. Relinquished By: 3. Relinquished By: 4. Received By: 2. Received By: 3. Received By: 4. Received By: 3. Received By: 4. Received By: 4. Received By: 3. Received By: 4. Received By: 4. Received By: 3. Received By: 4. Received By: 4. Received By: 4. Received By: 3. Received By: 4. Received By: 4. Received By: 4. Received By: 4.	CO095557 L-44-ABC352-CBeloSE-2409 44, 16 4/29/09 1120 C • • • • • • • • • • • • • • • • •	O095556 IL-44-ANXX005-0409 ID50 N RIVER ST ID50 N RIV	O095556 IL-44-AMX005-0409 IL-44-AMX005-0409 IL-44-AMX005-0409 IL-54-AMX005-0409 IL-44-AMX005-0409 IL	Double to insufficient sample volume that Double to insuffici	L.44-ABC355-O409	Column Code Date Time Sample Sample	Color Color Code Date Time Type Sample Sa	ALL SAMPLES WERE SIEVED BY #10 SIEVE, EXCEPT SITE 44_13 ALL SAMPLES WERE SIEVED BY #10 SIEVE, EXCEPT SITE 44_13 Location	ALL SAMPLES WERE SIEVED BY #10 SIEVE, EXCEPT SITE 44_13 ALL SAMPLES WERE SIEVED BY #10 SIEVE, EXCEPT SITE 44_13 L.44-ABCCSS-0409 1095.553 L.44-ABCCSS-0409 1050 N RIVER ST	ALL SAMPLES WERE SIEVED BY #10 SIEVE, EXCEPT SITE 44_13 ALL SAMPLES WERE SIEVED BY #10 SIEVE, EXCEPT SITE 44_13 Location	CL Sample I.D.





Page _ of Project Portland Harbor Inline Sediment Sampling Project No. 1020.001 Date 4/29/09 Location BASIN 44 subject Inline & B sample Collection By PTB, MIS 0810 Arrive on-site at 1050 N River Street ABC355. Prepared for entry to conduct sediment sampling on the 10" outlet from this manhole and to verify extent and amount of solds in other laterals. Entrunt confirms that the laterals to the east and west accomulated sediment. leading to new catch basins are void of the unmapped CB from NE some sediment is accomulated this appears to be in the inactive branch of the line. The active line is void of sediments otherwise. have sediment accumulation. The outle the MH has a decent amount of sediment available sampling afthough rather coarse. Sediment has more fines them initiall 0950 Sampling commenced at 44-13. Sample are filled in the field Sieving deemed not necessary for this previously sampled 1020 Catch basin AMX 004 sampled basin AMX 005 inspected and sampled as 44-15 Sampling commenced on CBS on NE side of N Piver 3+ 3 in be sampled with discrete samples taken from each. It is Suspected they flow downslope, one into the other to node

Mark the state of the state of

#3: Unwapped perched 6" diameter inactive pipe plugged with scalment ~4 feet up line from EOP into MH chamber. Phuto #4 on aiment. T. #4: Unmapped perched 6" diameter concrete intet with flow of a slight triale coming from a 6" concrete pipe tapped into the wall of the intet 10" upstreum from the EOP into the MH chamber. Upstreum in the intet from the tipped in 0:00 is sediment accomplation of 2" as for as an be seen from the MH chamber. This sediment was sampled as 44-13, see that sites field Dita sheet for more details.

Rechal Photo #1 on amen 7.

Rechal Photo #1 on amen 7. #2: Unmapped perched 8" diameter concrete intet. "0.5 in of sediment accomplation extending from Expirits will upstrain 6" This pipe is not plugged but appears machine due to styrotram accomplation. Anoto #3 on James 7. AMX DOS Note: This CB 4415 #1-10" downeter Concrete main outlet from MH chamber in NW side. Sample taken from this invert from Eapin MH chamber to - Rpe #3 (Reched 55 in above MH flood) -PARC# 2 TO in above MH floor) downstream Sample location, from Eop to 2011 Piper Sumpled of 44.13 ABC355 #9: Perched 10" Polylined inlet from CB AMX005, Apre was dry and solids were present. Photo#9 on amen 7. Recycle of Assistance of Marketon of Marke 20" downstream of EOP. Photo #2 on Gomern South lived inlet from CB AMXOOL, Pipe (Refined Still Words dry and no solids were present. From the form with the (Paral Lass) Property (Richal Stiffwith 2.0 #6 Unmapped packed 6" diameter concrete inletwith a minimally flowing trickle vo.5"-1" of sediment accomplised with 50% of it appoints to be in oxide precipitate. Gon Epply AH chamber is some seliment Clay piot with no flow 5" upstrain # B. Unmapped perched 6" drameter withers accomplation. 30" unstream from Edp in #7:Unmapped perched 6"diameter vitreous day pipe with motton. Visibly inactive due to saliment ply us feet upstraim from MH chamber Photo #7 on amen. 7 Note 71/3 GB Sampled as 44-14 Mtchumber pipe is completely ployed with schiment. Thete #8 on Comers. T AM XOO4 Photo # 6 on Camera 7.

PIPE DESCRIPTIONS



ENVIRONMENTAL SERVICES

6543 N. Burlington Ave. Portland, OR 97203-5452



INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portland Har	bor Inline Sedin	Project Number: /o 20.00\			
Sampling Team: M\(\(\frac{1}{2}\), \(\frac{1}{2}\), \(\frac{1}\), \(\frac{1}\), \(\frac{1}{2}\), \(\frac{1}{2}\), \(\frac{1}{	Date: 4 29 09	Arrival Time:	Current Weather Conditions/Last Rain: Overcast/Last measurable rain w/in last 24 hrs.		
Basin: 식식	Node: ABC 355		Subbasin: NA		

Sampling Location Description/Address:

N RIVER ST

At 1050 N River street in northbound lane southwest of Pacific Power Substation

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT						
~3in. of standing water present.						
No, river does not appear to back up to this location.						
Yes, accumulation ranges from Zin. on SW side at dead and of MH chamber in Main 10"di						
Sediment is mostly coarse on swand mixed with fine sands on www.						
Solids are present as far as can be seen downstream in main 10" diameter outlet and up to the dead end on the SW end of the MH chamber invert.						

SITE DIAGRAM: Include street intersections/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation.

* PLEASE SEE ATTACHED SHEET FOR DETAILED DRAWING AND DESCRIPTION OF ABC355. *

BELOW is a schematic of confirmed inlets and outlets to ABC355. The remainder of the pipes indicated on the attachment are unmapped Further, ANTGZZ + ANTGZI were not confirmed to be present or attached to ABC355. Nash mapped as being connected to ABC355.

TO ABC352 ABC355

Date: 4/29/09 SECT	TION 2 - SAME	PLE CO	LECTION	REPORT	Node: AV	30355			
Sampling Equipment:	Stainless steel spe	Stainless steel spoon & stainless steel-bucket bow/ Other (Describe)							
Equipment Decontamination process:	≽ Per SOP7.01a □ Other (Describe)					****			
Sample date: Sample time: 084Z psT		Sample Identification: (IL-XX-NNNNN-mmyy) IL-44-ABC355-0409							
Sample location description: (number of fe		(N) [}	chamber to	> 20" dow	nstream-				
Sample collection technique:	Sample collect Sediment w	ed using ithin the	a stainles sample lo	is steel scation.	ocp to re	emove all			
Describe Color of sample:	Sumple is d	ark bro	own with re	ed particles	,				
Describe Texture/Particle size:	85% fine sand 7% large &	ds + silts particle	, 7% angular fraction (c.	grarels, <1 g- clay tiles	% organi	<i>د</i> ح			
Describe visual or olfactory evidence of co bulk sediment sample (odor, sheen, discol	ntamination in	Sheen No disc	visible of	n superv	natant.				
Describe depth of solids in area where san	nple collected:	ole collected: Solids are mainly ~3 in deep in the sample collection area.							
Describe amount and type of debris in sam	ıple:	Terra cotta tile chunks, <2-3% of bulk sample							
Amount and type of debris removed from fi	inal sample:	<1% large cobbles are being removed							
Compositing notes: Lightly compos	ited/homogeni	zed in	the field.		•				
Sample Jars Collected (number, size, full c	or partial)? Non	e - S	ample to	be sieve	d.				
If not enough sample to fill all of the jars, lis collected and related analytes sampled (as analyte priority list in work order).	st jars								
Lab ID FO #095553	Duplicate	uplicate sample collected? Y/N Dupe ID							
Duplicate sample identification # on COC:									
Any deviations from standard procedures:									

SECTION 3 - PHOTOGRAPH LOG						
Overview of node showing drainage area	D Photos 10+ 11 Camera 7					
Plan view of sediments inline	9) Photo 2 Camera 7					
Homogenized sample (sediment in bowl)	@ Photos 1,2 & 3 Camera 3					
Other?	D Laterals 1, 4-9 Camera 7					

SECTION 4 – SIEVING REPORT								
Date Sieved: 4/30/09	Personnel: JXB, LAP	Sample F	Processing Start Time: 0913	Sample Processing Stop Time: 0911				
Sample Sieved (Y) N		- 44-	ABC355-0409	Point Code: 44_				
Describe the homogeniz visible contamination (octexture, etc.):	lor, color, contents,	1 < 1 7	1 trash	dium → (oavse sand s ≈ 3% organics - brown in color				
Dry of Wet Sieve (Circle	One) If Wet Sieving re			kg (1 ml UPDI weighs ~ 1 gram @ 25°C)				
(Weight of Homogenized S	ample in Bowl <u>16.47</u>) - (v	Veight afte	er sample removed (6.02.) = To	otal Sample to be Sieved (이사도 kg				
(Weight of Excluded Materi	(Weight of Excluded Material in Container 3.15) - (Weight of Empty Container) = Excluded Material kg 3.62							
				\cancel{Q}) = Total Sieved Sample $\cancel{6.69}$ kg				
Observations during sievelong,		etc.):	Sieving process No discernible	s went fairly avickly odor or sincen.				
Description of excluded removed:	material and % of bulk sa	ample	Excluded material primarily consists of angular coarse gravels & cold small cobbies forganic material					
Any deviations from stan	dard procedures:)						
Photo of Homogenized S	ample (w/ Nameplate)		Photo of Sieved Sample (w/ Nameplate)					
FOO	95553 _{re}		Photo of excluded materia	al (w/ Nameplate)				

BOWL TO RECEIVE SED. = 0.88 kg UPDI Initial = 0.32 kg

ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



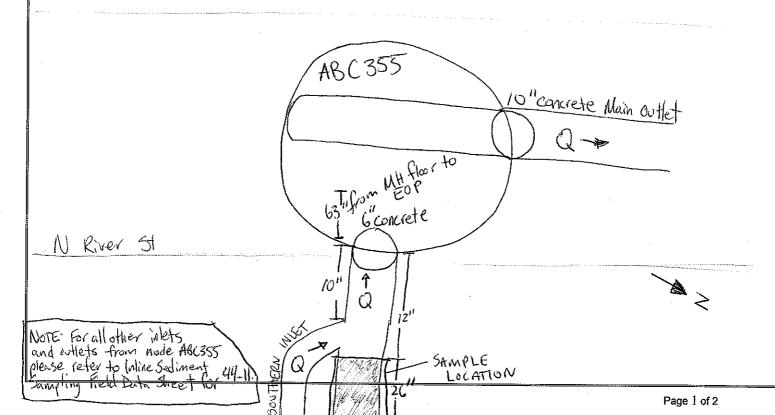
INLINE SEDIMENT SAMPLING FIELD DATA SHEET

	tarbor Inline Sedime		Project Number: /020.00 j
Sampling Team: MS, XB, PTB, LAS	Date: 4/29/09	Arrival Time:	Current Weather Conditions/Last Rain: Nostly Cloudy/Last mensy reable Nostly Cloudy/ fain ~ 24 hours
Basin: 식니	Node: ABC355	7	Subbasin: NA

Sampling Location Description/Address:
At 1050 N River St in north bound lane south and west of Pacific Power substation property in perched lateral inlet.

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT							
Describe any flowing or standing water observed in the line?	A slight trickle flowing from the southern inlet that branches into the pipe 2/0" from EOP into MH chamber.						
Does river appear to back up to this location? Describe rate/color/odor of flow:	No, river does not appear to back up to this location.						
Are sediments observed in the line?	Yes, sediments accumulated up to 2" deep ~ 12" upstream from EOP in inconsistent distribution						
Are sample-able quantities of sediments present in the line?							
Describe lateral extent of sample-able sediments present in the line:	Sediments are accomulated "17" upstream from EDP upstream as for as can be seen.						

SITE DIAGRAM: Include street intersections/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation.



Date: U 29 09 SEC	TION 2 - SAMPLE COLLECTION REPORT Node: ABC 355
Sampling Equipment:	#Stainless steel spoon & stainless steel bucket be w l □ Other (Describe)
Equipment Decontamination process:	È∕Per SOP7.01a □ Other (Describe)
Sample date: Sample time: 0950	Sample Identification: (IL-XX-NNNNN-mmyy) 016 L-44-A6C355-LATFoN-0409
Sample location description: (number of f	feet from node of entry) 12" upstream from EOP of 6" concrete lateral
Sample collection technique:	Scoops taken with a stainless steel spoon and this according placed in a stainless steel bowl. All solids samples us
Describe Color of sample:	Brown with reddish, yellowish have
Describe Texture/Particle size:	95% fine du siced particles, 2% coarse sand, 3% carse gravels
Describe visual or olfactory evidence of cobulk sediment sample (odor, sheen, disco	ontamination in No sheen, no odor, no officer evidence of Contamination.
Describe depth of solids in area where sar	
Describe amount and type of debris in san	mple: 13% coarse gravels.
Amount and type of debris removed from t	final sample: The course girnels were removed prior to
Compositing notes: Thoroughly he	emogenized prior to tilling sample 145.
Sample Jars Collected (number, size, full o	or partial)? (3) 4 oz. jars and (1) 8 oz. jars
If not enough sample to fill all of the jars, list collected and related analytes sampled (as analyte priority list in work order).	ist jars sper 70 Solids
	Aroclars
FO095554	Grain Size PAH, Phthalats
Lab ID	Duplicate sample collected? Y(N) Dupe ID
Duplicate sample identification # on COC:	
	Sample jors filled directly after homogenization. No sieving.

SECTION	N 3 - PHOTOGRAPH LOG
Overview of node showing drainage area	Camera #7 (Photo 10+11)
Plan view of sediments inline	Camera # 7 (Photo)
Homogenized sample (sediment in bowl)	Camera #3 Photos 4+5
Other?	Camera #7/1,4-9

-		SECTIO	ON 4 –	SIEVING REPO	RT		•	
Date Sieved:	Perso	nnel:	Sample P	rocessing Start Time:		Sample Processin	g Stop Time:	
Sample Sieved Y (N) Lo	cation Code:	- 44-	ABC355-LATTON-0	1409	Point Code:	44-13	
Describe the homogenize visible contamination (o texture, etc.):								
Dry or Wet Sieve (Circle	One)	If Wet Sieving re	cord volu	me of water added here	e:	kg (1 ml UPDI	weighs ~ 1 gram	@ 25°C)
(Weight of Homogenized S	ample ir	Bowl) - (V	/eight afte	r sample removed)	= Tc	ital Sample to I	oe Sieved	kg
(Weight of Excluded Mater	ial in Co	ntainer) - (W	eight of Ei	mpty Container) = I	Exicu	ided Material	kg	
(Weight of Sieved Sample	in SR) - (Weight of Er	mpty SR _) - (Weight of water u	sed_) = Total Sie	ved Sample	kg
Observations during sie effectiveness of sieving,			etc.):		odeneru zgoreg u Se			
Description of excluded removed:	materia	and % of bulk sa	mple					
Any deviations from star	dard pr	ocedures:						
Photo of Homogenized S	Sample	(w/ Nameplate)		Photo of Sieved Sam	ıple (w/ Nameplate)		
FO	0955	54		Photo of excluded m	ateria	al (w/ Nameplat	e) 🗆	



ENVIRONMENTAL SERVICES

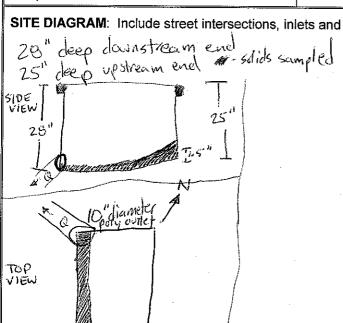
Water Pollution Control Laboratory 6543 N. Burlington Ave , Portland, OR 97203-5452

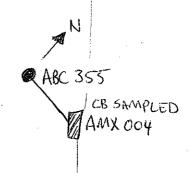


CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name: Potlard Harbor	Inline Sediment Sam	Project Number:
Sampling Team: MLS, JXB, PTB, LAS	Date: 4/29/09	Arrival Time: /020
Basin: 44	Node: AMX 604	Address: 1050 N River St CB to ABC355
Current weather and last known rainfall	Mostly Cloudy . Measu	cable fain within last 24 hrs.

Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	Heavy truck traffic on this road given its industrial location as well as East side CSO construction activities down slope of this CB. The drainings over is used as a truck steeping are. CB is located in driveway evils cutout for access to locate for wers substation located directly Not NE of the drainings area.				
Describe debris and/or clogging around, or in catch basin grate/cover:	Concrete stuck to grate, but does not create an obstruction.				
Is there standing water in catch basin?	No. the CB is dry.				
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	100 appeared to 42 64 Contamination.				
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	Sediments are 1.5" deep on awarge with highest accomplished or upslope side tapering down I towards CB outlet.				





N River St

Note: For all other inlets and outlets to ABC355 pleaser refer to Inline schiment sampling Field Data Sheet for 44-11.

Date: 비29/09 SECTIOI	N 2 - SAMPLE COLLECTION REPORT	Node: AMX 004
Sampling Equipment:	pStainless steel spoon & stainless steel bucket bc w∫ □ OTHER (DESCRIBE)	
Equipment decontamination procedure:	∀Per SOP7.01a □ OTHER (DESCRIBE)	
Sample date: 4/Z9/09	Sample time: 1030	
Sample Identification Code: 44-14 エレーリリー AM X のリー ロリo 9	Sample collection technique and if/how overlying sediment to her from lip of CB under growth vsing a stainless steel spoon to scrap	water was removed: The some evidence of the a bowl or scoop of bottom into bowl
Subsample number and location:	Solids taken from lip of CB all aroun CB floor. All solids were removed.	d as well as from
Color of sample:		
Texture/particle size:	Dark brown which organic contents 65% fine Banks, 10% organics, 4% si	Its and <1% debris.
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	No Visual or offactory evidence	of Centamination.
Amount and type of debris in bulk sample:	21% plastics metal, nouls, etc.	
Amount and type of debris removed from final sample:	21% total bilk sample removed in the to being placed in the composite boul. Type	field selectively mis-
Compositing notes: Sample lightly	composited for photo.	
Sample jars collected (number, size, full or pa	irtial)? None-Sample to be sieved	
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).		
FO095555		
Lab ID	Duplicate sample collected? Y/N Dupe ID	
Duplicate sample identification # on COC:		
Any deviations from standard procedures:		· · · · · · · · · · · · · · · · · · ·

SECTION 3 - I	PHOTOGRAPH LOG combe of CB enview returns
Overview of CB showing drainage area	Camera # 7 (12 + 13)
Catch basin plan view prior to sampling showing solids	Camera #7 (14)
Lateral connections to/from CB	(umera # (15) outlet
Homogenized sample (sediment in bowl)	Camera #7 (16)

SECTION 4 – SIEVING REPORT				
Date Sieved: 4/29/09 Personnel: PTB, JJM s	sample Processing Start Time: 0830 Sample Processing Stop Time: 0935			
Sample Sieved Y N Location Code: L - L	14-AMX064-0409 Point Code: 44-14			
Describe the homogenized sample and any visible contamination (odor, color, contents, texture, etc.):	85% medium to fine sands 10% fines, silts and days 5% organics (roots) of plustics. Color is down brown. No odor observed.			
Dry or Wet Sieve (Circle One) If Wet Sieving record volume of water added here: 0.75 kg (1 ml UPDl weighs ~ 1 gram @ 25°C)				
(Weight of Homogenized Sample in Bowl 5.4) - (Weight	ght after sample removed ().91/y) = Total Sample to be Sieved 4.47 kg			
	int of Empty Container (2.11/4) = Exicuded Material (2.71 kg			
(Weight of Sieved Sample in SR 5/014 - (Weight of Emp	ty SR $\frac{\partial (\partial \theta_{k})}{\partial \theta_{k}}$ (Weight of water used $\frac{\partial (\partial \theta_{k})}{\partial \theta_{k}}$ = Total Sieved Sample $\frac{3.67}{8}$ kg			
Observations during sieving process (including effectiveness of sieving, discernible odor, sheen, etc.	No odor of sheen observed doring this process. The sieved material looks god!			
Description of excluded material and % of bulk sampremoved:	tx cluded material is comprised many of anythan			
Any deviations from standard procedures:	None.			
Photo of Homogenized Sample (w/ Nameplate)	Photo of Sieved Sample (w/ Nameplate)			
FO095555	Photo of excluded material (w/ Nameplate)			



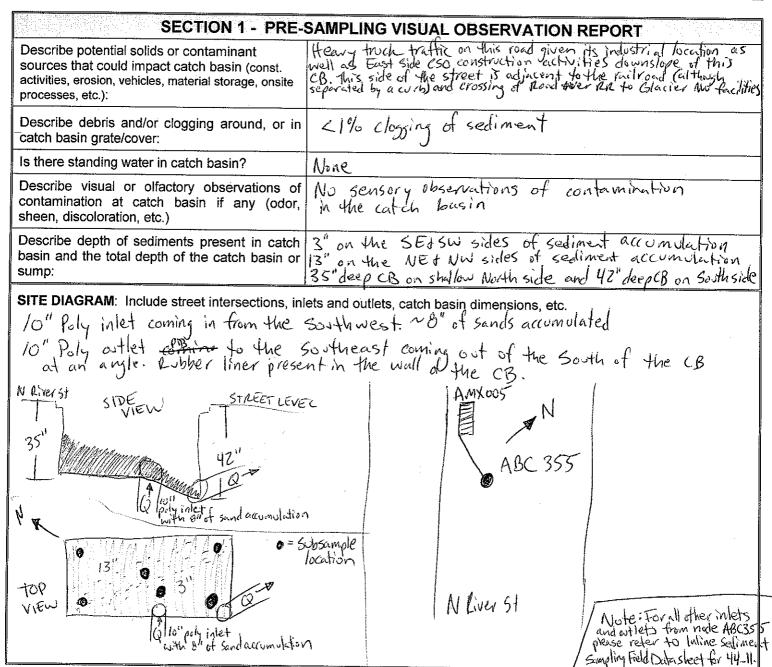
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING

Project Name: Portland Harb	VInline Sediment Samp	ding	Project Number:
Sampling Team: MJS, JXB, PTB, LAS	Date: 4/29/09		al Time: 1045
Basin: 44	Node: AMX 005	Addr	ess: 1050 N River St & TOA
Current weather and last known rainfa	all: measureable rainfall i	n last	24 hours.



Date: 4/29/09 SECTION	12 - SAMPLE COLLECTION REPORT Node: AM X 005									
Sampling Equipment:	□ OTHER (DESCRIBE)									
Equipment decontamination procedure:	© OTHER (DESCRIBE)									
Sample date: 4/29/09	Sample time: /052									
Sample Identification Code: TL-44-AMX 005-0409	Sample collection technique and if/how overlying water was removed: Using the spoon to scoop sediments out of bottom from blocations attempting to get all sediment from those scoop location. From the 4 corners, the center and the inlet in the SW side.									
Subsample number and location:	and location: From the 4 corners, the center and the inlet in the SW side.									
Color of sample:	Very dark brown with sands.									
Texture/particle size:	98% sands (coarse to medium) 2% organics + plastics									
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	No evidence of contamination									
Amount and type of debris in bulk sample:	Undecomposed organics + plastics ~ 2%									
Amount and type of debris removed from final sample:	~ 2% undecomposed organics à plastics									
Compositing notes: Not in the field										
Sample jars collected (number, size, full or pa	rtial)? None-Sample to be sieved.									
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).										
FO095556										
Lab ID	Duplicate sample collected? Y/N Dupe ID									
Duplicate sample identification # on COC:										
Any deviations from standard procedures:										

q

(4)₁

SECTION 3 - I	PHOTOGRAPH LOG
Overview of CB showing drainage area	Photo # 19 Camera 7
Catch basin plan view prior to sampling showing solids	PhotoH 17 F 18 solids Camera 7
Lateral connections to/from CB	Photo # 20 Camera 7
Homogenized sample (sediment in bowl)	Photo#6 Camera 3

	SECTION 4 – SIEVING REPORT						
Date Sieved: 4.30.09 Perso	onnel: JXB,LAP	Sample I	Processing Start Time: 0940	Sample Processing Stop Time: 1022			
Sample Sieved Y / N Lo	ocation Code: L-	44-A1	MX005-0409	Point Code: 44_15			
Describe the homogenized same visible contamination (odor, coltexture, etc.): 2 mm, #10		Priv Mac Oca No	maning sand of some organic terial. (~99%) cassional pea gravel (~1%) dark brown discernible odor or sheen in color				
Dry or Wet Sieve (Circle One)	If Wet Sieving red	cord vol	ume of water added here: <u>0</u> ને	15 kg (1 ml UPDI weighs ~ 1 gram @ 25°C)			
(Weight of Homogenized Sample in	n Bowl <u>7,65</u>) - (W	eight afte	er sample removed 2.55) = To	otal Sample to be Sieved 5.1 kg			
(Weight of Excluded Material in Co	ntainer <u>0.53</u>) - (We	eight of E	mpty Container) = Exic	uded Material <u>0.4</u> kg			
(Weight of Sieved Sample in SR 5	.86) - (Weight of En	npty SR <u>{</u>	<u>ס (Wei</u> ght of water used <u>0</u>	$(\frac{75}{1})$ = Total Sieved Sample $\frac{4.6}{1}$ kg			
Observations during sieving pro effectiveness of sieving, discerr		etc.):	Dry sieving to just enough to clog sieve. No discernible of	pecame impractable - fines & sands to odor or sheen.			
Description of excluded materia removed:	ıl and % of bulk sar	nple	Primarily pea gravels & decomposing organic material. 7.84% of bulk sample removed				
Any deviations from standard po	rocedures: N C)					
Photo of Homogenized Sample	(w/ Nameplate)		Photo of Sieved Sample (w/ Nameplate)				
FO095	5556		Photo of excluded materia	al (w/ Nameplate) 🙀			

250 250 250 750 ml UPDI used



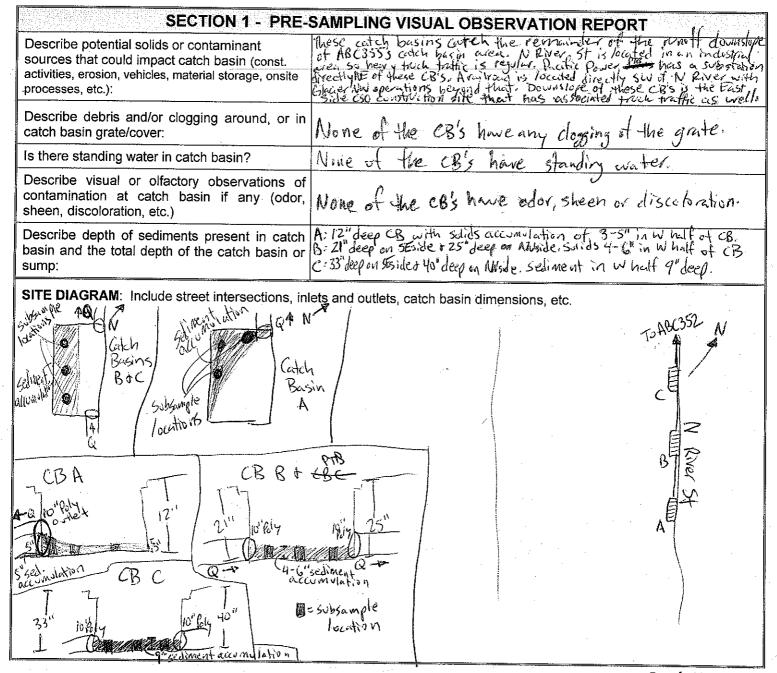
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING

Project Name: Portland Harber	Inline Sediment Sam	pliney	Project Number:
Sampling Team: MJS, PTB, XB, LAS	Date: 4/29/09	Arrival	Time: //18
Basin: 44	Node: Connected to ABC352	Addres	55: 1050 N River St
Current weather and last known rainfall:			^
	veranst, light sprink	2/e. meas	i verble mintal win last 24 hors



Date: £4 29 09 SECTION	N2-SAMPLE COLLECTION REPORT Node: Connected to ARC 35 Z									
Sampling Equipment:	pStainless steel spoon & stainless steel bucket りょい									
Equipment decontamination procedure:	p: Per SOP7.01a □ OTHER (DESCRIBE)									
Sample date: L / 29 0 9	Sample time: 1120									
Sample Identification Code: ABC352-CB5+0 SE TL-44-CB5-4-ABC352-0409	Sample collection technique and if/how overlying water was removed: (over were taken using a stainless steel spoon and placed in the Stainless steel bowl Equal amount of sediment from each CB									
Subsample number and location:	A:3 subsamples all from Whorthor of CB where sed runges from 3-5" deep. 1:3 subsamples all from Whalf through full 4-6" of sediment depth. 1:3 subsamples all from Whalf through full 9" of sediment depth.									
Color of sample:	Brown									
Texture/particle size:	Medium to fine grain sand 100%, <1% longe gravets									
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	None									
Amount and type of debris in bulk sample:	<1% longe genels									
Amount and type of debris removed from final sample:										
Compositing notes: Homegenized in	Field before Moto.									
Sample jars collected (number, size, full or pa	rtial)? None-to be sieved at WRCL									
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).										
FO095557										
· · · -	Duplicate sample collected? Y/N Dupe ID									
Duplicate sample identification # on COC:										
Any deviations from standard procedures:										

SECTION 3 - F	PHOTOGRAPH LOG
Overview of CB showing drainage area	23-overview of A 31-overview of C 30-overview of all 3 cb;
Catch basin plan view prior to sampling showing solids ⁷	A: 21,22 C: 27,28
Lateral connections to/from CB	Visible on plan views
Homogenized sample (sediment in bowl)	29

4	SECTION 4 – SIEVING REPORT						
Date Sieved: 4/30/09 Pe	ersonnel: TTM, PTB	Sample	Processing Start Time: 0450	Sample Processing Stop Time: 0130 ps7			
Sample Sieved Ø / N			ABC352-CBsto5E-0409	Point Code: 44_16			
Describe the homogenized sample and any			55% medium to fine sands oblo fine silts, clays L 5% organics, debris				
Dry or Wel Sieve (Circle On	e) If Wet Sieving re	cord vol	ume of water added here: 07	kg (1 ml UPDl weighs ~ 1 gram @ 25°C)			
(Weight of Homogenized Samp	ble in Bowl 10.74) - (W	eight aft	er sample removed 434) = To	otal Sample to be Sieved <u>6,4</u> kg			
(Weight of Excluded Material in	n Container <u>() (%)</u>) - (W	eight of E	Empty Container <u>0.11</u>) = Exic u	uded Material <u>0.7</u> kg			
(Weight of Sieved Sample in S	R <u>7.26</u>) - (Weight of Er	npty SR	099) - (Weight of water used ((0.15) = Total Sieved Sample (5.63) kg			
Observations during sieving effectiveness of sieving, disc		etc.):	Stering whithe assistant Minimal discarded in No eloserued ador ar	nce of UPDI very effective. naterial. ~ Sheen on water surface.			
Description of excluded mat removed:	erial and % of bulk sa	mple	Excluded material consists pulmarily of small products wil minimal organic debris. 10.94% of bulk sample removed.				
Any deviations from standar	d procedures:	· .	None				
Photo of Homogenized Sample (w/ Nameplate)			Photo of Sieved Sample (w/ Nameplate)				
FO095557			Photo of excluded material (w/ Nameplate)				

DAILY FIELD REPORT





The state of the s
Project PORTLAND HARROR NLINE SAMP Project No. 1020.001 Location 3333 NW 35th Avenue /BASIN 18 + 440 M1 Date 10/6/09 Subject Inline Seliment Simpling Activities By PTB, JXB, ECH
0924 DST ON-SITE 3333 NW 35th Avenue, ABF trucking. Informed ABF of our sampling activities on their property today. 0949 collected sample and filled sample jurs at AAX264 and given point cale 18-16.
1034 Collected sample and filled sample jors at AAXZ63 and given point code 18-17.
1124 Collected sample and filled sample jours et AAX262. Attributed point rade 18-18.
1214 ApplyE on-site at Basin 44 node AMQ287. To perform Field Decon Blank and Duplicate at this site.
1246 Performed Field Decon Blank. This node is adjacent to Pacific Power Substation where a diesel crane is currently operating in the assistance of the replacement of insulators as can be seen in the drainage overview photo. 1256 Field Decon Blank completed.
1318 Collected Sample and filled sample jars at AMQ287. Attributed point code 44-17
1419 ARRIVE on-site at Basin ML note: AADB31. Worker from Western Star facility informed sampling crew of water test occurring upstream of 1436 Collected Sample and Cilled Sample jars at AASB31. Attributed that he point code ML-10. Returned to CAPCL: Thereover the program increaseful
Attachments No increased flow was observed during sampling activities. Chamber to

FORTCHUS HARBOR MUNE SAMP 10 20.00

RE: SAMPLING PHOTOS FOR BASINS 18 +44 599901 20

WELL LOST DUE TO A DAMAGED SEDIMENT SAMPLING ACTIVITIES IN BASINS 18 4-9-4 FOR MCINE ALL PHOTOS TAKEN ON 10/6/09 CA MFRA.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services

10/6/2009 Page: Date:

Collected By: JXB, ECH, PTB

	Requested Analyses	Field Comments					Topics To	of assumed all tests on DUP	MATRIX IS WATER \$ PEBCONPACEW		The state of the s			Relinquished By: 4. Signature:	Printed Name: Date:
	equesta	Metals		 .			:	1	MA	• • • • • • • • • • • • • • • • • • • •				Тіте:	Date:
		General		sį	Total Sold TOC	•		9	•					Y: 3,	
	•	Organics												Relinguished By Signature:	Printed Name:
		õ	(602	lors - LL geners (All :	PCB Aroc PCB Cong	•		3	•						
	VATER				Sample Type	၁		ن ن	9					Time:	Date:
	SEDIMENT & WATER		-		Sample Time	1318		1318	1256						
MP	Matrix:				Sample Date	10/6/09		10/6/09	10/6/09		į			ed By: 2.	
INF S		1	4	,	Point Code	44_17	· _,	DUP	FDB					Relinguished By: Signature:	Printed Name:
AND HARROR IN			OUTFALL 44		Location	IL-44-AMQ287-1009 N LORING & N CLARK		DUPLICATE	FIELD DECON BLANK			,		Time: 1550	ant Date: 10/6/09
Project Name: PORTI AND HARROR INI INE SAMP	File Number: 1020.001				WPCL Sample I.D.	FO095977		FO095978	FO095979					Relinguished By: 1.	Printed Native October & S. M.

Ţime:

Received By:

Time:

Received By: Printed Name:

Signature:

Time: Date:

Received By: Signature: Portland Harbor Inline Samp COC - OF 44 (9-21-09).xls

rinted Name; Signature:



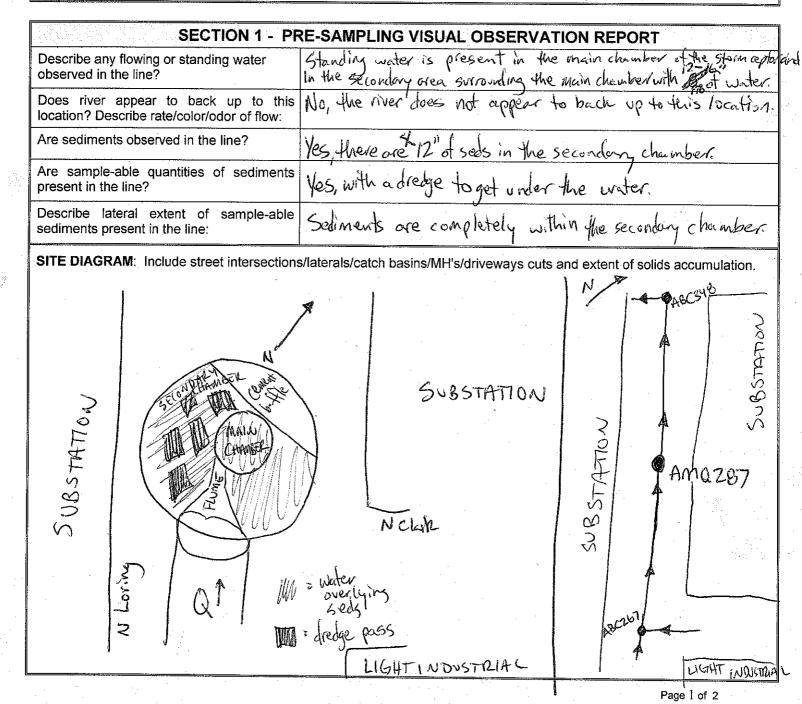
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portano	HARBOR INLINE	= Samp	Project Number: 10Z0 . 001
Sampling Team: ECH, LXB, RTB	Date: 10/6/09	Arrival Time:	Current Weather Conditions/Last Rain:
Basin: 닉닉	Node: AMQ28	si e	Subbasin: NA
Sampling Location Description/ N Loring & Clark, S		12" line. between industri	is located in industrial area on street een two substations (electrical). Light rial to the east RR tracks a block to the NE.



				•			
Date: 10/6/09 SEC	TION 2 - SA	AMPLE C	OLLECTION F	REPORT	Node: Am 0287		
Sampling Equipment:	ສຣtainless ste □ Other (Desc	eel spoon & sta cribe)	poon & stainless steel bucket				
Equipment Decontamination process:	∀ Per SOP7.0 □ Other (Desc						
Sample date: Sample time:	Sample Ide		IL-XX-NNNNNN- I -AM @ 28				
Sample location description: (number of f	eet from node	of ontro	munale locati	. ۱۸۹ س	within the wester		
Sample collection technique:	The dredge due to issu	was green	n several pass to causing the	es in the Irelae to close	an chamber. subject location area properly. A representate		
Describe Color of sample:			to black	<u> </u>	Sample Coll		
Describe Texture/Particle size:			nd 20% fin	ટર્ડ			
Describe visual or olfactory evidence of cobulk sediment sample (odor, sheen, disco	ontamination i loration, etc.):	n Sheev Very S	n present on trong decomp	surface of crising and h	supernate, idrocarbon alor.		
Describe depth of solids in area where sa	mple collected	1: Scdin	rents in sam	ple collecti	on area range		
Describe amount and type of debris in sar	mple:	1	Schiments in sample collection area range from 4" deep to 12" deep None				
Amount and type of debris removed from		None					
Compositing notes: Hamagenized V Sample Jars Collected (number, size, full	sing a free	ih Stainles	is steel spo	Sample on from 10	fors filled in succession		
Sample Jars Collected (number, size, full	or partial)? (() Full 4	102. jars. 1	3) for the s	AMPLE + (3) for the DIP		
If not enough sample to fill all of the jars, li collected and related analytes sampled (as analyte priority list in work order).	ist jars						
FO095977							
Lab ID			te sample collected? Dupe ID FO095978				
Duplicate sample identification # on COC: Ouplicate SAMPLE WAS COLLECTED Any deviations from standard procedures: A Collection (Collection)							
my deviations from diameter procedures.	A field bla	ink was	performed pr	for to Sa	npling, using UPDI.		
SE	CTION 3 -	РНОТС	GRAPH LO	G	FO095979		
Overview of node showing drainage area							
Plan view of sediments inline							
Homogenized sample (sediment in bowl)	1608	1608					
Other?	7 - 0		· · · · · · · · · · · · · · · · · · ·				

DAILY FIELD REPORT





Page 1 of 3

Project Portland Harhar Inline Somp	Project No. 1020.661
Location Basin 44	Date 1/28/10
Subject Catch basin Solids Sanfling	By MJS, JJM, CJK
1000 on site @ APG- 313 (CB to SE	of AB(259)
at 2317 N Clark, There is currently	, n2" of Standin
water covering the catch basin. Uf	itized a around water
Submersible pump to venore overlying v	
overlying water into manual ABC 259	
pump, began pumping of standing water	= 313 W/ Suppersible
pung began purpose of standing water	in cataly basin
APG 314. Vsed decortanisated Steinless Stepl	Surple head Suspended
above sedment, connected to peristaltin Amy	o tabing to semone
the overlying water	
the overly or water 1046 completed pumping off overlying motor a significant amount of sediment in the fab	er leaves behind
a significant amount of sedment in the fat	ri jusert
1075 began sanfing. Was able to get the	most moterial
from the NE corner where most of the	flow entered the
catch basin.	
1120 on site at APG 314 (CB NW of	ABC 361), There
1) ~ W/H of pooled water in Astaberic	Tugest Punged out
w/ peristoltic pump. Removed all mater	ial from fabric
issert and composited in bucket. Filled	13,009
$\frac{1}{1135}$	
1150 began punping over 1/mg water o	ut of APG 315
() = of A15(361). Hence hence ~ 1/4"	of sedment in
the tabric insort, Remard all nathris/ 4 how	united tor
Attachments zenfle	

City of Portland Environmental Services

DAILY FIELD REPORT





Page 2 of 2

Project Portland Hashan In I've Somp	Project No. 1020.001
Location Basin 44	Date 1/28/10
Subject Catch basin solids sampling pro vientio	By Mys, JJM, CJK
1205 Finished Damping off overlying	mater C APG 313
1205 Finished planging off overlying fabric insert was larger from eatch	hagn (5) Nog 2410
Vesting on the bottom and plussed	the outlet
to the CB- Remard roughly half	of vaterial to
use in creating the sample. Sample	ed at 12/5.
1229 Avrived on site @ N Harding IL-44-APG305-011	0. Pumped - 0.3" of
standing water in CB under grate. Ample s composite. Filled 3 402 jars when devication	sample for representative
composite. Filled 3 doz javs whout devication	ien from protocol
<u>- 현존 등 경험 사용 등 원인 시험 대통령 등 기업 등 기업 등 등 기업 등 기업 등 기업</u>	
도 보이라. 아들 아프로그램, 요한 보인 등을 받는 바일을 가장되고 있다. 아들은 하는 그는 이번, 이동물 모모 살을 보는 것이다. 이 아들의 아들은 아들은 사람들은 아들은 사람들이 아들이 아들을 보는 것이다.	
[1] 보통하는 사회 경영 경영 등이 되었다. 전 기계 등 전환 경향이 되고 가장 보고 그렇게 하지만 하는 것을 하는 것이다. 	
Attachments	

Water Pollution Control Laboratory 6543 N. Burlington Ave.
Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services

Page: Date:

Collected By: M35, 53M

(.) K

X L ,		Requested Analyses	General Metals Field Comments		S	ibleč lsto										3½. 3. Relinguished By: 4. Time: Signature:	Date: Printed Name: Date:	3. Received By: 4. Time: Signature:	
			Organics		lors - L.L	PCB Arocl		•	•	•	•				•	Relinguished By: Signature:	Printed Name:	Received By: Signature:	4
λ		SEDIMENT				Sample Sample Time Type	_	U	1146 C	O	1250 C				O	Time:	Dæte:	Time:	
1887	INE SAMP	Matrix: s			• • •	Point Sample Code Date	44_18 1/28/10	44_19 1/28/10	44_20 1/28/10		44_22 1/28/10		-	•	DUP 1/28/10	Relinguished By: 2. Signature:		Received By: 2.	Printed Name
	AND HARBOR IN			OUTFALL 44		Location	IL-44-APG312-0110 2317 N CLARK AVE	IL-44-APG314-0110 N LEWIS NE OF RR TRACKS	IL-44-APG315-0110 NLEWIS NE OF RR TRACKS	IL-44-APG313-0110 2317 N CLARK AVE	IL-44-APG305-0110 N HARDING NE OF RN TRACKS				DUPLICATE		Date: /28/10		Date:
	Project Name: PORTLAND HARBOR INLINE SAMP	File Number: 1020.001				WPCL Sample I.D.	FO105157	FO105158	FO105159	FO105160	FO105161				FO105162	Signature: (My AM)	Printed Name Josephun McLann	Signature:	Printed Name:

Portland Harbor Inline Samp COC - OF 44 (1-27-10).xls



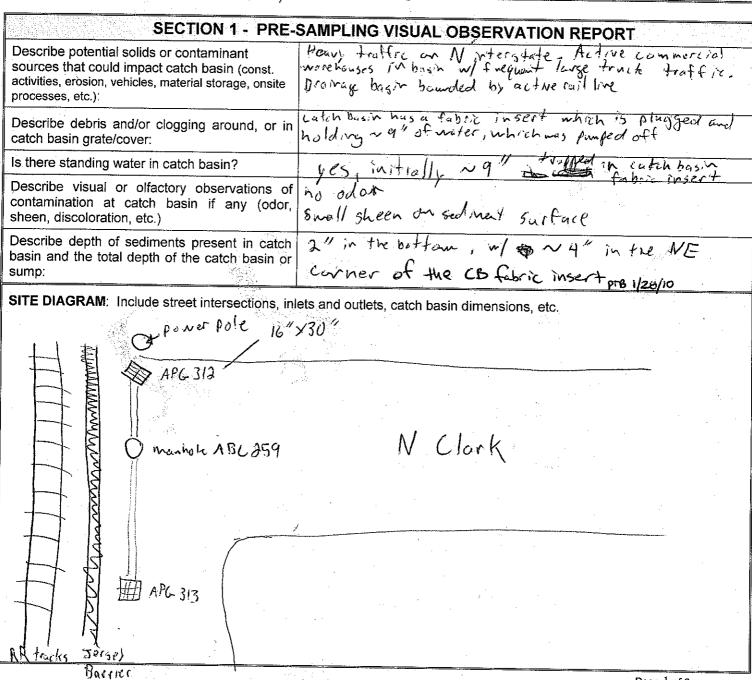
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING

Project Name: Portland Ho	arbor that In I've Som	Project Number: ∫ ○ ∂ ∂ ○ ○ ○ (
Sampling Team: MJ5, JTM, (JK	Date: 1/20/10	Arrival Time:	
Basin: 44	Node: APG 319	Address: 2317 NClark	NWOFMH
Current weather and last known ra	ninfall:		· · · · · · · · · · · · · · · · · · ·



Date: //タラ//O SECTION	N 2 - SAMPLE COLLECTION REPORT Node: DC 210				
Sampling Equipment:	N 2 - SAMPLE COLLECTION REPORT Stainless steel spoon & stainless steel bucket OTHER (DESCRIBE)				
Equipment decontamination procedure:	rer SOP7.01a □ OTHER (DESCRIBE)				
Sample date: 1/28 16	Sample time: 1055				
Sample Identification Code: 무무고 / 용	Sample collection technique and if/how overlying water was removed; sample Overlying water was pumped off using a deconned stainless steel properties was collected. PTB head connected to a peristaltic pump. All material on fabric was collected. PTB removed all mader in from Fitter fabric insert				
Subsample number and location:	removed all newler in from Fitter trader insert				
Color of sample:	black, very dark brown				
Texture/particle size:	mostly five sitt/claysize (80%) w/some cooks sand				
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	5/ignt sheen				
Amount and type of debris in bulk sample:	abindant leaves toone trash				
Amount and type of debris removed from final sample:	~10% of soufle was leaves which were removed				
Compositing notes: Wyelw/Spa	on-remaind 5 mell amount of leaves 4 trash				
	artial)? 3 full jois (plus 3 additional for duplicate)				
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).					
Lab ID F0/05157 OTB 1128/10	Duplicate sample collected? (YN Dupe ID F010516Z pts 128/10				
Duplicate sample identification # on COC:	1001-2 9715 1/28/10				
Any deviations from standard procedures:					

	SECTION 3 - F	PHOTOGRAPH LOG
	Overview of CB showing drainage area	26
15.85	Catch basin plan view prior to sampling showing solids	25, 27
	Lateral connections to/from CB	29 - outlet from (R)
	Homogenized sample (sediment in bowl)	28

Date: 1/28/10		SECT	ION 4 –	SIEVING REPO	RT	Node: A-Pa	G317
Sample Sieved? Y	/A) L	ocation Code:	-44-A	PG312-0110	Point C		
Date Sieved:		onnel:		essing Start Time:	Sample P	rocessing Stop T	
Describe the homogo- contamination (odor, sheen, etc.), and % of sieving:	color, coi	ntents, texture,					
Photo of Homogenize	ed Sampl	e (w/ Nameplate)		Dry or Wet Sieved	(Circle One)	****	· · · · · · · · · · · · · · · · · · ·
If Wet Sieving record	volume o	f UPDI water adde	d here:	kg (1 ml UPDl weighs ~	· 1 gram @ 25°C)	
(Weight of Homogenize	d Sample	in Homogenizing Cor	ntainer) - (Weight after sample = Total Bul	removed for si k Composite	eving) Sample Proces	ssed kg
(Weight of Excluded Ma	nterial in Se	econdary Container _) - (Weig	ht of Empty Secondary (Container = Exc	_) luded Material	kg
(Total Bulk Composite §	Sample Pro	ocessed) / (Ex	cluded Materi	ial) = % of Bulk (Composite Sai	mple Removed	
(Weight of Sieved Samp	ole in SR _) - (Weight of Er	mpty SR	_) - (Weight of UPDI use	ed) = Sie	eved Sample	kg
Observations during seffectiveness of sievir organic content, etc.):	ng, disceri	ocess (including hible odor, sheen,					
Description of exclude relative amount of orgoxide grain coatings, e	anic matt	al (inorganic compo er, red, yellow or bl	esition, lack		· ·		
Any deviations from s	tandard p	rocedures?				· · · · · · · · · · · · · · · · · · ·	
Y/N	Des	cribe:			4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -		
Photo of Sieved Samp	ole (w/ Na	meplate) □	P	hoto of Excluded Mate	erial (w/ Nam	eplate)	
Sample ID: Af	fix F.O. S	ticker	A	rchived Samples? Y	/ N		
Duplicate sample colle	ected? Y	/ N	N	umber of Archived sa	ımples & volu	me collected:	
Duplicate Sample ID o	n COC:	Affix F.O. Sticker					



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name: Partland Harbor	Inline SmD	Project Number:
Sampling Team: Mつち, つるM, とっと	Date: 1/28/10	Arrival Time: 1/20
Basin: 44	Node: A PG 3/4	Address: N. Lewis + AR st NWof MA
Current weather and last known rainfall:	1/26/10 (~0.3	")

SECTION 1 - PRE-	SAMPLING VISUAL OBSERVATION REPORT
Describe potential solids or contaminant	Heavy traffic on N. Interstate Active conversed buildings in basin of frequent delivery tracks
Describe debris and/or clogging around, or in catch basin grate/cover:	no debis or grate, but fabric insert in CB was retained sed ment, debis, and game notes
Is there standing water in catch basin?	414" of pooled water in fabric insert
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	no odor or sheen
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	1/2 -2" deep
SITE DIAGRAM: Include street intersections, inl	ets and outlets, catch basin dimensions, etc. N Lewis Ave
N RR st	APC 314
	RR track

Date: 1/08/10 SECTION	ON 2 - SAMPLE COLLECTION REPORT	de: APG 314
Sampling Equipment:	Stainless steel spoon & stainless steel bucket OTHER (DESCRIBE)	
Equipment decontamination procedure:	b√Per SOP7.01a □ OTHER (DESCRIBE)	<u> </u>
Sample date: 1/28/10	Sample time: 11 4 0	
Sample Identification Code: ЦЦЦ []	Sample collection technique and if/how overlying water of Pumped water overlying sediment using a per Used Stainless Steel Bapon or bucket to coll	lect motoral for
Subsample number and location:	collected all material in fabric i	ngert
Color of sample:	dark brown	
Texture/particle size:	very fine, sitt/clay	
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	Sheen and decomposing organics	S TB 214/10
Amount and type of debris in bulk sample:	None P18 2/4/10	
Amount and type of debris removed from final sample:	None	
Compositing notes: Sample was	composited in the collection bucket	PTB 1/4/10
Sample jars collected (number, size, full or pa	artial)? 3 full jurs pro 2/4/10	
If not enough sample to fill all of the jars, list iars collected and related analytes sampled (as per analyte priority list in work order).		
	·	
-ab ID FD 105158	Duplicate sample collected? YN Dupe ID	1
Ouplicate sample identification # on COC:		
Any deviations from standard procedures:		

SECTION 3 -	PHOTOGRAPH LOG
Overview of CB showing drainage area	31 /
Catch basin plan view prior to sampling showing solids	#30
Lateral connections to/from CB	37 /
Homogenized sample (sediment in bowl)	36

Date: 1/28/10	SECT	TON 4 – 9	SIEVING REPOR	₹T	Node: APG314
Sample Sieved? Y	Location Code:	1-44- A	or_214-0110	Point Cod	e: 44-19
Date Sieved: Pe	ersonnel:		essing Start Time:	<u> </u>	cessing Stop Time:
Describe the homogenized contamination (odor, color, csheen, etc.), and % debris resieving:	contents, texture				<u> </u>
Photo of Homogenized Sam	iple (w/ Nameplate)		Dry or Wet Sieved (0	Circle One)	
If Wet Sieving record volume	e of UPDI water adde	d here:	_ kg (1 ml UPDI weighs ~ 1	gram @ 25°C)	
(Weight of Homogenized Samp	le in Homogenizing Con	ıtainer)	- (Weight after sample rei = Total Bulk (moved for sievi Composite Sai	ing) mple Processedkg
(Weight of Excluded Material in	Secondary Container_) - (Weigh	nt of Empty Secondary Co	ntainer) = Exclud	led Materialkg
(Total Bulk Composite Sample I	Processed) / (Ex	cluded Materia	al) = % of Bulk Cor	mposite Samp	le Removed
(Weight of Sieved Sample in SF	(Weight of En	npty SR) - (Weight of UPDI used) = Sieve	ed Samplekg
Observations during sieving effectiveness of sieving, discorganic content, etc.):	process (including ernible odor, sheen,			, j.,	
Description of excluded mate relative amount of organic mate oxide grain coatings, etc.):	rial (inorganic compo atter, red, yellow or bl	sition, ack			
Any deviations from standard	procedures?		10 de - 10 de		-
Y/N D	escribe:	<u></u>			
Photo of Sieved Sample (w/ N	Nameplate) □	Ph	noto of Excluded Materia	al (w/ Namep	late) □
Sample ID: A所x F.Q.	Sticker	An	chived Samples? Y / N	1	
Duplicate sample collected?	Y/N	Nu	umber of Archived samp	ples & volume	e collected:
Ouplicate Sample ID on COC	: Affix F.O. Sticker	,			



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEFT

Project Name: Partland Harl	our In/he Samp	Project Number:
Sampling Team: MJ 5、JJM	Date: 1/28/10	Arrival Time: 135
Basin: Ly U	Node: APG 315	Address: N Lewis + RR
Current weather and last known rainfall:	+ ramfall 1/26/10	(~0.3")

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT		
Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	Heavy traffic on N Interstate	
Describe debris and/or clogging around, or in catch basin grate/cover:	nove	
Is there standing water in catch basin?	5 1/2" of standing water in fabric insert	
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	hove	
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	1/4 of sedment in insert	

SITE DIAGRAM: Include street intersections, inlets and outlets, catch basin dimensions, etc.

See APG 314 Catch basin solids sampling Field Date Sheet

Date://gg//o SECTIO	N 2 - SAMPLE COLLECTION REPORT Node: APC 3/5
Sampling Equipment:	□ OTHER (DESCRIBE)
Equipment decontamination procedure:	of OTHER (DESCRIBE)
Sample date: 1/38/10	Sample time: 1146
Sample Identification Code: リリー みり	Sample collection technique and if/how overlying water was removed: Pumped overlying water out of CR and removed all material from CB insert. PTB 2/4/10
Subsample number and location:	removed all of naterial
Color of sample:	dark brown / black
Texture/particle size:	mostly very five silt/clay
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	dork brown/black mostly very five silt/clay decomposed organics
Amount and type of debris in bulk sample:	roul
Amount and type of debris removed from final sample:	rone
Compositing notes:	
Sample jars collected (number, size, full or pa	artial)? 3 full jurs pro 2/4/10
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).	
Lab ID FO 105159	Duplicate sample collected? YN Dupe ID
Duplicate sample identification # on COC:	
Any deviations from standard procedures:	

SECTION 3 - PHOTOGRAPH LOG			
Overview of CB showing drainage area	32,33		
Catch basin plan view prior to sampling showing solids	34,35		
Lateral connections to/from CB	39,40 /		
Homogenized sample (sediment in bowl)	38.		

Date: 1 28/10 SECTION	4 - SIEVING REPORT Node: APG 315
Sample Sieved? Y /(N) Location Code: L - 4	4-APG 315-0110 Point Code: 44-20
Date Sieved: Personnel: Samp	ole Processing Start Time: Sample Processing Stop Time:
Describe the homogenized sample, any visible contamination (odor, color, contents, texture, sheen, etc.), and % debris removed prior to sieving:	
Photo of Homogenized Sample (w/ Nameplate) 🗆	Dry or Wet Sieved (Circle One)
If Wet Sieving record volume of UPDI water added here	kg (1 ml UPDI weighs ~ 1 gram @ 25°C)
(Weight of Homogenized Sample in Homogenizing Container) - (Weight after sample removed for sieving) = Total Bulk Composite Sample Processedkg
(Weight of Excluded Material in Secondary Container) -	- (Weight of Empty Secondary Container) = Excluded Material kg
(Total Bulk Composite Sample Processed) / (Excluded	l Material) = % of Bulk Composite Sample Removed
(Weight of Sieved Sample in SR) - (Weight of Empty SI	R) - (Weight of UPDI used kg
Observations during sieving process (including effectiveness of sieving, discernible odor, sheen, organic content, etc.):	
Description of excluded material (inorganic composition, relative amount of organic matter, red, yellow or black oxide grain coatings, etc.):	
Any deviations from standard procedures?	
Y / N Describe:	
Photo of Sieved Sample (w/ Nameplate) □	Photo of Excluded Material (w/ Nameplate)
Sample ID: Affix F.O. Sticker	Archived Samples? Y / N
Duplicate sample collected? Y / N	Number of Archived samples & volume collected:
Duplicate Sample ID on COC: Affix F.O. Sticker	



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave., Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

	Project Name: Portland Harbon	Infine Sour	Pro	nject Number: 10 a ひ い い		
	MJS, JSM CJK	1/28/10	Arrival Time			· .
	Basin: 니니 Node:	APG 313	Address:	1317 N. Clark	. se .	of MH
	Current weather and last known rainfall:	last rain (~0-3	4	·	f	
	SECTION 1 - PRE-	SAMPLING VISUAL	OBSERV	ATION REPORT		
C - 40	Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	heavy traffic a commercial activity trust delivery trust promage basin bo	n N. Int ity in ad iks com unded by	erstate Ave jacent brildings my + goins active rail line	W	
	Describe debris and/or clogging around, or in catch basin grate/cover:	fabric insert is preventing water	s in coalci	a bas w, which	J5	
-	Is there standing water in catch basin?	yes, initrally 2	" over to	of state place to	all den	thofiB
	Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	decomposed o	ngarics	odor, ho shae	<u> </u>	
	Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	Appears that fabric catch bosin. Has wish at its deep	insert is an avery	completely filling e of 4" of sed	the course	2
	SITE DIAGRAM: Include street intersections, inl	lets and outlets, catch bas	sin dimensio	ns, etc.		

APG 312 ERR street > 3/3

ABC 259

- Grig tool extent of pooled water

esic basiler

Date: 1 / SECTION	
/08/10 SECTION	N 2 - SAMPLE COLLECTION REPORT Node: APG 313
Sampling Equipment:	tainless steel spoon & stainless steel bucket □ OTHER (DESCRIBE)
Equipment decontamination procedure:	ouPer SOP7.01a □ OTHER (DESCRIBE)
Sample date: 1/08/10	Sample time: 1215
Sample Identification Code: 니니_ 私	Sample collection technique and if/how overlying water was removed: pumped off water w/ a submergible groundwater pump- Propins
Subsample number and location:	removed roughly half of material distributed
Color of sample:	Very dark brown/black
Texture/particle size:	mostly very five, silt/clay
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	no sheen decomposed associas odor
Amount and type of debris in bulk sample:	very little leaves 21%
Amount and type of debris removed from final sample:	11
Compositing notes:	
Sample jars collected (number, size, full or pa	irtial)? 3 foll jars
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).	
Lab ID F0 105160	Duplicate sample collected? YN Dupe ID
Duplicate sample identification # on COC:	
Any deviations from standard procedures:	

SECTION 3 - PHOTOGRAPH LOG		
Overview of CB showing drainage area	# 22, 23,24	
Catch basin plan view prior to sampling showing solids	41	/
Lateral connections to/from CB	43	
Homogenized sample (sediment in bowl)	42	

Date: 1/28/10	SEC	TION 4 -	- SIEVING REPO	RT Node: APG 313
Sample Sieved? Y /	Location Code:	L-44-	APG 313-0110	Point Code: 44-21
Date Sieved:	Personnel:	Sample Pr	ocessing Start Time:	Sample Processing Stop Time:
Describe the homogenize contamination (odor, colorsheen, etc.), and % debrasieving:	or, contents, texture,			
Photo of Homogenized S	Sample (w/ Nameplate)		Dry or Wet Sieved	(Circle One)
If Wet Sieving record volu	ume of UPDI water add	ed here:	Kg (1 ml UPDI weighs ~	1 gram @ 25°C)
(Weight of Homogenized Sa	ample in Homogenizing Co	ontainer) - (Weight after sample ı = Total Bulk	removed for sieving) c Composite Sample Processed kg
(Weight of Excluded Materia	al in Secondary Container) - (We	eight of Empty Secondary C	ontainer) = Excluded Materialkg
(Total Bulk Composite Sam	ple Processed) / (E	Excluded Mat	terial) = % of Bulk C	omposite Sample Removed
(Weight of Sieved Sample in	n SR) - (Weight of E	Empty SR) - (Weight of UPDI use	d) = Sieved Sample kg
Observations during sievi effectiveness of sieving, o organic content, etc.):	ng process (including liscernible odor, sheen,			
Description of excluded m relative amount of organic oxide grain coatings, etc.)	matter, red, yellow or l	position, black		
Any deviations from stand	lard procedures?		:	
Y/N	Describe:			
Photo of Sieved Sample (w/ Nameplate) □		Photo of Excluded Mate	rial (w/ Nameplate) □
Sample ID: Affix F	O. Sticker		Archived Samples? Y	' N
Duplicate sample collected	d? Y/N		Number of Archived sar	mples & volume collected:
Duplicate Sample ID on C	OC: Affix F.O. Sticke			



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, OR 97203-5452



CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name: Portland Harl	or Iuline Samp.	Project Number:
Sampling Team: TWW, MTS, CTK	Date: 1(28/10	Arrival Time: \ZZ9
Basin: 44	Node: APG305	Address: N HARDING, NE OF RR TRACKS 2/1
Current weather and last known rain	fall: dry, partly cloudy,	last volu =0.3" on 1/26/10

SECTION 1 - PRE-	SAMPLING VISUAL OBSERVATION REPORT
Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	Heavy traffic on V. Interstate some commercial shipping recoiving docks adjacet to drainage. Max light rail along Interstate, RXR on W&t boundary
Describe debris and/or clogging around, or in catch basin grate/cover:	leafy debris, misc. paper, plastic garbage, wrappers
Is there standing water in catch basin?	yes, ~3" underneath grate
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	decomposing organics odor, sheen prosent.
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	Average ~ 0.5" in filter
SITE DIAGRAM: Include street intersections, inl	ets and outlets, catch basin dimensions, etc.
	N. Interstate
Tot lot	Leading dock Localing dock
CB	

Date: 1(28 10 SECTION	N 2 - SAMPLE COLLECTION REPORT Node: APG 30S	
Sampling Equipment:	□ OTHER (DESCRIBE)	
Equipment decontamination procedure:	© Per SOP7.01a □ OTHER (DESCRIBE)	
Sample date:	Sample time: 1250	
Sample Identification Code: 44-72 IL-44-APG 305-0497 0110	Sample collection technique and if/how overlying water was removed: pumped its subsamples of sed. adhered to litter, removed woody/leafy debris, garbage. Thoroughly mixed composite	
Subsample number and location:	removed all material	
Color of sample:	dark	
Texture/particle size:	fine mostly, some line sand	
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	decomposing organics, slight sheen	
Amount and type of debris in bulk sample:	woody/leuly debris 22%	
Amount and type of debris removed from final sample:	4 4	
Compositing notes: theroughly unixed		
Sample jars collected (number, size, full or pa	irtial)? 3 fill jurs	
If not enough sample to fill all of the jars, list jars collected and related analytes sampled (as per analyte priority list in work order).		
Lab ID FO 105161	Duplicate sample collected? YN Dupe ID	
Duplicate sample identification # on COC:	ation # on COC: N/A	
Any deviations from standard procedures:	Vone	

SECTION 3 - PHOTOGRAPH LOG		
Overview of CB showing drainage area	44 /	
Catch basin plan view prior to sampling showing solids	45	
Lateral connections to/from CB	46 1	
Homogenized sample (sediment in bowl)	47	

Date: \\\ 28\ IO	SEC1	TION 4 – \$	SIEVING REPOR	Node: APG 305				
Sample Sieved? Y /	Location Code:	L-44-A	XG 305 - 0110	Point Code: 44-22				
Date Sieved:	Personnel:		essing Start Time:	Sample Processing Stop Time:				
Describe the homogeniz contamination (odor, col sheen, etc.), and % deb sieving:	or, contents, texture.							
Photo of Homogenized 8	Sample (w/ Nameplate)		Dry or Wet Sieved (0	Circle One)				
If Wet Sieving record vol	ume of UPDI water adde	ed here:	_ kg (1 ml UPDI weighs ~ 1	gram @ 25°C)				
(Weight of Homogenized S	ample in Homogenizing Co	ntainer)	- (Weight after sample re = Total Bulk	moved for sieving) Composite Sample Processedkg				
(Weight of Excluded Materi	al in Secondary Container) - (Weigh	nt of Empty Secondary Co	ntainer) = Excluded Material kg				
(Total Bulk Composite Sam	ple Processed) / (E	xcluded Materia	al) = % of Bulk Co	mposite Sample Removed				
(Weight of Sieved Sample i	n SR) - (Weight of E	mpty SR) - (Weight of UPDI used) = Sieved Sample kg				
Observations during siev effectiveness of sieving, organic content, etc.):	ing process (including discernible odor, sheen,							
Description of excluded negligible relative amount of organic oxide grain coatings, etc.	c matter, red, yellow or b	osition, black						
Any deviations from stand	dard procedures?		100					
Y/N	Describe:							
Photo of Sieved Sample ((w/ Nameplate)	Ph	noto of Excluded Materi	al (w/ Nameplate) □				
Sample ID: Affix	F.O. Sticker	Ar	chived Samples? Y / I	4				
Duplicate sample collected? Y / N			Number of Archived samples & volume collected:					
Duplicate Sample ID on C	OC: Affix F.O. Sticker	-						

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR INLINE SAMP



Chain-of-Custody



Date:

Collected By: JKB, MAN PTD

Bureau of Environmental Services

ted Name:	ature:	ceived by: 1.	4	Million	nature:							FO105485	WPCL Sample I.D.				File Number: 1020,001
Date:			Date: 4/26/10	_	ž U							IL-44-ABC343-0410 N LORING & RANDOLPH	Location		OUTFALL 44		
Printed Name:	Signature:	Received By:	Printed Name:	Signature:	Relinquished By:							44_23	Point Code		4		
		<u>y:</u> 2			ed By: 2.							4/28/10	Sample Date				Matrix:
				,								H	Sample Time				SEDIMENT
Date:	Time:		Date:	Time:								C	Sample Type				П
.			.								-	•	Pesticide	s - LL (CAS	3)		
Pri	Sig	120	람	Sig	₽							•	тос			Organics	
Printed Name:	Signature:	Received By:	Printed Name:	Signature:	Relinquished By:		-	-	 -							nics	
		M			ed By:												
	٠	ယ			ω				-			•	Total Sol	dis		General	
																Metals	Requ
Date:	Time:		Date:	Time:													ested /
Printed Name:	Signature:	Received By:	Printed Name:	Signature:	Reling												Requested Analyses
ame:	ļ	ed By: 4.	anne:		Relinquished By: 4.	• ,										Field Comments	es
Date:	Time:		Date:	Time:												ents	

Portland Harbor Inline Samp COC - OF 44 (4-7-10) xls

City of Portland Environmental Services

DAILY FIELD REPORT





Page Project PORTLAWD HARBOR WINE SAMP Project No. 1020 - 001 Location BASIN 44 Date 4/298/10 Subject SED SAMP @ ABCS43 BY MAW, JKB, PTB 1130 Arrive on-site ABC343 to collect sediment accommented since installing the stormwater impediment device (SID). The SID was intended to slow flow in the mit 1134 Entruit (MAW) topos observations of MH conditions. No sediment observered at the SID. 141 Collected Sample 1215 Homogenized composite and filled sample jars. **Attachments**



ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, OR 97203-5452



INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portrano H	ARBOR WLINES	- DAMP	Project Number: 1020.001
Sampling Team: JXB, MAW, PTB	Date: 4/28/10	Arrival Time:	Overast, This marning
Basin: 44	Node: ABC34	(3	Subbasin: NA

Sampling Location Description/Address:

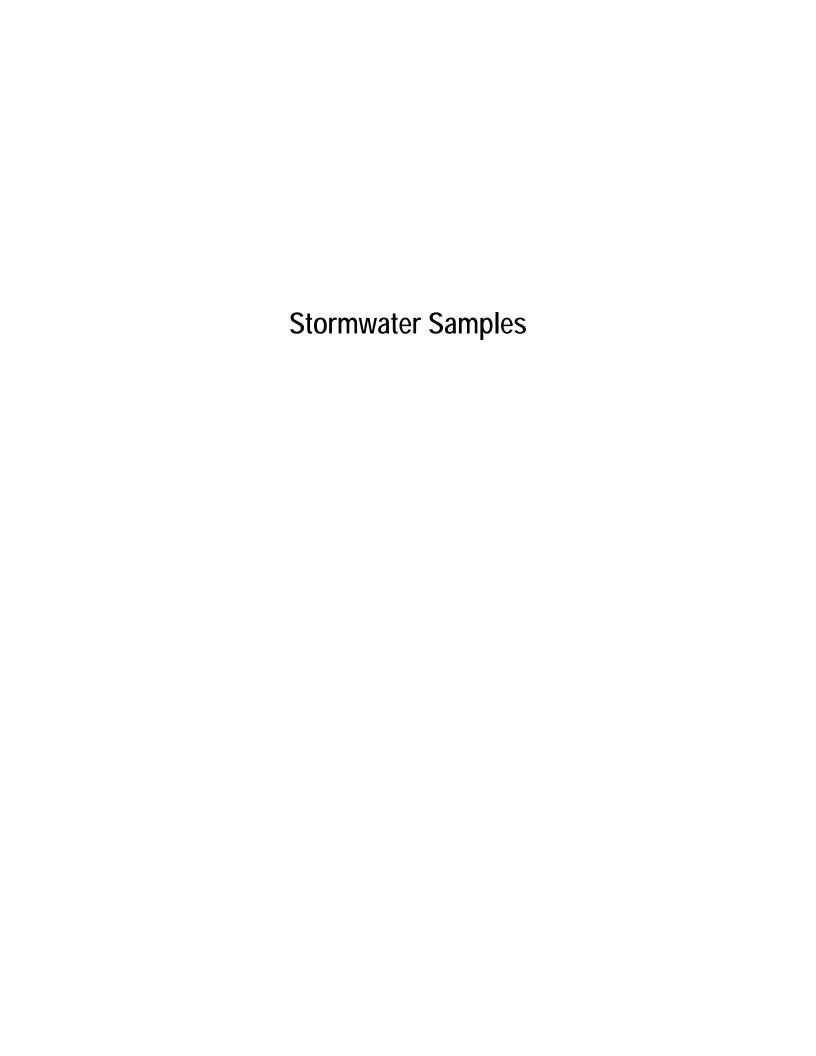
N Loring + Randolph

	RE-SAMPLING VISUAL OBSERVATION REPORT
Describe any flowing or standing water observed in the line?	112" of standing water present in the invart.
Does river appear to back up to this location? Describe rate/color/odor of flow:	No
Are sediments observed in the line?	Yes, 2.5" max depth Averye 2" depth.
Are sample-able quantities of sediments present in the line?	Ves.
Describe lateral extent of sample-able sediments present in the line:	Seds are present across MH invert and extend 12" into MH chamber from ESP. and up inlet 2.5' feet from ESP.
·	s/laterals/catch basins/MH's/driveways cuts and extent of solids accumulation.
	15/1/1/2
Unit 1	Somele wer
60	
	16"
	12 0 811
	I inlet
Ret J.	
	-1
N Randslph	
	Q inlet
	1 12 tet

Date: 4/28//0 SECT	TION 2 - SAMPLE COLLECTION REPORT ARC 343						
Sampling Equipment:	Stainless steel spoon & stainless steel bucket Other (Describe)						
Equipment Decontamination process:	Per SOP7.01a Other (Describe)						
Sample date: Sample time:	Sample Identification: (IL-XX-NNNNN-mmyy) L - 44 - 46C343 - 0410						
Sample location description: (number of feet from node of entry) From the MH chambers from							
Sample collection technique:	Sprinkess steel scoop of sediment in a rectangular area with all solids removed.						
Describe Color of sample:	Blackish bown						
Describe Texture/Particle size:	98% Fine souds & silts, 1% leaf debr. 3, 1% inorganic debris /trush						
Describe visual or olfactory evidence of colbulk sediment sample (odor, sheen, discolo	ntamination in Sheen on surface. No dor						
Describe depth of solids in area where sample collected: Solids were 2-2.5" deep in sample collection were.							
Describe amount and type of debris in sample: 2% leaf debris t in gamic febris/f.							
Amount and type of debris removed from final sample: 1% of Bilk sample removed. Mainly leaves to some trast Compositing notes: Composited with sample collection spoon and homogenized.							
Compositing notes: Composited with sample collection spoon and homogenized.							
Sample Jars Collected (number, size, full or partial)? (L) full 402. jar 5							
If not enough sample to fill all of the jars, lis collected and related analytes sampled (as analyte priority list in work order).							
FO105485							
Lab ID	Duplicate sample collected? Y(N) Dupe ID						
Duplicate sample identification # on COC:							
Any deviations from standard procedures: None							

SECTION	I 3 - PHOTOGRAPH LOG
Overview of node showing drainage area	0054,0053
Plan view of sediments inline	0052-inlet, 0051-seds in in-ext, 0049-50 SID
Homogenized sample (sediment in bowl)	37+58+59
Other?	





Event 1: November 20, 2008



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.qsiwatersolutions.com

Laboratory Data QA/QC Review Albina Riverlots Source Control Investigation Fourth Quarter 2008 Stormwater Sampling – Event 1

To: File

From: Erin Carroll, GSI

Date: January 7, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during a source control investigation sampling event conducted by the City of Portland (City) in the Albina Riverlots area on November 20, 2008. Five stormwater samples were collected from Outfall Basins 43, 44, and 44A and submitted for analyses. A field decontamination blank (FO081413) and field duplicate (FO081414) were also submitted for analysis.

The laboratory analyses for these source control program samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

- BES WPCL Laboratory
 - o Total Metals EPA 200.8
 - o Total Mercury WPCL SOP M-10.02
 - o Total suspended solids (TSS) SM 2540D
- Test America (TA)
 - o Polycyclic Aromatic Hydrocarbons (PAHs) EPA 8270M-SIM
 - o Phthalates EPA 8270M-SIM
- Columbia Analytical Services (CAS)
 - o Semivolatile Organic Compounds (SVOCs) EPA 8270C
- Pace Analytical Services (Pace)
 - o Polychlorinated Biphenyls as Congeners (PCB Congeners) EPA 1668A

The laboratory reports are attached to this document and included as Attachment A to the Fourth Quarter 2008 Albina Riverlots Quarterly Report.

This QA/QC review is based on the available documentation supplied from each laboratory. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within accuracy control limits
- Internal standard recoveries within accuracy control limits
- Matrix spike and matrix spike duplicate results within control limits
- If applicable, laboratory control sample and duplicate laboratory control sample recoveries within control limits

The results of the laboratory report QA/QC review are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the required method-specific holding times.

Method Blanks

Method blanks were processed during the laboratory analyses of PAHs, phthalates, SVOCs, and PCB congeners. There are no reported detections of PAHs or phthalates in the associated method blank(s).

Several SVOCs were detected in the method blank for the EPA 8270C analysis and in the field samples (including the field decontamination blank) at estimated concentrations (greater than the method detection limit but less than the method reporting limit). The presence of these SVOCs in the samples is considered to be a result of laboratory contamination. Therefore the sample result is noted as not detected at a concentration greater than the method reporting limit.

A low concentration of PCB Congener #11 (0.667 ng/L) was detected in the method blank but not detected in associated field samples. Therefore the data are not qualified.

Surrogate Recoveries

Surrogate recoveries were completed during the laboratory analysis of PAHs and SVOCs. All surrogate recoveries were within laboratory control limits.

Internal Standard Recoveries

Internal standard recoveries were processed during the laboratory analysis of PCB congeners. All of the labeled internal standard recoveries were within the target ranges specified in the method.

Matrix Spike/Matrix Spike Duplicates

CAS reports there was insufficient volume to perform a matrix spike/matrix spike duplicate (MS/MSD) analysis for SVOCs. Laboratory control sample/duplicate laboratory control sample (LCS/ DLCS) were analyzed and reported in lieu of the MS/MSD for these samples.

Laboratory Control/ Duplicate Laboratory Control Samples

Laboratory control/duplicate laboratory control samples (LCS/DLCS) were processed during the laboratory analysis of PAHs, phthalates, and SVOCs. All laboratory control sample recoveries were within laboratory control limits except for benzoic acid and pentachlorophenol by EPA 8270C. The spike recovery of pentachlorophenol in the replicate LCS/DLCS was outside the lower control limit. Pentachlorophenol was detected in several field samples at estimated concentrations. The reduced recovery error indicates a potential low bias for this compound.

The advisory criterion was exceeded for benzoic acid in the replicate LCS/DLCS. Benzoic acid was detected in one or more field samples at concentrations less than the MRL and greater than or equal to the MDL, with one exception. Benzoic acid was detected at a concentration greater than the MRL in one sample from Basin 43 (FO081410). The lower LCS/LCDS recoveries for benzoic acid may indicate a low bias for this analyte.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR STORMWATER SAMP





Date: 11/20/08

Page: of (

Collected By: LCB/1/HA

Bureau of Environmental Services

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6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO081411

Sample Collected: 11/20/08 Sample Received: 11/20/08 09:41

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 4

Address/Location:

SW-44-ABC352-1108

System ID:

AM10907

Sample Point Code:

N HARDING & RIVER 44_SW1

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: RCB/PHA

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Low recoveries in the LCS and LCS Dup for Semivolatile compounds Benzoic Acid and Pentachlorophenol indicate low bias for these components.

	Descrit	14-24-	MDI	NA - 411	Analysis Date
Test Parameter	Result	Units	MRL	Method	Date
FIELD					
CONDUCTIVITY (FIELD)	48	μ mhos/cm	· 1	SM 2510 B	11/20/08
pH (FIELD)	7.6	pH Units	0.1	SM 4500-H B	11/20/08
TEMPERATURE	9.4	Deg. C	0.1	SM 2550 B	11/20/08
GENERAL				•	
TOTAL SUSPENDED SOLIDS	37	mg/L	2	SM 2540 D	11/20/08
METALS					
MERCURY	0.012	μg/L	0.002	WPCLSOP M-10.02	11/21/08
METALS BY ICP-MS (TOTAL) - 8	*			•	
ARȘENIC	0.93	μ g/L	0.1	EPA 200.8	11/24/08
CADMIUM	0.25	μ g/L	0.1	EPA 200.8	11/24/08
CHROMIUM	2.59	μ g/L	0.4	EPA 200.8	11/24/08
COPPER	10.6	μg/L	0.2	EPA 200.8	11/24/08
LEAD	7.59	μg/L	0.1	EPA 200.8	11/24/08
NICKEL	2.32	μ g/L	0.2	EPA 200.8	11/24/08
SILVER	<0.10	μ g/L	0.1	EPA 200.8	11/24/08
ZINC	93.0	μg/L	0.5	EPA 200.8	11/24/08
OUTSIDE ANALYSIS					
POLYCHLORINATED BIPHENYL CONG	ENERS -PACE		•		
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	12/02/08
POLYNUCLEAR AROMATICS & PHTHA	LATES - TA	* .			
Acenaphthene	< 0.0196	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Acenaphthylene	< 0.0196	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Anthracene	0.0234	$\mu g/L$	0.0196	EPA 8270M-SIM	11/21/08
Benzo(a)anthracene	0.0289	μg/L	0.00980	EPA 8270M-SIM	11/21/08
Benzo(a)pyrene	0.0199	μg/L	0.00980	EPA 8270M-SIM	11/21/08
Benzo(b)fluoranthene	0.0302	μg/L	0.00980	EPA 8270M-SIM	11/21/08
Benzo(ghi)perylene	0.0349	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Benzo(k)fluoranthene	0.0179	μg/L	0.00980	EPA 8270M-SIM	11/21/08
Bis(2-ethylhexyl) phthalate	1.94	μg/L	0.980	EPA 8270M-SIM	11/21/08
Butyl benzyl phthalate	<0.980	μg/L	0.980	EPA 8270M-SIM	11/21/08
Chrysene	0.0609	μg/L	0.00980	EPA 8270M-SIM	11/21/08
Dibenzo(a,h)anthracene	<0.00980	μg/L	0.00980	EPA 8270M-SIM	11/21/08

Report Date: 01/02/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO081411

Sample Collected: 11/20/08

09:41

Sample Status: COMPLETE AND

Sample Received: 11/20/08

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 2 of 4

Address/Location:

SW-44-ABC352-1108 N HARDING & RIVER

System ID:

AM10907

Sample Point Code:

44_SW1

EID File #: LocCode:

1020.005

Sample Type: Sample Matrix: **GRAB STORMWTR**

Collected By: RCB/PHA

PORTHASW

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Low recoveries in the LCS and LCS Dup for Semivolatile compounds Benzoic Acid and Pentachlorophenol indicate low bias for these components.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
. Diethyl phthalate	<0.980	μg/L	0.980	EPA 8270M-SIM	11/21/08
Dimethyl phthalate	< 0.980	μg/L	0.980	EPA 8270M-SIM	11/21/08
Di-n-butyl phthalate	< 0.980	μg/L	0.980	EPA 8270M-SIM	11/21/08
Di-n-octyl phthalate	< 0.980	μg/L	0.980	EPA 8270M-SIM	11/21/08
Fluoranthene	0.131	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Fluorene	< 0.0196	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Indeno(1,2,3-cd)pyrene	0.0137	μg/L	0.00980	EPA 8270M-SIM	11/21/08
Naphthalene	0.0399	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Phenanthrene	0.0859	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Pyrene	0.114	μg/L	0.0196	EPA 8270M-SIM	11/21/08
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<0.22	μg/L	0.22	EPA 8270	11/26/08
1,2-Dichlorobenzene	<0.22	μg/L	0.22	EPA 8270	11/26/08
1,3-Dichlorobenzene	< 0.22	μg/L	0.22	EPA 8270	11/26/08
1,4-Dichlorobenzene	<0.22	μg/L	0.22	EPA 8270	11/26/08
2,4,5-Trichlorophenol	<0.53	μg/L	0.53	EPA 8270	11/26/08
2,4,6-Trichlorophenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
2,4-Dichlorophenol	<0.53	μg/L	0.53	EPA 8270	11/26/08
2,4-Dimethylphenol	<4.3	μg/L	4.3	EPA 8270	11/26/08
2,4-Dinitrophenol	<4.3	μg/L	4.3	EPA 8270	11/26/08
2,4-Dinitrotoluene	<0.22	μg/L	0.22	EPA 8270	11/26/08
2,6-Dinitrotoluene	<0.22	μg/L	0.22	EPA 8270	11/26/08
2-Chloronaphthalene	< 0.22	μg/L	0.22	EPA 8270	11/26/08
2-Chlorophenol	<0.53	μg/L	0.53	EPA 8270	11/26/08
2-Methylnaphthalene	<0.22	μg/L	0.22	EPA 8270	11/26/08
2-Methylphenol	< 0.53	μ g/L	0.53	EPA 8270	11/26/08
2-Nitroaniline	<0.22	μg/L	0.22	EPA 8270	11/26/08
2-Nitrophenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
3,3'-Dichlorobenzidine	<2.2	μg/L	2.2	EPA 8270	11/26/08
3-Nitroaniline	<1.1	μg/L	1.1	EPA 8270	11/26/08
4,6-Dinitro-2-methylphenol	<2.2	$\mu g/L$	2.2	EPA 8270	11/26/08
4-Bromophenylphenyl ether	<0.22	μg/L	0.22	EPA 8270	11/26/08
4-Chloro-3-methylphenol	<0.53	μg/L	0.53	EPA 8270	11/26/08
4-Chloroaniline	<0.22	μg/L	0.22	EPA 8270	11/26/08

Report Date: 01/02/09





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Sample ID: FO081411

Sample Collected: 11/20/08 Sample Received: 11/20/08 09:41

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page: Page 3 of 4

Address/Location:

SW-44-ABC352-1108

System ID:

AM10907

Sample Point Code:

N HARDING & RIVER

EID File #:

1020.005

Sample Type:

44_\$W1 **GRAB**

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: RCB/PHA

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Low recoveries in the LCS and LCS Dup for Semivolatile compounds Benzoic Acid and Pentachlorophenol indicate low bias for these components.

Test Parameter	Result	Units	MRL	Method	Analysis Date
4-Chlorophenylphenyl ether	<0.22	μg/L	0.22	EPA 8270	11/26/08
4-Methylphenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
4-Nitroaniline	<1.1	μg/L	1.1	EPA 8270	11/26/08
4-Nitrophenol	<2.2	μg/L	2.2	EPA 8270	11/26/08
Acenaphthene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Acenaphthylene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Anthracene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Benzo(a)anthracene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Benzo(a)pyrene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Benzo(b)fluoranthene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Benzo(g,h,i)perylene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Benzo(k)fluoranthene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Benzoic acid	<5.3	μg/L	5.3	EPA 8270	11/26/08
Benzyl alcohol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
Bis(2-chloroethoxy) methane	<0.22	μg/L	0.22	EPA 8270	11/26/08
Bis(2-chloroethyl) ether	<0.22	μg/L	0.22	EPA 8270	11/26/08
Bis(2-chloroisopropyl) ether	<0.22	μg/L	0.22	EPA 8270	11/26/08
Bis(2-ethylhexyl) phthalate	2.3	μg/L	1.1	EPA 8270	11/26/08
Butyl benzyl phthalate	<0.22	μg/L	0.22	EPA 8270	11/26/08
Chrysene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Dibenzo(a,h)anthracene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Dibenzofuran	<0.22	μg/L	0.22	EPA 8270	11/26/08
Diethyl phthalate	<0.22	μg/L	0.22	EPA 8270	11/26/08
Dimethyl phthalate	<0.22	μg/L	0.22	EPA 8270	11/26/08
Di-n-butyl phthalate	<0.22	μg/L	0.22	EPA 8270	11/26/08
Di-n-octyl phthalate	<0.22	μg/L	0.22	EPA 8270	11/26/08
Fluoranthene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Fluorene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Hexachlorobenzene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Hexachlorobutadiene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Hexachlorocyclopentadiene	<1.1	μg/L	1.1	EPA 8270	11/26/08
Hexachloroethane	<0.22	μg/L	0.22	EPA 8270	11/26/08
Indeno(1,2,3-cd)pyrene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Isophorone	<0.22	μg/L	0.22	EPA 8270	11/26/08
Naphthalene	<0.22	μg/L	0.22	EPA 8270	11/26/08

Report Date: 01/02/09





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LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample ID: FO081411 Sample Collected: 11/20/08 09:41

VALIDATED Sample Received: 11/20/08

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 4 of 4

Address/Location: SW-44-ABC352-1108

AM10907 System ID: N HARDING & RIVER EID File #: 1020.005 44_SW1 Sample Point Code:

PORTHASW Sample Type: **GRAB** LocCode:

Collected By: RCB/PHA **STORMWTR** Sample Matrix:

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Low recoveries in the LCS and LCS Dup for Semivolatile compounds Benzoic Acid and Pentachlorophenol indicate low bias for these components.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Nitrobenzene	<0.22	μg/L	0.22	EPA 8270	11/26/08
N-Nitrosodi-n-propylamine	<0.22	μg/L	0.22	EPA 8270	11/26/08
N-Nitrosodiphenylamine	<0.22	μg/L	0.22	EPA 8270	11/26/08
Pentachlorophenol	<1.1	μg/L	1.1	EPA 8270	11/26/08
Phenanthrene	<0.22	μg/L	0.22	EPA 8270	11/26/08
Phenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
Pyrene	<0.22	μg/L	0.22	EPA 8270	11/26/08

End of Report for Sample ID: FO081411

Report Date: 01/02/09



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LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample ID: FO081414 Sample Collected: 11/20/08 00:00 **VALIDATED**

Sample Received: 11/20/08

Page 1 of 4 Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page:

Address/Location: FIELD DUPLICATE

System ID: AM10910 EID File #: Sample Point Code: DUP 1020.005

Sample Type: **GRAB** LocCode: **PORTHASW**

Collected By: RCB/PHA Sample Matrix: **STORMWTR**

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Low recoveries in the LCS and LCS Dup for Semivolatile compounds Benzoic Acid and Pentachlorophenol indicate low bias for these components.

, Test Parameter	Result	Units	MRL	Method	Analysis Date
· · · · · · · · · · · · · · · · · · ·					
GENERAL TOTAL SUSPENDED SOLIDS	30	mg/L	2	SM 2540 D	11/20/08
	50	1119/12	,~	OM 2040 D	11/20/00
METALS	2 2222		2 222		4470470
MERCURY	0.0082	μg/L	0.002	WPCLSOP M-10.02	11/21/0
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	1.30	μ g/L	0.1	EPA 200.8	11/24/0
CADMIUM	41.0	μg/L	0.1	EPA 200.8	11/24/0
CHROMIUM	3.18	μg/L	0.4	EPA 200.8	11/24/0
COPPER	19.7	μ g/L	0.2	EPA 200.8	11/24/0
LEAD	9.93	μg/L	0.1	EPA 200.8	11/24/0
NICKEL	2.55	μg/L	0.2	EPA 200.8	11/24/0
SILVER	<0.10	μg/L	0.1	EPA 200.8	11/24/0
ZINC	137	μg/L	0.5	EPA 200.8	11/24/0
OUTSIDE ANALYSIS		•			
POLYCHLORINATED BIPHENYL CONG	ENERS -PACE			1	
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	12/02/0
POLYNUCLEAR AROMATICS & PHTHA	LATES - TA				
Acenaphthene	< 0.0196	μg/L	0.0196	EPA 8270M-SIM	11/21/0
Acenaphthylene	< 0.0196	μg/L	0.0196	EPA 8270M-SIM	11/21/0
Anthracene	< 0.0196	μg/L	0.0196	EPA 8270M-SIM	11/21/0
Benzo(a)anthracene	0.0409	μg/L	0.00980	EPA 8270M-SIM	11/21/0
Benzo(a)pyrene	0.0358	μg/L	0.00980	EPA 8270M-SIM	11/21/0
Benzo(b)fluoranthene	0.0403	μg/L	0.00980	EPA 8270M-SIM	11/21/0
Benzo(ghi)perylene	0.0453	μg/L	0.0196	EPA 8270M-SIM	11/21/0
Benzo(k)fluoranthene	0.0268	μg/L	0.00980	EPA 8270M-SIM	11/21/0
Bis(2-ethylhexyl) phthalate	2.23	μg/L	0.980	EPA 8270M-SIM	11/21/0
Butyl benzyl phthalate	<0.980	μg/L	0.980	EPA 8270M-SIM	11/21/0
Chrysene	0.0671	μg/L	0.00980	EPA 8270M-SIM	11/21/0
Dibenzo(a,h)anthracene	< 0.00980	μg/L	0.00980	EPA 8270M-SIM	11/21/0
Diethyl phthalate	<0.980	μg/L	0.980	EPA 8270M-SIM	11/21/0
Dimethyl phthalate	<0.980	μg/L	0.980	EPA 8270M-SIM	11/21/0
Di-n-butyl phthalate	<0.980	μg/L	0.980	EPA 8270M-SIM	11/21/0
Di-n-octyl phthalate	< 0.980	μg/L	0.980	EPA 8270M-SIM	11/21/0

Report Date: 01/02/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO081414

Sample Collected: 11/20/08 Sample Received: 11/20/08 00:00

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 2 of 4

Address/Location:

FIELD DUPLICATE

System ID:

AM10910

Sample Point Code: Sample Type:

DUP **GRAB** EID File #: LocCode:

1020.005

Sample Matrix:

STORMWTR

Collected By: RCB/PHA

PORTHASW

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Low recoveries in the LCS and LCS Dup for Semivolatile compounds Benzoic Acid and Pentachlorophenol indicate low bias for these components.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Fluoranthene	0.116	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Fluorene	< 0.0196	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Indeno(1,2,3-cd)pyrene	0.0233	μg/L	0.00980	EPA 8270M-SIM	11/21/08
Naphthalene	0.218	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Phenanthrene	0.0767	μg/L	0.0196	EPA 8270M-SIM	11/21/08
Pyrene	0.109	$\mu \bar{g}/L$	0.0196	EPA 8270M-SIM	11/21/08
SEMI-VOLATILE ORGANICS - CAS			•		
1,2,4-Trichlorobenzene	<0.21	μg/L	0.21	EPA 8270	11/26/08
1,2-Dichlorobenzene	<0.21	μg/L	0.21	EPA 8270	11/26/08
1,3-Dichlorobenzene	<0.21	μg/L	0.21	EPA 8270	11/26/08
1,4-Dichlorobenzene	<0.21	μg/L	0.21	EPA 8270	11/26/08
2,4,5-Trichlorophenol	<0.53	μ g/L	0.53	EPA 8270	11/26/08
2,4,6-Trichlorophenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
2,4-Dichlorophenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
2,4-Dimethylphenol	<4.2	μg/L	4.2	EPA 8270	11/26/08
2,4-Dinitrophenol	<4.2	μg/L	4.2	EPA 8270	11/26/08
2,4-Dinitrotoluene	<0.21	μg/L	0.21	EPA 8270	11/26/08
2,6-Dinitrotoluene	<0.21	μg/L	0.21	EPA 8270	11/26/08
2-Chloronaphthalene	<0.21	μg/L	0.21	EPA 8270	11/26/08
2-Chlorophenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
2-Methylnaphthalene	<0.21	μg/L	0.21	EPA 8270	11/26/08
2-Methylphenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
2-Nitroaniline	<0.21	μg/L	0.21	EPA 8270	11/26/08
2-Nitrophenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
3,3'-Dichlorobenzidine	<2.1	μg/L	2.1	EPA 8270	11/26/08
3-Nitroaniline	<1.1	μg/L	1.1	EPA 8270	11/26/08
4,6-Dinitro-2-methylphenol	<2.1	μg/L	2.1	EPA 8270	11/26/08
4-Bromophenylphenyl ether	<0.21	μg/L	0.21	EPA 8270	11/26/08
4-Chloro-3-methylphenol	< 0.53	μg/L	0.53	EPA 8270	11/26/08
4-Chloroaniline	<0.21	μg/L	0.21	EPA 8270	11/26/08
4-Chlorophenylphenyl ether	<0.21	μg/L	0.21	EPA 8270	11/26/08
4-Methylphenol	<0.53	μg/L	0.53	EPA 8270	11/26/08
4-Nitroaniline	<1.1	μg/L	1.1	EPA 8270	11/26/08
4-Nitrophenol	<2.1	μg/L	2.1	EPA 8270	11/26/08

Report Date: 01/02/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO081414

Sample Collected: 11/20/08 Sample Received: 11/20/08 00:00

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 3 of 4

Address/Location:

FIELD DUPLICATE

System ID:

AM10910

Sample Point Code:

DUP

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: RCB/PHA

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Low recoveries in the LCS and LCS Dup for Semivolatile compounds Benzoic Acid and Pentachlorophenol indicate low bias for these components.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Acenaphthene	<0.21	μg/L	0.21	EPA 8270	11/26/08 11/26/08
Acenaphthylene	<0.21	μg/L	0.21	EPA 8270	
Anthracene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Benzo(a)anthracene	<0.21	μg/L "	0.21	EPA 8270	11/26/08
Benzo(a)pyrene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Benzo(b)fluoranthene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Benzo(g,h,i)perylene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Benzo(k)fluoranthene	<0.21	μ g/L	0.21	EPA 8270	11/26/08
Benzoic acid	<5.3	μ g/L	5.3	EPA 8270	11/26/08
Benzyl alcohol	<0.53	μg/L	0.53	EPA 8270	11/26/08
Bis(2-chloroethoxy) methane	<0.21	μg/L	0.21	EPA 8270	11/26/08
Bis(2-chloroethyl) ether	<0.21	μg/L	0.21	EPA 8270	11/26/08
Bis(2-chloroisopropyl) ether	<0.21	μg/L	0.21	EPA 8270	11/26/08
Bis(2-ethylhexyl) phthalate	2.0	μ g/L	1.1	EPA 8270	11/26/08
Butyl benzyl phthalate	0.34	μg/L	0.21	EPA 8270	11/26/08
Chrysene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Dibenzo(a,h)anthracene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Dibenzofuran	<0.21	μg/L	0.21	EPA 8270	11/26/08
Diethyl phthalate	<0.21	μg/L	0.21	EPA 8270	11/26/08
Dimethyl phthalate	<0.21	μg/L	0.21	EPA 8270	11/26/08
Di-n-butyl phthalate	<0.21	μg/L	0.21	EPA 8270	11/26/08
Di-n-octyl phthalate	<0.21	μg/L	0.21	EPA 8270	11/26/08
Fluoranthene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Fluorene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Hexachlorobenzene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Hexachlorobutadiene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Hexachlorocyclopentadiene	<1.1	μg/L	1.1	EPA 8270	11/26/0
Hexachloroethane	<0.21	μg/L	0.21	EPA 8270	11/26/0
Indeno(1,2,3-cd)pyrene	<0.21	μg/L	0.21	EPA 8270	11/26/0
Isophorone	<0.21	μg/L	0.21	EPA 8270	11/26/08
Naphthalene	0.46	μg/L	0.21	EPA 8270	11/26/0
Nitrobenzene	<0.21	μg/L	0.21	EPA 8270	11/26/0
N-Nitrosodi-n-propylamine	<0.21	μg/L	0.21	EPA 8270	11/26/0
N-Nitrosodiphenylamine	<0.21	μg/L	0.21	EPA 8270	11/26/0
Pentachlorophenol	<1.1	μg/L	1.1	EPA 8270	11/26/0

Report Date: 01/02/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO081414

Sample Collected: 11/20/08 Sample Received: 11/20/08

00:00

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 4 of 4

Address/Location:

FIELD DUPLICATE

AM10910

System ID:

Sample Point Code:

DUP **GRAB** EID File #:

1020,005

Sample Type: Sample Matrix:

STORMWTR

LocCode: Collected By: RCB/PHA

PORTHASW

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Low recoveries in the LCS and LCS Dup for Semivolatile compounds Benzoic Acid and Pentachlorophenol indicate low bias for these components.

Test Parameter	Result	Units	MRL.	Method	Analysis Date
Phenanthrene	<0.21	μg/L	0.21	EPA 8270	11/26/08
Phenol	<0.53	μg/L	0.53	EPA 8270	11/26/08
Pyrene	<0.21	μg/L	0.21	EPA 8270	11/26/08

End of Report for Sample ID: FO081414

Report Date: 01/02/09 Validated By:



December 15, 2008

Analytical Report for Service Request No: K0811464

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor Stormwater

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on November 21, 2008. For your reference, these analyses have been assigned our service request number K0811464.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/lb

Page 1 of <u>37</u>

cc: Peter Abrams, City of Portland

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-







Case Narrative

Client:

Portland, City of

Service Request No.:

K0811464

Project:

Portland Harbor Stormwater

Date Received:

11/21/2008

Sample Matrix:

Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Seven water samples were received for analysis at Columbia Analytical Services on 11/21/2008. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Semivolatile Organic Compounds by EPA Method 8270C LL

Lab Control Sample Exceptions:

The spike recovery of Pentachlorophenol in the replicate Laboratory Control Samples (LCS/DLCS) KWG0812669-1 and KWG0812669-2 was outside the lower control criterion. The analyte in question was not detected in the associated field samples. The error associated with reduced recovery equates to a potential low bias. Additional analysis of the associated field samples could not be performed because insufficient sample remained for testing. The data is flagged to indicate the problem. No further corrective action was taken.

The advisory criterion was exceeded for Benzoic Acid in the replicate Laboratory Control Samples (LCS/DLCS) KWG0812669-1 and KWG0812669-2. As per the CAS/Kelso Standard Operating Procedure (SOP) for this method, this compound is not included in the subset of analytes used to control the analysis. The recovery information reported for this analyte is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

Sample Notes and Discussion:

Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD). A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

No other anomalies associated with the analysis of these samples were observed.

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Approved by	V	Date

Chain of Custody Documentation

Columbia
Analytical
Services No.

CHAIN OF CUSTODY

P REMARKS ĥ Z Z CIRCLE ONE > S Sn F F Š Š Se Se ğ S 10991 XOF OTHER Ag Ag 10, Cl, SO4, PO4, F, NC (circle) NO2+NO3, TC (circle) TSS4, F, NC (circle) TSS4, F, N 0506 XOT × ¥ 9 Z NORTHWEST ž Mn Mo Cond C Mn Нех-Сугоп 230 Ma Pb Mg Total or Dissolved (wolded PAGE ≷ d d Pate/Time CA e L Œ. RELINQUISHED BY: dod 0 O Ä M1818. 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068 ö Ö sebioide/Hebbioides 808 A1808 800 *INDICATE STATE HYDROCARBON PROCEDURE: ô ô 90 Cq 1508 4991 Be B Ca Qa SPECIAL INSTRUCTIONS/COMMENTS: Be B Circle which metals are to be analyzed Old Cas Diesel D Ва Ва でなる Sp Sb Semivolatile Organics by GCMS As As Dissolved Metals: Al Total Metals: Al 3 RECEIVED BY: NUMBER OF CONTAINERS TURNAROUND REQUIREMENTS Standard (10-15 working days) INVOICE INFORMATION Summed IN ame Requested Report Date MATRIX ignature Provide FAX Results YNMMER LAB 1.D. 5 Day 24 hr. 0986 BIII To: 2 29 90 なる P.O. # する TIME 3 大名の子 Almov 03 Date/Time <u>8</u> Report Dup., MS, MSD as DATE RELINQUISHED BY: X I. Routine Report: Method IV. CLP Deliverable Report REPORT REQUIREMENTS Data Validation Report (includes all raw data) Blank, Surrogate, as 1 017130 いのたえの 614120 エナスの 0840 しする SAMPLE I.D. required D8 14 Printed Name required SAMPLER'S SIGNATURE V. EDD PROJECT MANAGER Signature PROJECT NUMBER PROJECT NAME E-MAIL ADDRESS CITY/STATE/ZIP = = PHONE # \circ 2 9

RCOC #1 06/03

		Columbia ooler Rece	·						PC_//	<u></u>
Client / Project: City of W	Hand				Servic	e Requ	est <i>K08</i>	114	64	
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 5. Temperature of cooler(s) upon Temperature Blank (°C): 6. If applicable, list Chain of Custo 7. Packing material used. <i>Inserts</i> 	dy Number	s:	- N P rap G	el Pac	ks Wei	Tice S	Sleeves Othe	r		
 8. Were custody papers properly fil 9. Did all bottles arrive in good co 10. Were all sample labels complete 11. Did all sample labels and tags ag 	ondition (u. (i.e analys. cree with cu	nbroken)? is, preservationstody papers	Indicate on, etc.) ? Indica	? ate in l	the table	below	<i>3</i>		NA Y NA Y NA Y	N (N (N (
 12. Were appropriate bottles/conts 13. Were the pH-preserved bottles te 14. Were VOA vials and 1631 Merc 15. Are CWA Microbiology sampl 16. Was C12/Res negative? 	sted* recei ury bottles	ved at the appressived with	oropriation hea	e pH? dspace	Indicaté ? Indica	in the t te in th	able below e table below.	on?	NA Y NA Y NA Y NA Y NA Y	И И И И
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Sample ID	Bottle	Bottle Type	Out of Temp		Broken	На	Reagent	Volume added	Reagent Lot Number	Initials
*Does not include all pH preserved sample aliq Additional Notes, Discrepancies, &			peiving SC)P (SMC	D-GEN).					

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464

Date Collected: 11/20/2008 **Date Received:** 11/21/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 081411

Lab Code:

K0811464-004

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result	o	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND		0.22	0.037	1	11/26/08	12/09/08	KWG0812669	
Phenol	0.19		0.53	0.067	1	11/26/08	12/09/08	KWG0812669	
2-Chlorophenol	ND	U	0.53	0.057	1	11/26/08	12/09/08	KWG0812669	
1,3-Dichlorobenzene	ND	U	0.22	0.023	1	11/26/08	12/09/08	KWG0812669	
1,4-Dichlorobenzene	ND	U	0.22	0.031	1	11/26/08	12/09/08	KWG0812669	
1,2-Dichlorobenzene	ND	U	0.22	0.024	1	11/26/08	12/09/08	KWG0812669	
Benzyl Alcohol	0.12	J	0.53	0.077	1	11/26/08	12/09/08	KWG0812669	
Bis(2-chloroisopropyl) Ether	ND	U	0.22	0.028	1	11/26/08	12/09/08	KWG0812669	
2-Methylphenol	0.21	J	0.53	0.12	1	11/26/08	12/09/08	KWG0812669	
Hexachloroethane	ND		0.22	0.026	1	11/26/08	12/09/08	KWG0812669	
N-Nitrosodi-n-propylamine	ND	U	0.22	0.039	1	11/26/08	12/09/08	KWG0812669	
4-Methylphenol†	ND	U	0.53	0.13	1	11/26/08	12/09/08	KWG0812669	
Nitrobenzene	ND	U	0.22	0.030	1	11/26/08	12/09/08	KWG0812669	
Isophorone	ND	U	0.22	0.017	1	11/26/08	12/09/08	KWG0812669	
2-Nitrophenol	0.13	J	0.53	0.067	1	11/26/08	12/09/08	KWG0812669	
2,4-Dimethylphenol	ND		4.3	2.4	1	11/26/08	12/09/08	KWG0812669	
Bis(2-chloroethoxy)methane		U	0.22	0.026	1	11/26/08	12/09/08	KWG0812669	
2,4-Dichlorophenol	ND	U	0.53	0.050	1	11/26/08	12/09/08	KWG0812669	
Benzoic Acid	ND		5.3	1.2	1	11/26/08	12/09/08	KWG0812669	
1,2,4-Trichlorobenzene	ND		0.22	0.017	1	11/26/08	12/09/08	KWG0812669	
Naphthalene	0.037	J	0.22	0.024	1	11/26/08	12/09/08	KWG0812669	
4-Chloroaniline	ND		0.22	0.027	1	11/26/08	12/09/08	KWG0812669	
Hexachlorobutadiene	ND		0.22	0.029	1	11/26/08	12/09/08	KWG0812669	
4-Chloro-3-methylphenol	ND	U	0.53	0.039	1	11/26/08	12/09/08	KWG0812669	
2-Methylnaphthalene	ND		0.22	0.028	1	11/26/08	12/09/08	KWG0812669	
Hexachlorocyclopentadiene	ND		1.1	0.20	1	11/26/08	12/09/08	KWG0812669	
2,4,6-Trichlorophenol	ND	U	0.53	0.062	1	11/26/08	12/09/08	KWG0812669	
2,4,5-Trichlorophenol	ND		0.53	0.033	1	11/26/08	12/09/08	KWG0812669	
2-Chloronaphthalene	ND		0.22	0.044	1	11/26/08	12/09/08	KWG0812669	
2-Nitroaniline	ND	U	0.22	0.026	1	11/26/08	12/09/08	KWG0812669	
Acenaphthylene	0.042		0.22	0.016	1	11/26/08	12/09/08	KWG0812669	
Dimethyl Phthalate	0.11		0.22	0.023	1	11/26/08	12/09/08	KWG0812669	
2,6-Dinitrotoluene	ND	U	0.22	0.035	1	11/26/08	12/09/08	KWG0812669	

Comments:	
Committee	

Printed: 12/11/2008 17:26:27 u:\Stealth\Crystal.rpt\Form1m.rpt

Merged

Form 1A - Organic

Page

1 of 3

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464 **Date Collected:** 11/20/2008

Date Received: 11/21/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 081411

Lab Code:

K0811464-004

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	U	0.22	0.028	1	11/26/08	12/09/08	KWG0812669	
3-Nitroaniline	ND	U	1.1	0.031	1	11/26/08	12/09/08	KWG0812669	
2,4-Dinitrophenol	ND	U	4.3	0.18	1	11/26/08	12/09/08	KWG0812669	
Dibenzofuran	ND	U	0.22	0.019	1	11/26/08	12/09/08	KWG0812669	
4-Nitrophenol	0.60	J	2.2	0.30	1	11/26/08	12/09/08	KWG0812669	
2,4-Dinitrotoluene	ND	U	0.22	0.019	1	11/26/08	12/09/08	KWG0812669	
Fluorene	ND		0.22	0.029	1	11/26/08	12/09/08	KWG0812669	
4-Chlorophenyl Phenyl Ether	ND	U	0.22	0.029	1	11/26/08	12/09/08	KWG0812669	
Diethyl Phthalate	0.081	J	0.22	0.013	1	11/26/08	12/09/08	KWG0812669	
4-Nitroaniline	ND	U	1.1	0.020	1	11/26/08	12/09/08	KWG0812669	
2-Methyl-4,6-dinitrophenol	ND	U	2.2	0.027	1	11/26/08	12/09/08	KWG0812669	
N-Nitrosodiphenylamine	ND	U	0.22	0.051	1	11/26/08	12/09/08	KWG0812669	
4-Bromophenyl Phenyl Ether	ND	U	0.22	0.028	1	11/26/08	12/09/08	KWG0812669	
Hexachlorobenzene	ND	U	0.22	0.024	1	11/26/08	12/09/08	KWG0812669	
Pentachlorophenol	0.45	J	1.1	0.36	1	11/26/08	12/09/08	KWG0812669	
Phenanthrene	0.078		0.22	0.024	1	11/26/08	12/09/08	KWG0812669	
Anthracene	0.031	J	0.22	0.026	1	11/26/08	12/09/08	KWG0812669	
Di-n-butyl Phthalate	0.18	J	0.22	0.025	1	11/26/08	12/09/08	KWG0812669	
Fluoranthene	0.11		0.22	0.022	1	11/26/08	12/09/08	KWG0812669	
Pyrene	0.14		0.22	0.020	1	11/26/08	12/09/08	KWG0812669	
Butyl Benzyl Phthalate	0.21	J	0.22	0.019	1	11/26/08	12/09/08	KWG0812669	
3,3'-Dichlorobenzidine	ND	U	2.2	0.46	1	11/26/08	12/09/08	KWG0812669	
Benz(a)anthracene	0.028	J	0.22	0.019	1	11/26/08	12/09/08	KWG0812669	
Chrysene	0.046	J	0.22	0.030	1	11/26/08	12/09/08	KWG0812669	
Bis(2-ethylhexyl) Phthalate	2.3		1.1	0.14	1	11/26/08	12/09/08	KWG0812669	
Di-n-octyl Phthalate	ND	U	0.22	0.019	1	11/26/08	12/09/08	KWG0812669	
Benzo(b)fluoranthene	ND	U	0.22	0.018	1	11/26/08	12/09/08	KWG0812669	
Benzo(k)fluoranthene	ND	U	0.22	0.026	1	11/26/08	12/09/08	KWG0812669	-
Benzo(a)pyrene			0.22	0.033	1	11/26/08	12/09/08	KWG0812669	
Indeno(1,2,3-cd)pyrene	ND	U	0.22	0.023	1	11/26/08	12/09/08	KWG0812669	
Dibenz(a,h)anthracene	ND	U	0.22	0.018	1	11/26/08	12/09/08	KWG0812669	
Benzo(g,h,i)perylene	0.037	J	0.22	0.020	1	11/26/08	12/09/08	KWG0812669	

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464 **Date Collected:** 11/20/2008 **Date Received:** 11/21/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

FO 081411

K0811464-004

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	61	21-119	12/09/08	Acceptable	
Phenol-d6	60	31-121	12/09/08	Acceptable	
Nitrobenzene-d5	58	29-121	12/09/08	Acceptable	
2-Fluorobiphenyl	60	25-109	12/09/08	Acceptable	
2,4,6-Tribromophenol	89	30-131	12/09/08	Acceptable	
Terphenyl-d14	74	20-140	12/09/08	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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RR96724 SuperSet Reference:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464 **Date Collected:** 11/20/2008

Date Received: 11/21/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 081414

Lab Code:

K0811464-007

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.21	- 0.037	1	11/26/08	12/09/08	KWG0812669	
Phenol	0.12		0.53	0.066	1	11/26/08	12/09/08	KWG0812669	
2-Chlorophenol	ND	U	0.53	0.057	1	11/26/08	12/09/08	KWG0812669	
1,3-Dichlorobenzene	ND	U	0.21	0.022	1	11/26/08	12/09/08	KWG0812669	
1,4-Dichlorobenzene	ND	U	0.21	0.031	1	11/26/08	12/09/08	KWG0812669	
1,2-Dichlorobenzene	ND	U	0.21	0.023	1	11/26/08	12/09/08	KWG0812669	
Benzyl Alcohol	0.27	J	0.53	0.077	1	11/26/08	12/09/08	KWG0812669	
Bis(2-chloroisopropyl) Ether	ND	U	0.21	0.028	1	11/26/08	12/09/08	KWG0812669	
2-Methylphenol	ND	U	0.53	0.12	1	11/26/08	12/09/08	KWG0812669	
Hexachloroethane	ND	U	0.21	0.025	1	11/26/08	12/09/08	KWG0812669	
N-Nitrosodi-n-propylamine	ND	U	0.21	0.039	1	11/26/08	12/09/08	KWG0812669	
4-Methylphenol†	ND	U	0.53	0.13	1	11/26/08	12/09/08	KWG0812669	
Nitrobenzene	ND	U	0.21	0.030	1	11/26/08	12/09/08	KWG0812669	
Isophorone	ND	U	0.21	0.017	1	11/26/08	12/09/08	KWG0812669	
2-Nitrophenol	0.096	J	0.53	0.066	1	11/26/08	12/09/08	KWG0812669	
2,4-Dimethylphenol	ND	U	4.2	2.3	1	11/26/08	12/09/08	KWG0812669	
Bis(2-chloroethoxy)methane	ND	U	0.21	0.025	1	11/26/08	12/09/08	KWG0812669	
2,4-Dichlorophenol	ND	U	0.53	0.049	1	11/26/08	12/09/08	KWG0812669	
Benzoic Acid	ND	U	5.3	1.2	1	11/26/08	12/09/08	KWG0812669	***************************************
1,2,4-Trichlorobenzene	ND	U	0.21	0.017	1	11/26/08	12/09/08	KWG0812669	
Naphthalene	0.46		0.21	0.023	1	11/26/08	12/09/08	KWG0812669	
4-Chloroaniline	ND	U	0.21	0.027	1	11/26/08	12/09/08	KWG0812669	
Hexachlorobutadiene	ND		0.21	0.029	1	11/26/08	12/09/08	KWG0812669	
4-Chloro-3-methylphenol	ND	U	0.53	0.039	1	11/26/08	12/09/08	KWG0812669	
2-Methylnaphthalene	ND	U	0.21	0.028	1	11/26/08	12/09/08	KWG0812669	
Hexachlorocyclopentadiene	ND	U	1.1	0.20	1	11/26/08	12/09/08	KWG0812669	
2,4,6-Trichlorophenol	ND	U	0.53	0.061	1	11/26/08	12/09/08	KWG0812669	
2,4,5-Trichlorophenol	ND	U	0.53	0.033	1	11/26/08	12/09/08	KWG0812669	
2-Chloronaphthalene	ND	U	0.21	0.043	1	11/26/08	12/09/08	KWG0812669	
2-Nitroaniline	ND	U	0.21	0.025	1	11/26/08	12/09/08	KWG0812669	
Acenaphthylene	ND	U	0.21	0.016	1	11/26/08	12/09/08	KWG0812669	
Dimethyl Phthalate	0.085		0.21	0.022	1	11/26/08	12/09/08	KWG0812669	
2,6-Dinitrotoluene	ND	U	0.21	0.035	1	11/26/08	12/09/08	KWG0812669	

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SuperSet Reference:

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RR96724

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464

Date Collected: 11/20/2008

Date Received: 11/21/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 081414

Lab Code:

K0811464-007

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	U	0.21	0.028	1	11/26/08	12/09/08	KWG0812669	
3-Nitroaniline	ND	U	1.1	0.031	1	11/26/08	12/09/08	KWG0812669	
2,4-Dinitrophenol	ND	U	4.2	0.18	1	11/26/08	12/09/08	KWG0812669	
Dibenzofuran	ND	U	0.21	0.019	1	11/26/08	12/09/08	KWG0812669	
4-Nitrophenol	ND	U	2.1	0.30	1	11/26/08	12/09/08	KWG0812669	
2,4-Dinitrotoluene	ND	U	0.21	0.019	1	11/26/08	12/09/08	KWG0812669	
Fluorene	ND		0.21	0.029	1	11/26/08	12/09/08	KWG0812669	
4-Chlorophenyl Phenyl Ether	ND	U	0.21	0.029	1	11/26/08	12/09/08	KWG0812669	
Diethyl Phthalate	0.088	J	0.21	0.013	1	11/26/08	12/09/08	KWG0812669	
4-Nitroaniline	ND	U	1.1	0.020	1	11/26/08	12/09/08	KWG0812669	
2-Methyl-4,6-dinitrophenol	ND	U	2.1	0.027	I	11/26/08	12/09/08	KWG0812669	
N-Nitrosodiphenylamine	ND	U	0.21	0.050	1	11/26/08	12/09/08	KWG0812669	
4-Bromophenyl Phenyl Ether	ND	U	0.21	0.028	1	11/26/08	12/09/08	KWG0812669	-
Hexachlorobenzene	ND	U	0.21	0.023	1	11/26/08	12/09/08	KWG0812669	
Pentachlorophenol	0.40	J	1.1	0.36	1	11/26/08	12/09/08	KWG0812669	
Phenanthrene	0.062	J	0.21	0.023	1	11/26/08	12/09/08	KWG0812669	
Anthracene	ND	U	0.21	0.025	1	11/26/08	12/09/08	KWG0812669	
Di-n-butyl Phthalate	0.15	J	0.21	0.024	1	11/26/08	12/09/08	KWG0812669	
Fluoranthene	0.11		0.21	0.021	1	11/26/08	12/09/08	KWG0812669	
Pyrene	0.11	J	0.21	0.020	1	11/26/08	12/09/08	KWG0812669	
Butyl Benzyl Phthalate	0.34		0.21	0.019	1	11/26/08	12/09/08	KWG0812669	
3,3'-Dichlorobenzidine	ND	U	2.1	0.45	1	11/26/08	12/09/08	KWG0812669	
Benz(a)anthracene	0.036	J	0.21	0.019	1	11/26/08	12/09/08	KWG0812669	
Chrysene	0.058	J	0.21	0.030	1	11/26/08	12/09/08	KWG0812669	
Bis(2-ethylhexyl) Phthalate	2.0		1.1	0.14	1	11/26/08	12/09/08	KWG0812669	
Di-n-octyl Phthalate	ND	U	0.21	0.019	1	11/26/08	12/09/08	KWG0812669	
Benzo(b)fluoranthene	ND	U	0.21	0.018	1	11/26/08	12/09/08	KWG0812669	
Benzo(k)fluoranthene	ND	U	0.21	0.025	1	11/26/08	12/09/08	KWG0812669	
Benzo(a)pyrene	ND	U	0.21	0.033	1	11/26/08	12/09/08	KWG0812669	
Indeno(1,2,3-cd)pyrene	ND	U	0.21	0.022	1	11/26/08	12/09/08	KWG0812669	
Dibenz(a,h)anthracene	ND	U	0.21	0.018	1	11/26/08	12/09/08	KWG0812669	
Benzo(g,h,i)perylene	0.052	J	0.21	0.020	1	11/26/08	12/09/08	KWG0812669	

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464 **Date Collected:** 11/20/2008

Date Received: 11/21/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

FO 081414

K0811464-007

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	67	21-119	12/09/08	Acceptable
Phenol-d6	68	31-121	12/09/08	Acceptable
Nitrobenzene-d5	65	29-121	12/09/08	Acceptable
2-Fluorobiphenyl	66	25-109	12/09/08	Acceptable
2,4,6-Tribromophenol	95	30-131	12/09/08	Acceptable
Terphenyl-d14	76	20-140	12/09/08	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464

Date Collected: NA **Date Received:** NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0812669-3

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.20	0.035	1	11/26/08	12/05/08	KWG0812669	
Phenol	0.27	J	0.50	0.063	1	11/26/08	12/05/08	KWG0812669	
2-Chlorophenol	ND	U	0.50	0.054	1	11/26/08	12/05/08	KWG0812669	
1,3-Dichlorobenzene	ND	U	0.20	0.021	1	11/26/08	12/05/08	KWG0812669	
1,4-Dichlorobenzene	ND	U	0.20	0.029	1	11/26/08	12/05/08	KWG0812669	
1,2-Dichlorobenzene	ND	U	0.20	0.022	1	11/26/08	12/05/08	KWG0812669	
Benzyl Alcohol	ND	U	0.50	0.073	1	11/26/08	12/05/08	KWG0812669	
Bis(2-chloroisopropyl) Ether	ND	U	0.20	0.026	1	11/26/08	12/05/08	KWG0812669	
2-Methylphenol	ND	U	0.50	0.11	1	11/26/08	12/05/08	KWG0812669	
Hexachloroethane	ND	U	0.20	0.024	1	11/26/08	12/05/08	KWG0812669	
N-Nitrosodi-n-propylamine	ND	U	0.20	0.037	1	11/26/08	12/05/08	KWG0812669	
4-Methylphenol†	ND	U	0.50	0.12	1	11/26/08	12/05/08	KWG0812669	
Nitrobenzene	ND	U	0.20	0.028	1	11/26/08	12/05/08	KWG0812669	
Isophorone	ND		0.20	0.016	1	11/26/08	12/05/08	KWG0812669	
2-Nitrophenol	ND	U	0.50	0.063	1	11/26/08	12/05/08	KWG0812669	
2,4-Dimethylphenol	ND		4.0	2.2	1	11/26/08	12/05/08	KWG0812669	
Bis(2-chloroethoxy)methane	ND		0.20	0.024	1	11/26/08	12/05/08	KWG0812669	
2,4-Dichlorophenol	ND	U	0.50	0.047	1	11/26/08	12/05/08	KWG0812669	
Benzoic Acid	ND	U	5.0	1.1	1	11/26/08	12/05/08	KWG0812669	
1,2,4-Trichlorobenzene	ND	U	0.20	0.016	1	11/26/08	12/05/08	KWG0812669	
Naphthalene	ND	U	0.20	0.022	1	11/26/08	12/05/08	KWG0812669	
4-Chloroaniline	ND		0.20	0.025	1	11/26/08	12/05/08	KWG0812669	
Hexachlorobutadiene	ND		0.20	0.027	1	11/26/08	12/05/08	KWG0812669	
4-Chloro-3-methylphenol	ND	U	0.50	0.037	1	11/26/08	12/05/08	KWG0812669	
2-Methylnaphthalene	ND	U	0.20	0.026	1	11/26/08	12/05/08	KWG0812669	
Hexachlorocyclopentadiene	ND		1.0	0.19	1	11/26/08	12/05/08	KWG0812669	
2,4,6-Trichlorophenol	ND	U	0.50	0.058	1	11/26/08	12/05/08	KWG0812669	
2,4,5-Trichlorophenol	ND	U	0.50	0.031	1	11/26/08	12/05/08	KWG0812669	
2-Chloronaphthalene	ND	U	0.20	0.041	1	11/26/08	12/05/08	KWG0812669	
2-Nitroaniline	ND	U	0.20	0.024	1	11/26/08	12/05/08	KWG0812669	
Acenaphthylene	ND		0.20	0.015	1	11/26/08	12/05/08	KWG0812669	
Dimethyl Phthalate	0.023		0.20	0.021	1	11/26/08	12/05/08	KWG0812669	
2,6-Dinitrotoluene	ND	U	0.20	0.033	1	11/26/08	12/05/08	KWG0812669	

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Comments:	

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0812669-3

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND U	0.20	0.026	1	11/26/08	12/05/08	KWG0812669	
3-Nitroaniline	ND U	1.0	0.029	1	11/26/08	12/05/08	KWG0812669	
2,4-Dinitrophenol	ND U	4.0	0.17	1	11/26/08	12/05/08	KWG0812669	
Dibenzofuran	ND U	0.20	0.018	1	11/26/08	12/05/08	KWG0812669	
4-Nitrophenol	ND U	2.0	0.28	1	11/26/08	12/05/08	KWG0812669	
2,4-Dinitrotoluene	ND U	0.20	0.018	1	11/26/08	12/05/08	KWG0812669	
Fluorene	ND U	0.20	0.027	1	11/26/08	12/05/08	KWG0812669	
4-Chlorophenyl Phenyl Ether	ND U	0.20	0.027	1	11/26/08	12/05/08	KWG0812669	
Diethyl Phthalate	0.022 J	0.20	0.012	1	11/26/08	12/05/08	KWG0812669	
4-Nitroaniline	ND U	1.0	0.019	1	11/26/08	12/05/08	KWG0812669	
2-Methyl-4,6-dinitrophenol	ND U	2.0	0.025	1	11/26/08	12/05/08	KWG0812669	
N-Nitrosodiphenylamine	ND U	0.20	0.048	1	11/26/08	12/05/08	KWG0812669	
4-Bromophenyl Phenyl Ether	ND U	0.20	0.026	1	11/26/08	12/05/08	KWG0812669	
Hexachlorobenzene	ND U	0.20	0.022	1	11/26/08	12/05/08	KWG0812669	
Pentachlorophenol	ND U	1.0	0.34	1	11/26/08	12/05/08	KWG0812669	
Phenanthrene	ND U	0.20	0.022	1	11/26/08	12/05/08	KWG0812669	
Anthracene	ND U	0.20	0.024	1	11/26/08	12/05/08	KWG0812669	
Di-n-butyl Phthalate	0.10 J	0.20	0.023	1	11/26/08	12/05/08	KWG0812669	
Fluoranthene	ND U	0.20	0.020	1	11/26/08	12/05/08	KWG0812669	
Pyrene	ND U	0.20	0.019	1	11/26/08	12/05/08	KWG0812669	
Butyl Benzyl Phthalate	0.061 J	0.20	0.018	1	11/26/08	12/05/08	KWG0812669	
3,3'-Dichlorobenzidine	ND U	2.0	0.43	1	11/26/08	12/05/08	KWG0812669	
Benz(a)anthracene	ND U	0.20	0.018	1	11/26/08	12/05/08	KWG0812669	
Chrysene	ND U	0.20	0.028	1	11/26/08	12/05/08	KWG0812669	
Bis(2-ethylhexyl) Phthalate	0.15 J	1.0	0.13	1	11/26/08	12/05/08	KWG0812669	
Di-n-octyl Phthalate	ND U	0.20	0.018	1	11/26/08	12/05/08	KWG0812669	
Benzo(b)fluoranthene	ND U	0.20	0.017	1	11/26/08	12/05/08	KWG0812669	
Benzo(k)fluoranthene	ND U	0.20	0.024	1	11/26/08	12/05/08	KWG0812669	
Benzo(a)pyrene	ND U	0.20	0.031	1	11/26/08	12/05/08	KWG0812669	
Indeno(1,2,3-cd)pyrene	ND U	0.20	0.021	1	11/26/08	12/05/08	KWG0812669	
Dibenz(a,h)anthracene	ND U	0.20	0.017	1	11/26/08	12/05/08	KWG0812669	
Benzo(g,h,i)perylene	ND U	0.20	0.019	1	11/26/08	12/05/08	KWG0812669	

~~		
U.01	mme	HIS:

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Form 1A - Organic

Page 2 of 3

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464

Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: Method Blank

KWG0812669-3

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	82	21-119	12/05/08	Acceptable	
Phenol-d6	79	31-121	12/05/08	Acceptable	
Nitrobenzene-d5	81	29-121	12/05/08	Acceptable	
2-Fluorobiphenyl	74	25-109	12/05/08	Acceptable	
2,4,6-Tribromophenol	88	30-131	12/05/08	Acceptable	
Terphenyl-d14	98	20-140	12/05/08	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

 $\begin{array}{lll} Printed: & 12/11/2008 & 17;26;34 \\ u:\Stealth\Crystal.rpt\Form\Im.rpt & \end{array}$

Form 1A - Organic

SuperSet Reference: F

Page 3 of 3 RR96724

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

8270C

Service Request: K0811464

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4	<u>Sur5</u>	<u>Sur6</u>
FO 081408	K0811464-001	64	65	63	61	92	82
FO 081409	K0811464-002	69	68	65	63	95	86
FO 081410	K0811464-003	75	75	80	54	90	48
FO 081411	K0811464-004	61	60	58	60	89	74
FO 081412	K0811464-005	68	72	70	69	89	60
FO 081413	K0811464-006	79	78	80	73	90	101
FO 081414	K0811464-007	67	68	65	66	95	76
Method Blank	KWG0812669-3	82	79	81	74	88	98
Lab Control Sample	KWG0812669-1	83	82	81	75	97	99
Duplicate Lab Control Sample	KWG0812669-2	75	72	74	68	90	95

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	21-119	Sur5 = 2,4,6-Tribromophenol	30-131
Sur2 = Phenol-d6	31-121	Sur6 = Terphenyl-d14	20-140
Sur3 = Nitrobenzene-d5	29-121		
Sur4 = 2-Fluorobiphenyl	25-109		

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Printed: 12/11/2008 17:26:39

Form 2A - Organic 35

Page

1 of 1

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464 **Date Extracted:** 11/26/2008

Date Analyzed: 12/05/2008

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Extraction Lot: KWG0812669

Lab Control Sample KWG0812669-1

Duplicate Lab Control Sample KWG0812669-2

		VG0812669-1 Control Spik			/G0812669-2 e Lab Control		%Rec	RPD	
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Bis(2-chloroethyl) Ether	4.60	5.00	92	3.68	5.00	74	39-115	22	30
Phenol	4.66	5.00	93	3,82	5.00	76	39-117	20	30
2-Chlorophenol	4.58	5.00	92	3.75	5.00	75	40-113	20	30
1,3-Dichlorobenzene	1.83	5.00	37	1.51	5.00	30	18-71	20	30
1,4-Dichlorobenzene	2.04	5.00	41	1.65	5.00	33	19-73	21	30
1,2-Dichlorobenzene	2.17	5.00	43	1.80	5.00	36	22-78	19	30
Benzyl Alcohol	4.34	5.00	87	3.65	5.00	73	37-119	17	30
Bis(2-chloroisopropyl) Ether	4.03	5.00	81	3.29	5.00	66	35-113	20	30
2-Methylphenol	4.37	5.00	87	3.76	5.00	75	26-113	15	30
Hexachloroethane	1.42	5.00	28	1.13	5.00	23	11-62	23	30
N-Nitrosodi-n-propylamine	4.22	5.00	84	3,55	5.00	71	32-117	17	30
4-Methylphenol	4.04	5.00	81	3.53	5.00	71	25-118	13	30
Nitrobenzene	4.24	5.00	85	3.55	5.00	71	37-116	18	30
Isophorone	4.74	5.00	95	3.84	5.00	77	39-112	21	30
2-Nitrophenol	4.83	5.00	97	3.70	5.00	74	42-116	27	30
2,4-Dimethylphenol	3.99	5.00	80	3.96	5.00	79	10-113	1	30
Bis(2-chloroethoxy)methane	4.76	5.00	95	3.80	5.00	76	40-113	22	30
2,4-Dichlorophenol	4.74	5.00	95	3.89	5.00	78	39-115	20	30
Benzoic Acid	ND	15.0	0 *	0.664	15.0	4 *	10-102		30
1,2,4-Trichlorobenzene	2.45	5.00	49	1.89	5.00	38	21-78	26	30
Naphthalene	3.47	5.00	69	2.79	5.00	56	33-98	22	30
4-Chloroaniline	4.34	5.00	87	3.78	5.00	76	10-119	14	30
Hexachlorobutadiene	1.45	5.00	29	1.11	5.00	22	10-61	27	30
4-Chloro-3-methylphenol	4.73	5.00	95	3.82	5.00	76	37-119	21	30
2-Methylnaphthalene	3.33	5.00	67	2.63	5.00	53	32-95	23	30
Hexachlorocyclopentadiene	0.776	5.00	16	0.717	5.00	14	10-39	8	30
2,4,6-Trichlorophenol	4.86	5.00	97	4.21	5.00	84	40-117	14	30
2,4,5-Trichlorophenol	4.80	5.00	96	4.10	5.00	82	44-116	16	30
2-Chloronaphthalene	3.42	5.00	68	2.83	5.00	57	21-115	19	30
2-Nitroaniline	4.74	5.00	95	3.82	5.00	76	43-124	22	30
Acenaphthylene	4.25	5.00	85	3.46	5.00	69	41-114	21	30
Dimethyl Phthalate	4.97	5.00	99	4.12	5.00	82	47-117	19	30
2,6-Dinitrotoluene	4.94	5.00	99	4.05	5.00	81	45-120	20	30
Acenaphthene	4.04	5.00	81	3.37	5.00	67	38-106	18	30
3-Nitroaniline	4.86	5.00	97	4.11	5.00	82	31-125	17	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

SuperSet Reference: RR96724 Page

1 of 2

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0811464 **Date Extracted:** 11/26/2008

Date Analyzed: 12/05/2008

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Extraction Lot: KWG0812669

	KW	Control Samp VG0812669-1 Control Spik		KW	Lab Control /G0812669-2 Lab Control		%Rec	RPD	
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
2,4-Dinitrophenol	1.10	5.00	22	1.21	5.00	24	10-121	9	30
Dibenzofuran	4.25	5.00	85	3.51	5.00	70	40-107	19	30
4-Nitrophenol	4.54	5.00	91	3.81	5.00	76	43-133	18	30
2,4-Dinitrotoluene	4.99	5.00	100	4.25	5.00	85	47-125	16	30
Fluorene	4.38	5.00	88	3.60	5.00	72	40-112	19	30
4-Chlorophenyl Phenyl Ether	4.06	5.00	81	3.35	5.00	67	39-108	19	30
Diethyl Phthalate	4.83	5.00	97	4.59	5.00	92	47-120	5	30
4-Nitroaniline	4.81	5.00	96	4.27	5.00	85	36-128	12	30
2-Methyl-4,6-dinitrophenol	1.01	5.00	20	1.16	5.00	23	19-127	14	30
N-Nitrosodiphenylamine	4.80	5.00	96	4.03	5.00	81	36-114	17	30
4-Bromophenyl Phenyl Ether	4.41	5.00	88	3.52	5.00	70	43-110	22	30
Hexachlorobenzene	4.37	5.00	87	3.45	5.00	69	42-107	24	30
Pentachlorophenol	1.19	5.00	24 *	1.29	5.00	26 *	28-114	8	30
Phenanthrene	4.50	5.00	90	3.70	5.00	74	43-110	20	30
Anthracene	4.29	5.00	86	3.47	5.00	69	40-110	21	30
Di-n-butyl Phthalate	4.72	5.00	94	4.01	5.00	80	45-135	16	30
Fluoranthene	4.64	5.00	93	3.85	5.00	77	42-119	19	30
Pyrene	4.36	5.00	87	3.69	5.00	74	43-118	17	30
Butyl Benzyl Phthalate	4.62	5.00	92	3.96	5.00	79	48-124	15	30
3,3'-Dichlorobenzidine	2.78	5.00	56	2.53	5.00	51	15-108	9	30
Benz(a)anthracene	4.45	5.00	89	3.76	5.00	75	45-112	17	30
Chrysene	4.44	5.00	89	3.80	5.00	76	47-112	16	30
Bis(2-ethylhexyl) Phthalate	4.89	5.00	98	4.09	5.00	82	32-149	18	30
Di-n-octyl Phthalate	4.73	5.00	95	4.09	5.00	82	49-127	14	30
Benzo(b)fluoranthene	4.51	5.00	90	3.71	5.00	74	45-115	20	30
Benzo(k)fluoranthene	4.56	5.00	91	3.77	5.00	75	46-115	19	30
Benzo(a)pyrene	4.44	5.00	89	3.68	5.00	74	40-117	19	30
Indeno(1,2,3-cd)pyrene	4.61	5.00	92	3.84	5.00	77	44-119	18	30
Dibenz(a,h)anthracene	4.52	5.00	90	3.79	5.00	76	45-118	18	30
Benzo(g,h,i)perylene	4.69	5.00	94	3.95	5.00	79	45-116	17	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic 37

RR96724

SuperSet Reference:

2 of 2

Page



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132

ph: (503) 906.9200 fax: (503) 906.9210 ORELAP#: OR100021

December 12, 2008

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 11/20/08 18:10. The following list is a summary of the Work Orders contained in this report, generated on 12/12/08 15:28.

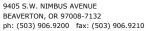
If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
PRK0762	Portland Harbor	36238

TestAmerica Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.







City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 12/12/08 15:28

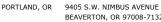
ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO081408	PRK0762-01	Water	11/20/08 09:32	11/20/08 18:10
FO081409	PRK0762-02	Water	11/20/08 08:54	11/20/08 18:10
FO081410	PRK0762-03	Water	11/20/08 09:11	11/20/08 18:10
FO081411	PRK0762-04	Water	11/20/08 09:41	11/20/08 18:10
FO081412	PRK0762-05	Water	11/20/08 09:56	11/20/08 18:10
FO081413	PRK0762-06	Water	11/20/08 10:06	11/20/08 18:10
FO081414	PRK0762-07	Water	11/20/08 00:00	11/20/08 18:10

TestAmerica Portland

Howard Holmes, Project Manager

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BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 12/12/08 15:28

Polynuclear Aromatic Compounds per EPA 8270M-SIM

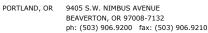
TestAmerica Portland

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PRK0762-03	(FO081410)			W	ater		Samp	led: 11/20/	08 09:11		
Indeno (1,2,3-cd) p	yrene	EPA 8270m	0.0293	0.00971	0.00971	ug/l	1x	8110790	11/21/08 17:50	11/25/08 17:06	
Naphthalene		"	0.0573	0.0194	0.0194	"	"	"	"	"	
Phenanthrene		"	0.121	0.0194	0.0194	"	"	"	"	"	
Pyrene		"	0.0959	0.0194	0.0194	"	"	"	"	"	
Surrogate(s):	Fluorene-d10				58.7%		25 - 125 %	"			"
	Pyrene-d10				58.3%		23 - 150 %	"			"
	Benzo (a) pyrene	e-d12			52.9%		10 - 125 %	"			"
PRK0762-04	(FO081411)			W	ater		Samp	led: 11/20/	08 09:41		
Bis(2-ethylhexyl)pl	hthalate	EPA 8270m	1.94	0.516	0.980	ug/l	1x	8110790	11/21/08 17:50	11/26/08 00:44	
Butyl benzyl phthal	ate	"	ND	0.516	0.980	"	"	"	"	"	
Di-n-butyl phthalate	e	"	ND	0.516	0.980	"	"	"		"	
Di-n-octyl phthalat	te	"	0.628	0.516	0.980	"	"	"	"	"	J
Diethyl phthalate		"	ND	0.516	0.980	"	"	"	"	"	
Dimethyl phthalate		"	ND	0.516	0.980	"	"	"	"	"	
Acenaphthene		"	ND	0.0196	0.0196	"	"	"	"	11/25/08 17:37	
Acenaphthylene		"	ND	0.0196	0.0196	"	"	"	"	"	
Anthracene		"	0.0234	0.0196	0.0196	"	"	"	"	"	
Benzo (a) anthrace	ene	"	0.0289	0.00980	0.00980	"	"	"	"	"	
Benzo (a) pyrene		"	0.0199	0.00980	0.00980	"	"	"	"	"	
Benzo (b) fluorantl	hene	"	0.0302	0.00980	0.00980	"	"	"		"	
Benzo (ghi) peryler	ne	"	0.0349	0.0196	0.0196	"	"	"	"	"	
Benzo (k) fluorantl	hene	"	0.0179	0.00980	0.00980	"	"	"	"	"	
Chrysene		"	0.0609	0.00980	0.00980	"	"	"	"	"	
Dibenzo (a,h) anthra	acene	"	ND	0.00980	0.00980	"	"	"	"	"	
Fluoranthene		"	0.131	0.0196	0.0196	"	"	"	"	"	
Fluorene		"	ND	0.0196	0.0196	"	"	"	"	"	
Indeno (1,2,3-cd) p	yrene	"	0.0137	0.00980	0.00980	"	"	"	"	"	
Naphthalene		"	0.0399	0.0196	0.0196	"	"	"	"	"	
Phenanthrene		"	0.0859	0.0196	0.0196	"	"	"	"	"	
Pyrene		"	0.114	0.0196	0.0196	"	"	"	"	"	
Surrogate(s):	Fluorene-d10				83.8%		25 - 125 %	"			"
- ',	Pyrene-d10				81.1%		23 - 150 %	"			"
	Benzo (a) pyrene	e-d12			67.8%		10 - 125 %	"			"

TestAmerica Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



Prepared

Analyzed

Notes



THE LEADER IN ENVIRONMENTAL TESTING

Method

Analyte

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

Result MDL*

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 12/12/08 15:28

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Units

Batch

MRL

Analyte		Methou	Kesuit	MIDL	MIKL	Units	Dii	Datti	ттератец	Allalyzeu	riotes
PRK0762-06	(FO081413)			W	ater		Samp	led: 11/20/	08 10:06		
Benzo (a) anthracer	ne	EPA 8270m	ND	0.00990	0.00990	ug/l	1x	8110790	11/21/08 17:50	11/25/08 18:37	
Benzo (a) pyrene		"	ND	0.00990	0.00990	"	"	"	"	"	
Benzo (b) fluoranth	nene	"	ND	0.00990	0.00990	"	"	"	"	"	
Benzo (ghi) peryler	ne	"	ND	0.0198	0.0198	"	"	"	"	"	
Benzo (k) fluoranth	nene	"	ND	0.00990	0.00990	"	"	"	"	"	
Chrysene		"	ND	0.00990	0.00990	"	"	"	"	"	
Dibenzo (a,h) anthr	racene	"	ND	0.00990	0.00990	"	"	"	"	"	
Fluoranthene		"	ND	0.0198	0.0198	"	"	"	"	"	
Fluorene		"	ND	0.0198	0.0198	"	"	"	"	"	
Indeno (1,2,3-cd) p	yrene	"	ND	0.00990	0.00990	"	"	"	"	"	
Naphthalene		"	ND	0.0198	0.0198	"	"	"	"	"	
Phenanthrene		"	ND	0.0198	0.0198	"	"	"	"	"	
Pyrene		"	ND	0.0198	0.0198	"	"	"	"	"	
Surrogate(s):	Fluorene-d10				101%		25 - 125 %	"			"
	Pyrene-d10				116%		23 - 150 %	"			"
	Benzo (a) pyrene	e-d12			106%		10 - 125 %	"			"
DDI/07/2 07	Œ0001414)			W	ater		Samn	led: 11/20/	08 00·00		
PRK0762-07	(FO081414)										
Bis(2-ethylhexyl)p		EPA 8270m	2.23	0.516	0.980	ug/l	1x	8110790	11/21/08 17:50	11/26/08 02:17	
Butyl benzyl phtha		"	0.647	0.516	0.980	"	"				J
Di-n-butyl phthalat	e										
Di-n-octyl phthala		"	ND	0.516	0.980	"	"	"	"	"	
Diothyrl mhthol-4-		"	ND 0.516	0.516	0.980	"	"	"	"	"	J
Diethyl phthalate	ite	" "		0.516 0.516	0.980 0.980	"	"	"	n n	" " "	
Dimethyl phthalate	ite	" " "	0.516	0.516 0.516 0.516	0.980 0.980 0.980	"	" "	" " "	" " " " " " " " " " " " " " " " " " " "	" " "	
Dimethyl phthalate Acenaphthene	ite	11 11 11	0.516 ND	0.516 0.516 0.516 0.0196	0.980 0.980 0.980 0.0196	" " " " " " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " " "	"	" " " 11/25/08 19:07	
Dimethyl phthalate Acenaphthene Acenaphthylene	ite	" " " " " " " " " " " " " " " " " " " "	0.516 ND ND ND ND	0.516 0.516 0.516 0.0196 0.0196	0.980 0.980 0.980 0.0196	" " " " " " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " " "	11 11 11	" " 11/25/08 19:07	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene	ite	11 11 11 11	0.516 ND ND ND ND	0.516 0.516 0.516 0.0196 0.0196 0.0196	0.980 0.980 0.980 0.0196 0.0196	"	" " " " " " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " " " " "	" " 11/25/08 19:07 "	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthrace	ite	11 11 11 11	0.516 ND ND ND ND ND 0.0409	0.516 0.516 0.516 0.0196 0.0196 0.0196 0.00980	0.980 0.980 0.980 0.0196 0.0196 0.0196	" " " " " " " " " " " " " " " " " " " "				" " 11/25/08 19:07 " "	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene	ite	" " " " " " " "	0.516 ND ND ND ND	0.516 0.516 0.516 0.0196 0.0196 0.0196	0.980 0.980 0.980 0.0196 0.0196 0.00980 0.00980					" " 11/25/08 19:07 " " "	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthrace	ene	"" "" "" "" "" "" "" "" "" "" "" "" ""	0.516 ND ND ND ND ND 0.0409	0.516 0.516 0.516 0.0196 0.0196 0.0196 0.00980	0.980 0.980 0.980 0.0196 0.0196 0.0196	11 11 11 11 11 11 11 11 11 11 11 11 11		" " " " " " " " " " " " " " " " " " " "		11/25/08 19:07	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthrace Benzo (b) fluorant Benzo (ghi) peryle	ene thene		0.516 ND ND ND ND ND 0.0409 0.0358	0.516 0.516 0.516 0.0196 0.0196 0.0196 0.00980 0.00980	0.980 0.980 0.980 0.0196 0.0196 0.00980 0.00980			" " " " " " " " " " " " " " " " " " " "		11/25/08 19:07	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthrace Benzo (a) pyrene Benzo (b) fluorant	ene thene		0.516 ND ND ND ND ND 0.0409 0.0358 0.0403	0.516 0.516 0.516 0.0196 0.0196 0.0196 0.00980 0.00980	0.980 0.980 0.980 0.0196 0.0196 0.00980 0.00980 0.00980					11/25/08 19:07	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthrace Benzo (b) fluorant Benzo (ghi) peryle	ene thene		0.516 ND ND ND ND 0.0409 0.0358 0.0403 0.0453	0.516 0.516 0.516 0.0196 0.0196 0.0196 0.00980 0.00980 0.00980	0.980 0.980 0.980 0.0196 0.0196 0.00980 0.00980 0.00980 0.0196					" " 11/25/08 19:07 " " " " " "	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthrace Benzo (a) pyrene Benzo (b) fluorant Benzo (ghi) peryle Benzo (k) fluorant	ene chene chene chene		0.516 ND ND ND ND 0.0449 0.0358 0.0403 0.0453 0.0268	0.516 0.516 0.516 0.0196 0.0196 0.00980 0.00980 0.00980 0.0196 0.00980	0.980 0.980 0.980 0.0196 0.0196 0.00980 0.00980 0.00980 0.0196 0.00980					"""""""""""""""""""""""""""""""""""""""	
Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthrace Benzo (b) fluorant Benzo (ghi) peryle Benzo (k) fluorant Chrysene	ene chene chene chene		0.516 ND ND ND ND 0.0409 0.0358 0.0403 0.0453 0.0268 0.0671	0.516 0.516 0.516 0.0196 0.0196 0.0196 0.00980 0.00980 0.00980 0.00980 0.00980	0.980 0.980 0.980 0.0196 0.0196 0.00980 0.00980 0.00980 0.00980 0.00980					"""""""""""""""""""""""""""""""""""""""	

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City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 12/12/08 15:28

Polynuclear Aromatic Compounds per EPA 8270M-SIM

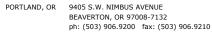
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Analyte	N	Method Res	ult]	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PRK0762-07	(FO081414)			Wa	ater		Samp	led: 11/20/	08:00:00		
Indeno (1,2,3-cd) p	yrene El	PA 8270m 0.02	33	0.00980	0.00980	ug/l	1x	8110790	11/21/08 17:50	11/25/08 19:07	
Naphthalene		" 0.2	18	0.0196	0.0196	"	"	"	"	"	
Phenanthrene		" 0.07	67	0.0196	0.0196	"	"	"	"	"	
Pyrene		" 0.1	09	0.0196	0.0196	"	"	"	"	"	
Surrogate(s):	Fluorene-d10				93.5%		25 - 125 %	"			"
	Pyrene-d10				104%		23 - 150 %	"			"
	Benzo (a) pyrene-d12				89.8%		10 - 125 %	"			"

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.

Project Number: 36238

Report Created:
Portland, OR 97203

Project Manager: Jennifer Shackelford

12/12/08 15:28

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

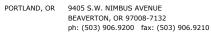
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QC Batch: 8110790	Water F	Preparation	Method: 3	3520B Liq-	Liq									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8110790-BLK1)								Extr	acted:	11/21/08 17	:50			
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	0.526	1.00	ug/l	1x							11/25/08 18:02	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"							"	
Diethyl phthalate	"	ND	0.526	1.00	"	"							"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"							"	
Acenaphthene	"	ND	0.0200	0.0200	"	"							11/25/08 14:07	
Acenaphthylene	"	ND	0.0200	0.0200	"	"							"	
Anthracene	"	ND	0.0200	0.0200	"	"							"	
Benzo (a) anthracene	"	ND	0.0100	0.0100	"	"							"	
Benzo (a) pyrene	"	ND	0.0100	0.0100	"								"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	"								"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	"								"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	"								"	
Chrysene	"	ND	0.0100	0.0100	"								"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"								"	
Fluoranthene	"	ND	0.0200	0.0200	"								"	
Fluorene	"	ND	0.0200	0.0200	"								"	
Indeno (1,2,3-cd) pyrene	,,	ND	0.0100	0.0100	,,								,,	
Naphthalene	"	ND	0.0200	0.0200	,,								"	
Phenanthrene	"	ND	0.0200	0.0200	,,								,,	
Pyrene	,,	ND	0.0200	0.0200	"	,,							"	
Surrogate(s): Fluorene-d10		Recovery:	96.5%		nits: 25-1259	% "							11/25/08 14:07	
Pyrene-d10		Recovery.	129%	Lin	23-150								"	
Benzo (a) pyrene-d12			103%		10-125								"	
Y GG (0440 = 00 DG4)								т.		11/21/00 15	50			
LCS (8110790-BS1) Bis(2-ethylhexyl)phthalate	EPA 8270m	2.52	0.526	1.00	no/1	1x		4.00	62.9%	(20-150)			11/25/08 18:33	
	EFA 82/0III	2.32	0.526	1.00	ug/l "	ıx "		4.00	61.0%	(20-130)	-		"	
Butyl benzyl phthalate	,,		0.526		,,			,,	87.9%		-		,,	
Di-n-butyl phthalate	,,	3.51		1.00				,,		,	-		,	
Di-n-octyl phthalate		2.12	0.526	1.00	,,			.,	53.0%	.,	-			
Diethyl phthalate		3.35	0.526	1.00					83.8%				"	
Dimethyl phthalate	"	3.06	0.526	1.00				"	76.5%					
Acenaphthene	"	1.96	0.0200	0.0200	"			2.50	78.5%	(35-120)			11/25/08 14:36	
Acenaphthylene	"	2.02	0.0200	0.0200	"			"	80.7%	(34-116)			"	
Anthracene	"	2.25	0.0200	0.0200	"	"		"	90.2%	(24-119)			"	
Benzo (a) anthracene	"	2.52	0.0100	0.0100	"	"		"	101%	(36-128)			"	
Benzo (a) pyrene	"	2.14	0.0100	0.0100	"	"		"	85.7%	(17-128)			"	
Benzo (b) fluoranthene	"	2.29	0.0100	0.0100	"	"		"	91.6%	(37-131)			"	

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Howard Holmes, Project Manager

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THE LEADER IN ENVIRONMENTAL TESTING

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

36238 6543 N. Burlington Ave. Project Number: Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 12/12/08 15:28

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

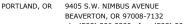
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QC Batch: 8110790	Water I	Preparation	n Method:	3520B Liq-	Liq									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits) Analyzed	Notes
LCS (8110790-BS1)								Ext	racted:	11/21/08 17	7:50			
Benzo (ghi) perylene	EPA 8270m	2.07	0.0200	0.0200	ug/l	1x		2.50	82.8%	(26-126)			11/25/08 14:36	
Benzo (k) fluoranthene	"	1.98	0.0100	0.0100	"	"		"	79.3%	(18-145)			"	
Chrysene	"	2.46	0.0100	0.0100	"	"		"	98.6%	(16-137)			"	
Dibenzo (a,h) anthracene	"	2.23	0.0100	0.0100	"	"		"	89.2%	(20-141)			"	
Fluoranthene	"	2.33	0.0200	0.0200	"	"		"	93.3%	(31-125)			"	
Fluorene	"	2.24	0.0200	0.0200	"	"		"	89.7%	(27-124)			"	
Indeno (1,2,3-cd) pyrene	"	2.18	0.0100	0.0100	"	"		"	87.0%	(30-135)			"	
Naphthalene	"	1.96	0.0200	0.0200	"	"		"	78.5%	(30-113)			"	
Phenanthrene	"	1.98	0.0200	0.0200	"	"		"	79.1%	(34-126)			"	
Pyrene	"	2.67	0.0200	0.0200	"	"		"	107%	(21-141)			"	
Surrogate(s): Fluorene-d10		Recovery:	99.0%	Lin	nits: 25-125%	, ,,							11/25/08 14:36	
Pyrene-d10		Ť	136%		23-150%								"	
Benzo (a) pyrene-d12			101%		10-125%	6 "							"	
Matrix Spike (8110790-MS1)				OC Sources	PRK0765-0	,		Evt	ractad:	11/21/08 17	7-50			
Bis(2-ethylhexyl)phthalate	EPA 8270m	3.56	0.521	0.990	ug/l	1x	1.15	3.96	61.0%	(10-150)			11/25/08 19:04	
Butyl benzyl phthalate	"	2.88	0.521	0.990	"	"	ND	"	72.6%	"			"	
Di-n-butyl phthalate	"	3.40	0.521	0.990	,,	,,	ND	,,	85.7%				"	
Di-n-octyl phthalate	"	3.10	0.521	0.990	,,	,,	ND	,,	78.2%				"	
Diethyl phthalate	"	3.21	0.521	0.990	"	,,	ND	,,	81.2%				"	
Dimethyl phthalate		2.85	0.521	0.990	"		ND	"	72.1%					
Acenaphthene		1.70	0.0198	0.0198	"		ND	2.48	68.5%	(35-120)			11/25/08 15:06	
Acenaphthylene	,,	1.67	0.0198	0.0198	"		ND	"	67.5%	(34-116)			"	
Anthracene	,,	2.00	0.0198	0.0198	"		ND	,,	80.8%	(24-119)				
Benzo (a) anthracene	,,	1.93	0.00990	0.00990	"		ND	,,	77.9%	(22-129)				
Benzo (a) pyrene	•	1.44	0.00990	0.00990	"		ND	,,	58.0%	(4-112)				
Benzo (b) fluoranthene	•	1.57	0.00990	0.00990	"		ND	,,	63.3%	(0-136)				
Benzo (ghi) perylene	,,	1.29	0.0198	0.0198	"	,,	0.0210	"	51.3%	(0-126)			"	
Benzo (k) fluoranthene	,,	1.39	0.00990	0.00990	"	,,	ND	"	56.3%	(0-145)			"	
Chrysene	,,	1.89	0.00990	0.00990	"	"	0.0226	"	75.6%	(7-137)			"	
Dibenzo (a,h) anthracene	,,	1.36	0.00990	0.00990	"	"	ND	"	54.8%	(0-141)			"	
Fluoranthene	•	2.13	0.0198	0.0198	"		0.0387	,,	84.6%	(30-125)				
Fluorene	•	2.13	0.0198	0.0198	"		ND	,,	86.1%	(27-124)				
Indeno (1,2,3-cd) pyrene	,,	1.33	0.00990	0.00990	"		ND	,,	53.7%	(0-135)			"	
Naphthalene	,,	1.76	0.0198	0.0198	"		0.0374	,,	69.7%	(30-126)			"	
Phenanthrene	"	2.16	0.0198	0.0198	"		0.0299	,,	85.9%	(34-126)			"	
Pyrene	"	1.84	0.0198	0.0198	"		0.0535	,,	72.0%	(14-168)			"	
Surrogate(s): Fluorene-d10 Pyrene-d10		Recovery:	93.2% 89.0%		nits: 25-125% 23-150%								11/25/08 15:06	

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Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 12/12/08 15:28

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results TestAmerica Portland 3520B Liq-Liq QC Batch: 8110790 Water Preparation Method: Source Spike Analyte Method Result MDL* MRL Units Dil (Limits) Analyzed Notes (Limits) REC Matrix Spike (8110790-MS1) QC Source: PRK0765-02 Extracted: 11/21/08 17:50 11/25/08 15:06 Recovery: 73.7% Surrogate(s): Benzo (a) pyrene-d12 Limits: 10-125% Matrix Spike Dup (8110790-MSD1) QC Source: PRK0765-02 Extracted: 11/21/08 17:50 Bis(2-ethylhexyl)phthalate 0.521 11/25/08 19:35 EPA 8270m 3 97 0.990 1 15 3 96 71.2% (10-150)15.5% (50) ug/l 1xButyl benzyl phthalate 3.13 0.521 0.990 ND 79.0% 8.42% 0.521 ND 92.9% 7.98% Di-n-butyl phthalate 3.68 0.990 3.41 0.521 0.990 ND 9.50% Di-n-octvl phthalate 86.0% Diethyl phthalate 3.39 0.521 0.990 ND 85.5% 5.16% 2.97 0.521 0.990 ND 74.9% 3.90% Dimethyl phthalate 0.0198 0.0198 ND 11/25/08 15:36 Acenaphthene 1.69 2.48 68.2% (35-120)0.406% (45) Acenaphthylene 1 67 0.0198 0.0198 ND 67.3% (34-116)0.252% Anthracene 2.10 0.0198 0.0198 ND 84.8% (24-119)4.92%2.19 0.00990 0.00990 ND Benzo (a) anthracene (22-129)12.6% 0.00990 0.00990 ND Benzo (a) pyrene 1.65 66.7% (4-112)14.0% Benzo (b) fluoranthene 1 72 0.00990 0.00990 ND 69 3% (0-136)9.13% Benzo (ghi) perylene 1.54 0.0198 0.0198 0.0210 61.5% (0-126)Benzo (k) fluoranthene 1.70 0.00990 0.00990 ND 68.7% (0-145)19.8% Chrysene 2.11 0.00990 0.00990 0.0226 84.4% (7-137)11.0% Dibenzo (a,h) anthracene 1.63 0.00990 0.00990 ND 65.8% (0-141)18.1% Fluoranthene 2.47 0.0198 0.0198 0.0387 98.2% (30-125)14.9% Fluorene 2.15 0.0198 0.0198 ND 87.0% (27-124)1.04% Indeno (1,2,3-cd) pyrene 1 59 0.00990 0.00990 ND 64 3% (0-135)17.8% Naphthalene 1.71 0.0198 0.0198 0.0374 (30-126) 2.91% Phenanthrene 2.39 0.0198 0.0198 0.0299 95.3% (34-126) 10.4% 0.0198 0.0535 2.00 0.0198 78.8% (14-168)8 96% Pyrene Surrogate(s): Fluorene-d10 Recovery: 90.1% Limits: 25-125% 11/25/08 15:36 Pvrene-d10 93.4% 23-150%

10-125%

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Howard Holmes, Project Manager

Benzo (a) pyrene-d12

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79.9%



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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford12/12/08 15:28

Notes and Definitions

Report Specific Notes:

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection
Limit (MDL). The user of this data should be aware that this data is of limited reliability.

RL1 - Reporting limit raised due to sample matrix effects.

Laboratory Reporting Conventions:

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.

on a wet weight basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.
 *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy.
 Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.
 Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory

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9405 SW Nimbus Ave, Beaverton, OR 97008-7145 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

907-563-9200 FAX 563-9210

TAL-1000(0408)

CHAIN OF CUSTODY REPORT Work Order #: CLIENT: INVOICE TO: TURNAROUND REQUEST Charles Lytle Jennifer Shackelford REPORT TO: in Business Days * ADDRESS: Organic & Inorganic Analyses PHONE: P.O. NUMBER: 36238 PROJECT NAME: ER: Portland Harbor Stormwater PRESERVATIVE REQUESTED ANALYSES OTHER * Turnaround Requests less than standard may incur Rush Charges CLIENT SAMPLE SAMPLING MATRIX # OF LOCATION/ IDENTIFICATION DATE/TIME (W, S, O) CONT. COMMENTS WO ID FO 08 1408 0932 W 2 FO 081409 X 0854 D χ FO 081410 4F0 08 1411 0941 L FO 081412 2 0956 6F0081413 1006 2 ,FO 0814Kf 0000 RECEIVED BY: PRINT NAME: RECEIVED BY: PRINT NAME: PRINT NAME:

	Te	stAmerica Sample F	Receipt Checklis	st) / () / (Cooler (D(s):
Received by:	Unpacked by:	Logged-in by:	V	Work Order No.	KKU1	<u> </u>
*(section A)	*(section B)	1/5 /	C	Client:		antonia ye
Date:	Date:	Date: 11/2 (10)	F	Project:	rec Ha	T. DC. Y
Time:	Initials:	Initials:		Tempe	erature out of ran	ge:
Initials:		<i>1.1</i>				Not enough Ice
***ÉSI Clients (see Section C			<u>-</u>	Dist #4		No Ice Ice Melted
				Digi #1 Digi #2		W/in 4 Hours Other:
Cooler Temperature (IR):	°C plastic (glass) NA (oil/air samples		nperature Blank:	, <u>C</u>	
A Custody Seals: (#)		В	Sample Statu (If N circled, se		
Signature: Y N Dated:	Possi	ved from:	General:			
None	Recei		Intact?		/. Y N	
Container Type:		TA Courier Senvoy	# Contai	iners Match COC?	Y N	none given
#Cooler(s)		UPS	l IDs Mate	ch COC?	$\mathbf{Y} \neq \mathbf{N}$	
#Box(s)		Fed Ex	For Analyses		Seeparate	
None (#	Other:)	Client		Checked?	Y N	NA
Coolant Type:		TDP	Correct	Type & Preservation?	Y N	
Gél Ice		DHL	Adequat	te Volume?	YN	
Loose Ice		SDS	1	Hold Time?	$\bigvee_{\mathbf{Y}} \mathbf{Y} \bigvee_{\mathbf{N}} \mathbf{N}$	
None		Mid-Valley	<u>Volatiles/ Oil</u>		"	
Packing Material:		GS/TA GS/Senvoy		inges free of Headspa	ce? Y N	NA
Bubble Bag	ıs	Other:	TB on CO	C? not provided	Y N	/ NA
Styrofoam			<u>Metals</u> :	•		
Peanuts			HNO3 Pi	reserved?	Y N	\ NA
None (Other:)		Dissolve	ed Metals Filtered?	Y N	\ NA
***ESI Clients Only:			FED EX/ UPS: W	/as the tracking paper k	eepable? YE	s NO
Temperature Blank:	°C not provide	d Digi: # 1 #2	If circled NO. w	what is the Tracking num	nber?	
All preserved bottl	es checked Y N	NA (voas/soils/all unp.)		streak UPS		Other:
All preserved acco	ordingly? Y N (see	NOD) NA (voas/soils/all unp.)				
Comments		Project	<u> Managers</u> :			

_ (Initial/Date)

PM Reviewed:



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

Report Prepared for:

Howard Holmes Test America 9405 SW Nimbus Avenue Beaverton OR 97008

> REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 1085193

Sample Receipt Date: 11/25/2008

Client Project #: PRK0762

Client Sub PO #: N/A

State Cert #: MN200001-005

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed and prepared by:

got C. Muye

Scott Unze, Project Manager (612) 607-6383

(612) 607-6444 (fax) scott.unze@pacelabs.com



Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

December 22, 2008



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on seven samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.5 parts-per-trillion and were adjusted for sample volume.

The isotopically-labeled PCB internal standards in the sample extracts were recovered at 52-145%. All of the labeled internal standard recoveries obtained for this project were within the target ranges specified in the method. Since the quantification of the native PCB congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain a low level of PCB congener #11. This analyte was not present in the field samples. This indicates that the analytical process did not introduce significant levels of PCB congeners to the sample extracts.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native compounds in the lab spikes were generally recovered at 101-116% with relative percent differences of 0.0-13.8%. Congener #209 in the LCSD was recovered at an elevated level. However, since the samples did not contain this analyte, these results indicate high degrees of accuracy and precsion for these determinations. Matrix spikes were not prepared with the sample set.

Appendix A

Sample Management

SUBCONTRACT ORDER

TestAmerica Portland PRK0762

1154

1085193

SENDING LABORATORY:

TestAmerica Portland 9405 SW Nimbus Ave. Beaverton, OR 97008 Phone: (503) 906-9200

Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone :(612) 607-1700

Fax: (612) 607-6444 Project Location:

Receipt Temperature:_

°C

Ice: Y / N

Analysis	Units	Due	Expires	Comments
Sample ID: PRK0762-01	Water		Sampled: 11/20/08 09:3	2 00 (
1668 Coplanar PCBs - SUB	ug/l	12/08/08	05/19/09 09:32	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (B)			,	
Sample ID: PRK0762-02	Water		Sampled: 11/20/08 08:5	4 002
1668 Coplanar PCBs - SUB	ug/l	12/08/08	05/19/09 08:54	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (B)			e e e e e e e e e e e e e e e e e e e	
Sample ID: PRK0762-03	Water		Sampled: 11/20/08 09:1	1 003
1668 Coplanar PCBs - SUB	ug/l	12/08/08	05/19/09 09:11	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (B)				
Sample ID: PRK0762-04	Water		Sampled: 11/20/08 09:4	004
1668 Coplanar PCBs - SUB	ug/l	12/08/08	05/19/09 09:41	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (B)				.,
Sample ID: PRK0762-05	Water		Sampled: 11/20/08 09:5	605
1668 Coplanar PCBs - SUB	ug/l	12/08/08	05/19/09 09:56	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (B)				
Sample ID: PRK0762-06	Water		Sampled: 11/20/08 10:09	006
1668 Coplanar PCBs - SUB	ug/l	12/08/08	05/19/09 10:06	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (B)			<u>, , , , , , , , , , , , , , , , , , , </u>	

Ama Moyun Refeased By

. <u>///24/0</u>8 Date/Time

Mondio Esmo Paa Received By 1128/05 12:30 J-2.6

Release Report No....1085193_1688 Time

Received By

Date/TimPage 4 of 66

SUBCONTRACT ORDER

TestAmerica Portland PRK0762



Analysis	Units	Due	Expires	Comments
Sample ID: PRK0762-07	Water		Sampled: 11/20/08 00:00	007
1668 Coplanar PCBs - SUB	ug/l	12/08/08	05/19/09 00:00	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (B)				

Sample Condition Upon Recalpt Face Analytical Client Noma: K

	Sample Condition Upon	i Receipt -
	ne: <u>Test America</u>	
Courier: Fed Ex UPS USPS Tracking #: 979687117152		Proj. Due Dale:
Custody Seal on Cooler/Box Present:	es 🗵 no Seals intact:	yes X no
Packing Material: Bubble Wrap Bub	ble Bags 🔲 None 🔲 Othe	Temp Blank: Yes No X
Thermometer Used 80344042 (79425)	Type of Ice: (Wet Blue	None Samples on ice, cooling process has begun
Cooler Temperature	Biological Tissue is Frozer	Yes No Date and Initials of person examining
Temp should be above freezing to 6°C	Commer	its: contents:
Chain of Custody Present:	Des □No □N/A 1.	
Chain of Custody Filled Out:	Yes DNo DNA 2.	
Chain of Custody Relinquished:	Øγes □No □N/A 3.	
Sampler Name & Signature on COC:	Øves □no □n/a 4.	The state of the s
Samples Arrived within Hold Time:	Oves Ono On/A 5.	
Short Hold Time Analysis (<72hr):	□Yes DiNo □N/A 6.	
Rush Turn Around Time Requested:	□Yes XINO □N/A 7.	
Sufficient Volume:	AYes Ono On/A 8,	
Correct Containers Used:	Yes DNo DN/A 9.	
-Pace Containers Used:	□Yes WNO □N/A	
Containers Intact:	Øves □no □n/A 10.	AND THE RESIDENCE OF THE PROPERTY OF THE PROPE
Filtered volume received for Dissolved tests	□Yes □No N/A 11.	
Sample Labels match COC:	Yes ONo ONA 12.	And the state of t
-Includes date/time/ID/Analysis Matrix:	24	
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	□Yes □No DAWA 13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No NNA	
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes No Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	□Yes □No DWA 14.	
Headspace in VOA Vials (>6mm):	☐Yes ☐No DAVIA 15.	
Trip Blank Present:	□Yes □No XIN/A 16.	
Trip Blank Custody Seals Present	□Yes □No XN/A	
Pace Trip Blank Lot # (if purchased):		
Client Notification/ Resolution:		Field Data Required? Y / N
Person Contacted:	Date/Time:	*** Transit Markey or the April 2014 of the Apri
Comments/ Resolution:		
	The same of the sa	
Project Manager Review;	<i>w</i>	Date: 11/25/08

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Report No.....1085193_1668A

Appendix B

Sample Analysis Summary

Water

NA



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Dilution

Client's Sample ID PRK0762-04
Lab Sample ID 1085193004
Filename P81218A_11
Injected By SMT
Total Amount Extracted 999 mL
% Moisture NA
Dry Weight Extracted NA

 Dry Weight Extracted
 NA
 Collected
 11/20/2008

 ICAL ID
 P81218A03
 Received
 11/25/2008

 CCal Filename(s)
 P81218A_02
 Extracted
 12/02/2008

 Method Blank ID
 BLANK-18405
 Analyzed
 12/18/2008
 14:43

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.133	3.15	2.0	1.27	64
13C-4-MoCB	3	10.189	2.89	2.0	1.43	71
13C-2,2'-DiCB	4	10.513	1.59	2.0	1.30	65
13C-4,4'-DiCB	15	18.409	1.56	2.0	1.67	84
13C-2,2',6-TrCB	19	14.778	1.10	2.0	1.49	75
13C-3,4,4'-TrCB	37	26.701	1.04	2.0	1.86	93
13C-2,2',6,6'-TeCB	54	18.718	0.80	2.0	1.50	75
13C-3,4,4',5-TeCB	81	34.047	0.79	2.0	1.81	90
13C-3,3',4,4'-TeCB	77	34.634	0.80	2.0	1.78	89
13C-2,2',4,6,6'-PeCB	104	25.276	1.60	2.0	1.62	81
13C-2,3,3',4,4'-PeCB	105	38.290	1.57	2.0	1.74	87
13C-2,3,4,4',5-PeCB	114	37.620	1.61	2.0	1.73	86
13C-2,3',4,4',5-PeCB	118	37.100	1.57	2.0	1.76	88
13C-2,3',4,4',5'-PeCB	123	36.747	1.60	2.0	1.80	90
13C-3,3',4,4',5-PeCB	126	41.511	1.57	2.0	1.60	80
13C-2,2',4,4',6,6'-HxCB	155	31.582	1.28	2.0	1.84	92
13C-HxCB (156/157)	156/157	44.597	1.27	4.0	3.36	84
13C-2,3',4,4',5,5'-HxCB	167	43.439	1.28	2.0	1.71	86
13C-3,3',4,4',5,5'-HxCB	169	47.917	1.27	2.0	1.62	81
13C-2,2',3,4',5,6,6'-HpCB	188	37.603	1.03	2.0	2.90	145
13C-2,3,3',4,4',5,5'-HpCB	189	50.457	1.04	2.0	2.71	136
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.121	0.90	2.0	2.52	126
13C-2,3,3',4,4',5,5',6-OcCB	205	53.043	0.92	2.0	2.12	106
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.768	0.79	2.0	2.23	111
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.918	0.80	2.0	2.29	115
13CDeCB	209	56.342	0.72	2.0	1.99	100
Cleanup Standards						
13C-2,4,4'-TrCB	28	22.106	1.04	2.0	1.94	97
13C-2,3,3',5,5'-PeCB	111	34.735	1.60	2.0	1.80	90
13C-2,2',3,3',5,5',6-HpCB	178	40.773	1.07	2.0	1.76	88
Recovery Standards						
13C-2,5-DiCB	9	13.305	1.59	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.253	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.833	1.63	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.303	1.26	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.548	0.92	2.0	NA	ŇA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRK0762-04 1085193004 P81218A_11

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.500
2				ND		0.500
3				ND		0.500
4				ND		0.500
5				ND		0.500
6				ND		0.500
7				ND		0.500
8				ND		0.500
9				ND		0.500
10				ND		0.500
11				ND		0.600
12	12/13			ND		0.500
13	12/13			ND		0.500
14	.2, .3			ND		0.500
15				ND		0.500
16				ND		0.500
17				ND		0.500
18	18/30			ND		0.500
19	10/30			ND		0.500
20	20/28	22.139	0.99	0.932		0.600
21	21/33			ND		0.500
22	21/33			ND		0.500
23				ND ND		0.500
24				ND ND		0.500
2 4 25				ND ND		0.500
26 26	26/29			ND ND		0.500
26 27	20/29			ND ND		0.500
	20/28	22.139	0.00			
28			0.99	(0.932)		0.600
29	26/29			NĎ		0.500
30	18/30			ND 0.500		0.500
31		21.804	0.99	0.569		0.500
32	04/00			ND		0.500
33	21/33			ND		0.500
34				ND		0.500
35				ND		0.500
36				ND		0.500
37		26.718	1.01	0.840		0.500
38				ND		0.500
39				ND		0.500
40	40/41/71	26.500	0.77	0.943		0.500
41	40/41/71	26.500	0.77	(0.943)		0.500
42				ND		0.500
43				ND		0.500
44	44/47/65	25.376	0.78	1.11		0.600
45	45/51			ND		0.500
46				ND		0.500
47	44/47/65	25.376	0.78	(1.11)		0.600
48				ND		0.500

Conc = Concentration

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A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PRK0762-04 Lab Sample ID 1085193004 Filename P81218A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	24.823	0.78	0.555		0.500
50	50/53			ND		0.500
51	45/51			ND		0.500
52		24.269	0.78	1.01		0.500
53	50/53			ND		0.500
54				ND		0.500
55				ND		0.500
56		30.659	0.77	1.04		0.500
57				ND		0.500
58				ND		0.500
59	59/62/75			ND		0.500
60		30.894	0.77	0.601		0.500
61	61/70/74/76	29.636	0.76	2.96		0.500
62	59/62/75			ND		0.500
63				ND		0.500
64		26.768	0.79	0.616		0.500
65	44/47/65	25.376	0.78	(1.11)		0.600
66		29.972	0.77	1.56		0.500
67				ND		0.500
68				ND		0.500
69	49/69	24.823	0.78	(0.555)		0.500
70	61/70/74/76	29.636	0.76	(2.96)		0.500
71	40/41/71	26.500	0.77	(0.943)		0.500
72	10/ 11// 1			ND		0.500
73				ND		0.500
74	61/70/74/76	29.636	0.76	(2.96)		0.500
75	59/62/75			ND		0.500
76	61/70/74/76	29.636	0.76	(2.96)		0.500
77	0.77.07.17.10	34.651	0.77	0.510		0.500
78				ND		0.500
79				ND		0.500
80				ND		0.500
81				ND		0.500
82		34.232	1.58	0.551		0.500
83				ND		0.500
84		29.787	1.58	0.610		0.500
85	85/116/117	33.745	1.57	0.650		0.600
86	86/87/97/108/119/125	33.058	1.60	2.36		1.00
87	86/87/97/108/119/125	33.058	1.60	(2.36)		1.00
88	88/91			ND		0.500
89	33/31			ND		0.500
90	90/101/113	31.867	1.54	2.65		0.500
91	88/91			ND		0.500
92				ND		0.500
93	93/98/100/102			ND		0.750
94				ND		0.500
95		28.630	1.56	1.48		0.500
96				ND		0.500

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID PRK0762-04 Lab Sample ID 1085193004 Filename P81218A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	33.058	1.60	(2.36)		1.00
98	93/98/100/102			` NĎ		0.750
99		32.487	1.56	1.18		0.500
100	93/98/100/102			ND		0.750
101	90/101/113	31.867	1.54	(2.65)		0.500
102	93/98/100/102			` NĎ		0.750
103				ND		0.500
104				ND		0.500
105		38.307	1.55	2.43		0.500
106				ND		0.500
107	107/124			ND		0.500
108	86/87/97/108/119/125	33.058	1.60	(2.36)		1.00
109	00/01/01/100/110/120			ND		0.500
110	110/115	33.930	1.56	4.20		0.500
111	110/110			ND		0.500
112				ND		0.500
113	90/101/113	31.867	1.54	(2.65)		0.500
114	30/101/113			ND		0.500
115	110/115	33.930	1.56	(4.20)		0.500
116	85/116/117	33.745	1.57	(0.650)		0.600
117	85/116/117	33.745	1.57	(0.650)		0.600
118	63/116/117	37.116	1.54	4.41		0.500
119	86/87/97/108/119/125	33.058	1.60	(2.36)		1.00
120	00/07/97/100/119/125		1.00	(2.30) ND		0.500
120				ND ND		
121				ND ND		0.500
122				ND ND		0.500
123	107/124			ND ND		0.500
124	86/87/97/108/119/125	33.058	1.60	(2.26)		0.500
	00/07/97/100/119/125	33.056	1.60	(2.36)		1.00
126				ND		0.500
127	100/100			ND		0.500
128	128/166	41.594	1.25	1.00		1.00
129	129/138/163	40.337	1.26	7.26		0.500
130				ND		0.500
131			4.05	ND		0.500
132		37.167	1.25	2.20		0.500
133	404/440			ND		0.500
134	134/143			ND		0.500
135	135/151	34.919	1.26	1.78		0.510
136		32.303	1.28	0.533		0.500
137	400/400/400	40.007	4.00	ND (7.00)		0.500
138	129/138/163	40.337	1.26	(7.26)		0.500
139	139/140			ND		0.500
140	139/140			ND		0.500
141		39.247	1.23	1.49		0.500
142	10.1/1.10			ND		0.500
143	134/143			ND		0.500
144				ND		0.500

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PRK0762-04 Lab Sample ID 1085193004 Filename P81218A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.500
146		38.441	1.25	0.821		0.500
147	147/149	35.892	1.27	4.65		0.500
148				ND		0.500
149	147/149	35.892	1.27	(4.65)		0.500
150				NĎ		0.500
151	135/151	34.919	1.26	(1.78)		0.510
152				ND		0.500
153	153/168	39.079	1.27	5.34		0.600
154				ND		0.500
155				ND		0.500
156	156/157			ND		1.00
157	156/157			ND		1.00
158		40.739	1.24	0.691		0.500
159				ND		0.500
160				ND		0.500
161				ND		0.500
162				ND		0.500
163	129/138/163	40.337	1.26	(7.26)		0.500
164				NĎ		0.500
165				ND		0.500
166	128/166	41.594	1.25	(1.00)		1.00
167				NĎ		0.500
168	153/168	39.079	1.27	(5.34)		0.600
169				` NĎ		0.500
170		47.280	1.06	2.12		0.500
171	171/173	43.674	1.04	0.636		0.500
172				ND		0.500
173	171/173	43.674	1.04	(0.636)		0.500
174		42.584	1.05	2.40		0.500
175				ND		0.500
176				ND		0.500
177		43.020	1.02	1.28		0.500
178				ND		0.500
179		37.955	1.04	0.817		0.500
180	180/193	46.039	1.06	4.92		0.500
181				ND		0.500
182				ND		0.500
183	183/185	42.366	1.06	1.50		0.500
184				ND		0.500
185	183/185	42.366	1.06	(1.50)		0.500
186				NĎ		0.500
187		41.729	1.05	2.56		0.500
188				ND		0.500
189				ND		0.500
190				ND		0.500
191				ND		0.500
192				ND		0.500

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion != Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PRK0762-04 Lab Sample ID 1085193004 Filename P81218A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.039	1.06	(4.92)		0.500
194		52.569	0.90	0.883		0.500
195		50.176	0.87	0.501		0.500
196				ND		0.700
197	197/200			ND		2.50
198	198/199	48.001	0.93	1.37		0.500
199	198/199	48.001	0.93	(1.37)		0.500
200	197/200			` NĎ		2.50
201				ND		0.500
202				ND		0.500
203		48.873	0.89	0.767		0.500
204				ND		0.500
205				ND		0.500
206				ND		0.500
207				ND		0.500
208				ND		0.500
209				ND		0.500

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRK0762-04 1085193004 P81218A_11

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	2.34	
Total Tetrachloro Biphenyls	10.9	
Total Pentachloro Biphenyls	20.5	
Total Hexachloro Biphenyls	25.8	
Total Heptachloro Biphenyls	16.2	
Total Octachloro Biphenyls	3.52	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	79.3	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Dilution

Water

NA

Client's Sample ID PRK0762-07 Lab Sample ID 1085193007 P81219A_07 Filename Injected By **CVS** 951 mL Total Amount Extracted % Moisture NA Dry Weight Extracted NA

Collected 11/20/2008 **ICAL ID** P81219A_02 Received 11/25/2008 CCal Filename(s) P81219A 01 Extracted 12/02/2008

Method Blank ID BLANK-18405 Analyzed 12/19/2008 15:00

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.145	3.08	2.0	1.21	60
13C-4-MoCB	3	10.189	3.22	2.0	1.29	65
13C-2,2'-DiCB	4	10.513	1.57	2.0	1.05	52
13C-4,4'-DiCB	15	18.397	1.60	2.0	1.76	88
13C-2,2',6-TrCB	19	14.767	1.07	2.0	1.26	63
13C-3,4,4'-TrCB	37	26.668	1.07	2.0	2.45	122
13C-2,2',6,6'-TeCB	54	18.702	0.82	2.0	1.51	75
13C-3,4,4',5-TeCB	81	34.012	0.80	2.0	2.38	119
13C-3,3',4,4'-TeCB	.77	34.599	0.80	2.0	2.35	118
13C-2,2',4,6,6'-PeCB	104	25.259	1.60	2.0	1.47	73
13C-2,3,3',4,4'-PeCB	105	38.238	1.59	2.0	2.42	121
13C-2,3,4,4',5-PeCB	114	37.584	1.59	2.0	2.39	119
13C-2,3',4,4',5-PeCB	118	37.047	1.59	2.0	2.46	123
13C-2,3',4,4',5'-PeCB	123	36.712	1.59	2.0	2.49	125
13C-3,3',4,4',5-PeCB	126 155	41.457	1.59 1.24	2.0 2.0	2.30 1.47	115 73
13C-2,2',4,4',6,6'-HxCB	156/157	31.548 44.526	1.24	2.0 4.0	4.38	73 109
13C-HxCB (156/157) 13C-2,3',4,4',5,5'-HxCB	167	43.386	1.25	2.0	4.36 2.26	113
13C-2,3,4,4',5,5'-HxCB	169	47.863	1.28	2.0	2.16	108
13C-2,2',3,4',5,6,6'-HpCB	188	37.567	1.06	2.0	1.68	84
13C-2,3,3',4,4',5,5'-HpCB	189	50.387	1.05	2.0	2.33	117
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.084	0.90	2.0	1.68	84
13C-2,3,3',4,4',5,5',6-OcCB	205	52.973	0.93	2.0	1.74	87
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.698	0.80	2.0	1.62	81
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.848	0.81	2.0	1.64	82
13CDeCB	209	56.271	0.70	2.0	1.42	71
01 01 1						
Cleanup Standards	00	00.000	4.00	0.0	0.44	400
13C-2,4,4'-TrCB	28	22.090	1.06	2.0	2.44	122
13C-2,3,3',5,5'-PeCB	111	34.700	1.60	2.0	1.89	95
13C-2,2',3,3',5,5',6-HpCB	178	40.736	1.06	2.0	1.75	88
Recovery Standards						
13C-2,5-DiCB	9	13.305	1.63	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.220	0.81	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.816	1.61	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.250	1.28	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.478	0.92	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRK0762-07 1085193007 P81219A_07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.526
2				ND		0.526
3				ND		0.526
4				ND		0.526
5 6				ND		0.526
6				ND		0.526
7				ND		0.526
8				ND		0.526
9				ND		0.526
10				ND		0.526
11				ND		0.631
12	12/13			ND		0.526
13	12/13			ND		0.526
14				ND		0.526
15				ND		0.526
16				ND		0.526
17				ND		0.526
18	18/30			ND		0.526
19	10/00			ND		0.526
20	20/28			ND		0.631
21	21/33			ND		0.526
22	21/33			ND		0.526
23				ND ND		0.526
23 24				ND ND		0.526
2 4 25						
	00/00			ND		0.526
26	26/29			ND		0.526
27	00/00			ND		0.526
28	20/28			ND		0.631
29	26/29			ND		0.526
30	18/30			ND		0.526
31				ND		0.526
32				ND		0.526
33	21/33			ND		0.526
34				ND		0.526
35				ND		0.526
36				ND		0.526
37				ND		0.526
38				ND		0.526
39				ND		0.526
40	40/41/71			ND		0.526
41	40/41/71			ND		0.526
42				ND		0.526
43				ND		0.526
44	44/47/65			ND		0.631
45	45/51			ND		0.526
46	70/0 I			ND		0.526
47	44/47/65			ND ND		0.631
47 48	44/47/00			ND ND		0.526
40				ND		0.526

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion != Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PRK0762-07 Lab Sample ID 1085193007 Filename P81219A_07

IUPAC	Co alutiono	DT	Detie	Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69			ND		0.526
50	50/53			ND		0.526
51	45/51			ND		0.526
52				ND		0.526
53	50/53			ND		0.526
54				ND		0.526
55				ND		0.526
56				ND		0.526
57				ND		0.526
58				ND		0.526
59	59/62/75			ND		0.526
60	33/32//3			ND		0.526
61	61/70/74/76	29.603	0.75	0.595		0.526
62	59/62/75			ND		0.526
63	00/02/70			ND		0.526
64				ND		0.526
65	44/47/65			ND		0.631
66	44/47/00			ND		0.526
67				ND		0.526
68				ND		0.526
69	49/69			ND ND		0.526
70	61/70/74/76	29.603	0.75	(0.595)		0.526
70 71	40/41/71			(0.595) ND		0.526
71	40/41/71			ND		0.526
72 73						
73 74	C4/70/74/70			ND (0.505)		0.526
	61/70/74/76	29.603	0.75	(0.595)		0.526
75 70	59/62/75			ND		0.526
76	61/70/74/76	29.603	0.75	(0.595)		0.526
77				ND		0.526
78				ND		0.526
79				ND		0.526
80				ND		0.526
81				ND		0.526
82				ND		0.526
83				ND		0.526
84				ND		0.526
85	85/116/117			ND		0.631
86	86/87/97/108/119/125			ND		1.05
87	86/87/97/108/119/125			ND		1.05
88	88/91			ND		0.526
89				ND		0.526
90	90/101/113	31.833	1.60	1.72		0.526
91	88/91			ND		0.526
92				ND		0.526
93	93/98/100/102			ND		0.788
94				ND		0.526
95		28.597	1.63	1.18		0.526
96				ND		0.526

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PRK0762-07 Lab Sample ID 1085193007 Filename P81219A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		1.05
98	93/98/100/102			ND		0.788
99				ND		0.526
100	93/98/100/102			ND		0.788
101	90/101/113	31.833	1.60	(1.72)		0.526
102	93/98/100/102			` NĎ		0.788
103				ND		0.526
104				ND		0.526
105				ND		0.526
106				ND		0.526
107	107/124			ND		0.526
108	86/87/97/108/119/125			ND		1.05
109	00,0.,0.,.00,0,0			ND		0.526
110	110/115	33.895	1.65	1.46		0.526
111	110,110			ND		0.526
112				ND		0.526
113	90/101/113	31.833	1.60	(1.72)		0.526
114	00,101,110			ND		0.526
115	110/115	33.895	1.65	(1.46)		0.526
116	85/116/117			ND		0.631
117	85/116/117			ND		0.631
118	00/110/11/	37.081	1.54	1.27		0.526
119	86/87/97/108/119/125			ND		1.05
120	00/01/31/100/113/120			ND		0.526
121				ND		0.526
122				ND		0.526
123				ND		0.526
124	107/124			ND		0.526
125	86/87/97/108/119/125			ND		1.05
126	00/07/97/100/119/129			ND		0.526
127				ND		0.526
128	128/166			ND		1.05
129	129/138/163	40.284	1.29	4.92		0.526
130	123/130/103		1.23	ND		0.526
131				ND		0.526
132		37.131	1.27	1.39		0.526
133		57.151 	1.27	ND		0.526
134	134/143			ND ND		0.526
135	135/151	34.884	1.26	1.74		0.536
136	133/131	32.285	1.22	0.535		0.526
137		32.203	1.22	0.555 ND		0.526
137	129/138/163	40.284	1.29	(4.92)		0.526
139	139/140	40.204	1.29	(4.92) ND		0.526
140	139/140			ND ND		0.526
140	133/140	39.210	1.24	1.09		0.526
141		39.210	1.24	1.09 ND		0.526
142	134/143			ND ND		0.526
_	134/143					
144				ND		0.526

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
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NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PRK0762-07 Lab Sample ID 1085193007 Filename P81219A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.526
146		38.389	1.27	0.632		0.526
147	147/149	35.857	1.28	4.10		0.526
148	1 1771 10			ND		0.526
149	147/149	35.857	1.28	(4.10)		0.526
150	1 1771 10			ND		0.526
151	135/151	34.884	1.26	(1.74)		0.536
152	100/101			ND		0.526
153	153/168	39.026	1.27	5.10		0.631
154	100/100			ND		0.526
155				ND		0.526
156	156/157			ND		1.05
157	156/157			ND		1.05
158	100/10/			ND		0.526
159				ND		0.526
160				ND		0.526
161				ND		0.526
162				ND		0.526
163	129/138/163	40.284	1.29	(4.92)		0.526
164	0,.00,.00			ND		0.526
165				ND		0.526
166	128/166			ND		1.05
167	0, . 0 0			ND		0.526
168	153/168	39.026	1.27	(5.10)		0.631
169				ND		0.526
170		47.225	1.06	1.95		0.526
171	171/173	43.620	1.06	0.598		0.526
172				ND		0.526
173	171/173	43.620	1.06	(0.598)		0.526
174		42.530	1.05	1.98		0.526
175				ND		0.526
176				ND		0.526
177		42.983	1.04	1.12		0.526
178				ND		0.526
179		37.903	1.06	0.735		0.526
180	180/193	45.968	1.06	4.66		0.526
181				ND		0.526
182				ND		0.526
183	183/185	42.329	1.08	1.53		0.526
184				ND		0.526
185	183/185	42.329	1.08	(1.53)		0.526
186				NĎ		0.526
187		41.692	1.06	2.42		0.526
188				ND		0.526
189				ND		0.526
190				ND		0.526
191				ND		0.526
192				ND		0.526

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PRK0762-07 Lab Sample ID 1085193007 Filename P81219A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	45.968	1.06	(4.66)		0.526
194		52.521	0.92	0.931		0.526
195				ND		0.526
196				ND		0.736
197	197/200			ND		2.63
198	198/199	47.946	0.89	0.956		0.526
199	198/199	47.946	0.89	(0.956)		0.526
200	197/200			NĎ		2.63
201				ND		0.526
202				ND		0.526
203		48.802	0.91	0.590		0.526
204				ND		0.526
205				ND		0.526
206				ND		0.526
207				ND		0.526
208				ND		0.526
209				ND		0.526

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRK0762-07 1085193007 P81219A_07

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	0.595	
Total Pentachloro Biphenyls	5.64	
Total Hexachloro Biphenyls	19.5	
Total Heptachloro Biphenyls	15.0	
Total Octachloro Biphenyls	2.48	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	43.2	

ND = Not Detected



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID

Filename
P81218A_07
Injected By
SMT
Total Amount Extracted
ICAL ID
P81218A03
CCal Filename(s)

PBLANK-18405
P81218A_07
P81218A03
P81218A 02

 SMT
 Matrix
 Water

 955 mL
 Extracted
 12/02/2008

 P81218A03
 Analyzed
 12/18/2008 10:37

 P81218A_02
 Dilution
 NA

Coal Fileriame(s)	FOIZIOA_	02		Dilution	INA	
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.121	3.21	2.0	0.524	26
13C-4-MoCB	3	10.153	3.07	2.0	0.636	32
13C-2,2'-DiCB	4	10.489	1.61	2.0	0.594	30
13C-4,4'-DiCB	15	18.362	1.57	2.0	0.851	43
13C-2,2',6-TrCB	19	14.731	1.07	2.0	0.690	34
13C-3,4,4'-TrCB	37	26.634	1.07	2.0	1.06	53
13C-2,2',6,6'-TeCB	54	18.669	0.81	2.0	0.725	36
13C-3,4,4',5-TeCB	81	33.962	0.78	2.0	1.13	56
13C-3,3',4,4'-TeCB	77	34.549	0.79	2.0	1.14	57
13C-2,2',4,6,6'-PeCB	104	25.226	1.63	2.0	0.903	45
13C-2,3,3',4,4'-PeCB	105	38.188	1.56	2.0	1.11	56
13C-2,3,4,4',5-PeCB	114	37.534	1.60	2.0	1.10	55
13C-2,3',4,4',5-PeCB	118	36.998	1.56	2.0	1.12	56
13C-2,3',4,4',5'-PeCB	123	36.662	1.57	2.0	1.11	56
13C-3,3',4,4',5-PeCB	126	41.391	1.56	2.0	1.14	57
13C-2,2',4,4',6,6'-HxCB	155	31.514	1.28	2.0	0.981	49
13C-HxCB (156/157)	156/157	44.460	1.24	4.0	2.31	58
13C-2,3',4,4',5,5'-HxĆB	167	43.320	1.26	2.0	1.16	58
13C-3,3',4,4',5,5'-HxCB	169	47.780	1.28	2.0	1.19	59
13C-2,2',3,4',5,6,6'-HpCB	188	37.517	1.05	2.0	1.10	55
13C-2,3,3',4,4',5,5'-HpCB	189	50.302	1.04	2.0	1.27	64
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.018	0.90	2.0	1.13	57
13C-2,3,3',4,4',5,5',6-OcCB	205	52.889	0.90	2.0	1.13	<u>56</u>
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.613	0.78	2.0	1.14	57
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.785	0.80	2.0	1.11	55
13CDeCB	209	56.208	0.72	2.0	1.10	55
Cleanup Standards						
13C-2,4,4'-TrCB	28	22.056	1.04	2.0	1.57	78
13C-2,3,3',5,5'-PeCB	111	34.650	1.57	2.0	1.59	79
13C-2,2',3,3',5,5',6-HpCB	178	40.670	1.05	2.0	1.69	84
Recovery Standards						
13C-2,5-DiCB	9	13.269	1.57	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.186	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.766	1.59	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.201	1.28	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.415	0.91	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18405 P81218A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.524
2				ND ND		0.524
3				ND		0.524
4				ND ND		0.524
4 5 6 7				ND		0.524
6				ND ND		0.524
7				ND ND		0.524
8				ND ND		0.524
9				ND		0.524
10				ND		0.524
11		17.619	1.50	0.667		0.628
12	12/13	17.019	1.50	ND		0.524
13	12/13			ND ND		0.524
13	12/13			ND ND		0.524
15				ND ND		0.524
16						0.524 0.524
				ND		0.524
17	40/00			ND		0.524
18	18/30			ND		0.524
19	00/00			ND		0.524
20	20/28			ND		0.628
21	21/33			ND		0.524
22				ND		0.524
23				ND		0.524
24				ND		0.524
25				ND		0.524
26	26/29			ND		0.524
27				ND		0.524
28	20/28			ND		0.628
29	26/29			ND		0.524
30	18/30			ND		0.524
31				ND		0.524
32				ND		0.524
33	21/33			ND		0.524
34 35				ND		0.524
35				ND		0.524
36				ND		0.524
37				ND		0.524
38				ND		0.524
39				ND		0.524
40	40/41/71			ND		0.524
41	40/41/71			ND		0.524
42				ND		0.524
43				ND		0.524
44	44/47/65			ND		0.628
45	45/51			ND		0.524

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18405 P81218A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46				ND		0.524
47	44/47/65			ND		0.628
48	11/11/00			ND		0.524
49	49/69			ND		0.524
50	50/53			ND		0.524
51	45/51			ND		0.524
52	40/01			ND		0.524
53	50/53			ND		0.524
54	00/00			ND		0.524
55				ND		0.524
56				ND		0.524
57				ND		0.524
58				ND		0.524
59	59/62/75			ND		0.524
60	00/02/10			ND		0.524
61	61/70/74/76			ND		0.524
62	59/62/75			ND		0.524
63	33/02/13			ND		0.524
64				ND		0.524
65	44/47/65			ND		0.628
66	44/47/05			ND		0.524
67				ND		0.524
68				ND		0.524
69	49/69			ND		0.524
70	61/70/74/76			ND		0.524
70 71	40/41/71			ND		0.524
72	40/41/71			ND		0.524
73				ND		0.524
74	61/70/74/76			ND		0.524
75 75	59/62/75			ND ND		0.524
76	61/70/74/76			ND ND		0.524
77 77	01/10/14/10			ND		0.524
77 78				ND ND		0.524
78 79				ND ND		0.524
80				ND ND		0.524
81				ND ND		0.524
82				ND ND		0.524
83				ND ND		0.524
84				ND ND		0.524
85	85/116/117			ND ND		0.628
86	86/87/97/108/119/125			ND ND		1.05
87	86/87/97/108/119/125			ND ND		1.05
88	88/91			ND ND		0.524
89	00/31			ND ND		0.524 0.524
90	90/101/113			ND ND		0.524 0.524
90	30/101/113			טא		0.524

Conc = Concentration

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ng/L = Nanograms per liter

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*! = See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18405 P81218A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91			ND		0.524
92	00/91			ND ND		0.524
93	93/98/100/102			ND ND		0.786
94	93/90/100/102			ND ND		0.700
95				ND ND		0.524
96				ND ND		0.524
97	86/87/97/108/119/125			ND		1.05
98	93/98/100/102			ND		0.786
99	30/30/100/102			ND		0.524
100	93/98/100/102			ND		0.786
101	90/101/113			ND		0.524
102	93/98/100/102			ND		0.786
103	33/30/100/102			ND		0.524
104				ND		0.524
105				ND		0.524
106				ND		0.524
107	107/124			ND		0.524
108	86/87/97/108/119/125			ND		1.05
109	00/01/91/100/119/125			ND ND		0.524
110	110/115			ND ND		0.524
111	110/119			ND ND		0.524
112				ND ND		0.524
113	90/101/113			ND ND		0.524
114	90/101/113			ND ND		0.524
115	110/115			ND ND		0.524
116	85/116/117			ND ND		0.628
117	85/116/117			ND ND		0.628
118	03/110/117			ND ND		0.524
119	86/87/97/108/119/125			ND ND		1.05
120	00/01/91/100/119/125			ND ND		0.524
121				ND ND		0.524
122				ND ND		0.524
123				ND		0.524
124	107/124			ND ND		0.524
125	86/87/97/108/119/125			ND		1.05
126	00/01/31/100/113/123			ND		0.524
127				ND ND		0.524
128	128/166			ND ND		1.05
129	129/138/163			ND ND		0.524
130	120/100/100			ND ND		0.524
131				ND ND		0.524
132				ND ND		0.524
133				ND ND		0.524
134	134/143			ND ND		0.524
135	135/151			ND ND		0.534
133	100/101			שאו		0.554

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P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18405 P81218A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136				ND		0.524
137				ND		0.524
138	129/138/163			ND		0.524
139	139/140			ND		0.524
140	139/140			ND		0.524
141	100/110			ND		0.524
142				ND		0.524
143	134/143			ND		0.524
144				ND		0.524
145				ND		0.524
146				ND		0.524
147	147/149			ND		0.524
148	,			ND		0.524
149	147/149			ND		0.524
150				ND		0.524
151	135/151			ND		0.534
152				ND		0.524
153	153/168			ND		0.628
154				ND		0.524
155				ND		0.524
156	156/157			ND		1.05
157	156/157			ND		1.05
158				ND		0.524
159				ND		0.524
160				ND		0.524
161				ND		0.524
162				ND		0.524
163	129/138/163			ND		0.524
164				ND		0.524
165				ND		0.524
166	128/166			ND		1.05
167				ND		0.524
168	153/168			ND		0.628
169				ND		0.524
170				ND		0.524
171	171/173			ND		0.524
172				ND		0.524
173	171/173			ND		0.524
174				ND		0.524
175				ND		0.524
176				ND		0.524
177				ND		0.524
178				ND		0.524
179				ND		0.524
180	180/193			ND		0.524

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18405 P81218A_07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
181				ND		0.524
182				ND		0.524
183	183/185			ND		0.524
184				ND		0.524
185	183/185			ND		0.524
186				ND		0.524
187				ND		0.524
188				ND		0.524
189				ND		0.524
190				ND		0.524
191				ND		0.524
192				ND		0.524
193	180/193			ND		0.524
194				ND		0.524
195				ND		0.524
196				ND		0.733
197	197/200			ND		2.62
198	198/199			ND		0.524
199	198/199			ND		0.524
200	197/200			ND		2.62
201				ND		0.524
202				ND		0.524
203				ND		0.524
204				ND		0.524
205				ND		0.524
206				ND		0.524
207				ND		0.524
208				ND		0.524
209				ND		0.524

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

ND = Not Detected

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename DFBLKBC BLANK-18405 P81218A_07

Congener Group	Concentration ng/L			
Total Monochloro Biphenyls	ND			
Total Dichloro Biphenyls	0.667			
Total Trichloro Biphenyls	ND			
Total Tetrachloro Biphenyls	ND			
Total Pentachloro Biphenyls	ND			
Total Hexachloro Biphenyls	ND			
Total Heptachloro Biphenyls	ND			
Total Octachloro Biphenyls	ND			
Total Nonachloro Biphenyls	ND			
Decachloro Biphenyls	ND			
Total PCBs	0.667			

ND = Not Detected



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename

Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID LCS-18406 P81218A_04 965 mL

P81218A03 P81218A_02 BLANK-18405 Matrix Water Dilution NA

Extracted 12/02/2008 Analyzed 12/18/2008 07:35

Injected By SMT

	N	lative Analy	tes	Labeled Analytes			
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.13	113	2.0	0.855	43	
3	1.0	1.15	115	2.0	0.955	48	
4	1.0	1.07	107	2.0	0.902	45	
15	1.0	1.15	115	2.0	1.09	54	
19	1.0	1.03	103	2.0	1.00	50	
37	1.0	1.12	112	2.0	1.28	64	
54	1.0	1.06	106	2.0	0.988	49	
81	1.0	1.05	105	2.0	1.36	68	
77	1.0	1.05	105	2.0	1.37	69	
104	1.0	1.03	103	2.0	1.17	58	
105	1.0	1.06	106	2.0	1.36	68	
114	1.0	1.08	108	2.0	1.34	67	
118	1.0	1.11	111	2.0	1.36	68	
123	1.0	1.04	104	2.0	1.36	68	
126	1.0	1.03	103	2.0	1.39	70	
155	1.0	1.05	105	2.0	1.20	60	
156/157	2.0	2.15	108	4.0	2.76	69	
167	1.0	1.13	113	2.0	1.41	70	
169	1.0	1.11	111	2.0	1.43	71	
188	1.0	1.02	102	2.0	1.29	65	
189	1.0	1.08	108	2.0	1.50	75	
202	1.0	1.02	102	2.0	1.35	67	
205	1.0	1.04	104	2.0	1.35	67	
206	1.0	1.01	101	2.0	1.38	69	
208	1.0	1.03	103	2.0	1.31	65	
209	1.0	1.04	104	2.0	1.35	67	

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms

I = Interference

Nn = Result obtained from alternate analysis



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename

Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID LCSD-18407 P81218A_05 961 mL

P81218A03 P81218A_02 BLANK-18405 Matrix Water Dilution NA

Extracted 12/02/2008 Analyzed 12/18/2008 08:34

Injected By SMT

	N	lative Analy	tes	La	abeled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.11	111	2.0	0.840	42
3	1.0	1.16	116	2.0	0.909	45
4	1.0	1.06	106	2.0	0.865	43
15	1.0	1.16	116	2.0	1.06	53
19	1.0	1.02	102	2.0	0.963	48
37	1.0	1.12	112	2.0	1.23	61
54	1.0	1.04	104	2.0	0.935	47
81	1.0	1.08	108	2.0	1.30	65
77	1.0	1.05	105	2.0	1.35	68
104	1.0	1.04	104	2.0	1.07	54
105	1.0	1.06	106	2.0	1.35	67
114	1.0	1.09	109	2.0	1.31	66
118	1.0	1.11	111	2.0	1.34	67
123	1.0	1.05	105	2.0	1.32	66
126	1.0	1.03	103	2.0	1.37	68
155	1.0	1.07	107	2.0	1.17	58
156/157	2.0	2.16	108	4.0	2.72	68
167	1.0	1.14	114	2.0	1.38	69
169	1.0	1.07	107	2.0	1.41	71
188	1.0	1.04	104	2.0	1.28	64
189	1.0	1.07	107	2.0	1.47	73
202	1.0	1.000	100	2.0	1.32	66
205	1.0	1.05	105	2.0	1.32	66
206	1.0	1.16	116	2.0	1.30	65
208	1.0	1.10	110	2.0	1.31	65
209	1.0	4.20	420 I	2.0	1.29	65

P = Recovery outside of method 1668A control limits

REPORT OF LABORATORY ANALYSIS

Nn = Result obtained from alternate analysis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

^{! =} See Discussion

ng = Nanograms I = Interference



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

 Spike 1 ID
 LCS-18406
 Spike 2 ID
 LCSD-18407

 Spike 1 Filename
 P81218A_04
 Spike 2 Filename
 P81218A_05

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD	
2-MoCB	1	113	111	1.8	
4-MoCB	3	115	116	0.9	
2,2'-DiCB	4	107	106	0.9	
4,4'-DiCB	15	115	116	0.9	
2,2',6-TrCB	19	103	102	1.0	
3,4,4'-TrCB	37	112	112	0.0	
2,2',6,6'-TeCB	54	106	104	1.9	
3,3',4,4'-TeCB	77	105	105	0.0	
3,4,4',5-TeCB	81	105	108	2.8	
2,2',4,6,6'-PeCB	104	103	104	1.0	
2,3,3',4,4'-PeCB	105	106	106	0.0	
2,3,4,4',5-PeCB	114	108	109	0.9	
2,3',4,4',5-PeCB	118	111	111	0.0	
2,3',4,4',5'-PeCB	123	104	105	1.0	
3,3',4,4',5-PeCB	126	103	103	0.0	
2,2',4,4',6,6'-HxCB	155	105	107	1.9	
(156/157)	156/157	108	108	0.0	
2,3',4,4',5,5'-HxCB	167	113	114	0.9	
3,3',4,4',5,5'-HxCB	169	111	107	3.7	
2,2',3,4',5,6,6'-HpCB	188	102	104	1.9	
2,3,3',4,4',5,5'-HpCB	189	108	107	0.9	
2,2',3,3',5,5',6,6'-OcCB	202	102	100	2.0	
2,3,3',4,4',5,5',6-OcCB	205	104	105	1.0	
2,2',3,3',4,4',5,5',6-NoCB	206	101	116	13.8	
2,2',3,3',4,5,5',6,6'-NoCB	208	103	110	6.6	
Decachlorobiphenyl	209	104	420	120.6	

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Event 2: December 12, 2008



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Laboratory Data QA/QC Review Albina Riverlots Source Control Investigation Fourth Quarter 2008 Stormwater Sampling – Event 2

File To:

From: Erin Carroll, GSI Date: February 20, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during a source control investigation sampling event conducted by the City of Portland (City) in the Albina Riverlots area on December 12, 2008. Six stormwater samples were collected from Outfall Basins 43, 44, and 44A and submitted for analyses. A field decontamination blank (FO081481) and field duplicate (FO081482) were also submitted for analysis.

The laboratory analyses for these source control program samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

- BES WPCL
 - o Metals EPA 200.8
 - o Mercury WPCL SOP M-10.02
 - Total suspended solids (TSS) SM 2540D
- Test America (TA)
 - o Polycyclic Aromatic Hydrocarbons (PAHs) EPA 8270M-SIM
 - Phthalates EPA 8270M-SIM
- Columbia Analytical Services (CAS)
 - o Semivolatile Organic Compounds (SVOCs) EPA 8270C
 - Organochlorine Pesticides EPA 8081
- Pace Analytical Services (Pace)
 - Polychlorinated Biphenyls as Congeners (PCB Congeners) EPA 1668A

The WPCL summary report for all analyses associated with this stormwater sampling event and the subcontracted laboratory's data reports are attached. The WPCL summary report comments that, with some exceptions (included in the following sections below), all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The following QA/QC review is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within laboratory control limits
- Internal standard recoveries within laboratory control limits
- Laboratory control sample and duplicate laboratory control sample (LCS/DLCS) recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the required method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analyses of PAHs, phthalates, pesticides, SVOCs, and PCB congeners. There are no reported detections of PAHs, pesticides, and PCB congeners in the associated method blanks.

Four SVOCs including phenol, diethyl phthalate, di-n-butyl phthalate, and butyl benzyl phthalate, were detected in the method blank for the EPA 8270C analysis and in the field samples (including the field decontamination blank) at estimated concentrations (greater than the method detection limit but less than the method reporting limit). The presence of these SVOCs in the samples at concentrations less than the MRL is considered to be a result of laboratory contamination; therefore, these data are shown as not detected ("U") at a concentration greater than the MRL. Di-n-butyl phthalate and/or butyl benzyl phthalate were detected at concentrations greater than the respective MRLs in samples FO081475 and F0181482. These data are flagged accordingly ("B") in the data table and may be biased high.

Surrogate Recoveries

Surrogate recoveries were completed during the subcontracted laboratory analysis of PAHs, pesticides, and SVOCs. All surrogate recoveries were within laboratory control limits.

Internal Standard Recoveries

Internal standard recoveries were processed during the laboratory analysis of PCB congeners. The labeled internal standard recoveries were within the target ranges specified in the method with 14 exceptions. These exceptions are flagged "P" in the Pace laboratory report. Pace states that the data were automatically corrected for variation in recovery and accurate values were obtained.

Laboratory Control/ Duplicate Laboratory Control Samples

Laboratory control/duplicate laboratory control samples (LCS/DLCS) were processed during the laboratory analysis of PAHs, phthalates, SVOCs and PCB congeners. The laboratory advisory criteria were exceeded during the SVOC analysis for benzoic acid and 2,4-dinotrophenol; however, CAS reorts that because these compounds are not included in the subset of analytes used to control the analysis, no further corrective action was required.

The recovery of pentachlorophenol in the LCS was outside the lower control limit. Pentachlorophenol was not detected in field samples at concentrations greater than the MRL but was detected in one sample at a concentration greater than the MDL. This detection is glagged as estimated ("J") because the value is less than the MRL; the estimated concentration may be biased low because of the LCS control limit exceedance.

The relative percent difference (RPD) for 2,4-Dinitrophenol between the LCS/DLCS was outside of control limits. CAS reports that the RPD criterion for this analyte is not applicable because the analyte concentration was not significantly greater than the MRL.

The RPD for 4-Chloroaniline between the LCS/DLCS was outside of control limits. However, because the percent recoveries for the LCS and the DLCS were within acceptance limits, the analytical batch was in control and no further corrective action was taken.

Other

Some organochlorine pesticide compounds are reported as estimated ("EST") because the results from the primary and verification gas chromatography columns varied by more than 40 percent RPD.

The laboratory reports for PAHs, phthalates, pesticides, and SVOCs indicate that the method reporting limit was elevated in a number of samples due to sample matrix effects.

A field decontamination blank was collected and analyzed for metals, PAHs, phthalates, pesticides, SVOC, and PCB Congeners. Three SVOCs were detected in the field decontamination blank at estimated concentrations between the MDL and the MRL. Because two of the three of these detected compounds (diethyl phthalate and di-n-butyl phthalate) were also detected in the method bank at similar concentrations these results are considered a result of laboratory contamination and are shown as not detected ("U") at a concentration greater than the MRL (as discussed above). The third SVOC, bis(2-ethylhexyl)phthalate, was not detected in the method blank and is flagged as an estimated value "J". No other analytes were detected in the field decontamination blank.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services



Date: [2

Page:

Collected By: 19 55 J 573

Project Name: PORTLAND HARBOR STORMWATER SAMP

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S:\EID\1000\1020.005 - Portland Harbor Stormwater Samp\Sampdoc\Portland Harbor Stormwater OF Grab COC FY08-09.xls	12/12/08			30/ci/ci			DUPLICATE	FIELD DECON BLANK		SW-44A-ABC311-1208 NLARABEE & RANDOLPH	SW-44-ABC352-1208 N HARDING & RIVER	SW-43-ABC449-1208 N KERBY & TILLAMOOK	SW-43-ABC552-1208	SW-43-ABC539-1208 N KERBY & WHEELER	SW-43-ABC290-1208 N ALBINA & RIVER	Location	Sample Time recorded in PST	FY 2008-09 Stormwater Grab Chain-of-custody		
⊮ Samp\Sampdoc\Portland	Printed Name:	Signature:	Received By: 2.		Shinthie.	Relinguished By: 2.	31/61/61 and	FDB 13/12/08		80/ci/ei 1MS_A44	44_SW1 12/12/08	43_SW4 13/13/108 1510	43_SW3 12/12/08/330	43_SW2 18/12/08 1321	43_SW1 L2/17/08 1157	Point Sample Code Date	orded in PST	ab Chain-of-custo		Matrix:
Harbor Stormwater OF Gra	Date:	Time:		Date:	inge	Timo	G	1344 G		1120 G	1144 G	<i>1</i> 310 G	&133∂ G	1321 G	1157 G	Sample Sample Time Type		Уро		STORMWTR
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6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO081479

Sample Collected: 12/12/08 Sample Received: 12/12/08

11:44

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page: Page 1 of 4

Address/Location:

SW-44-ABC352-1208 N HARDING & RIVER

System ID:

AM11638

Sample Point Code:

44_SW1

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Some Organochlorine Pesticide compounds are reported as estimates because results from the primary and verification GC columns varied significantly (>40% RPD).

Took Downwoodon	Desult	l luita	MRL	Method	Analysis Date
Test Parameter	Result	Units	IVIPEL	Method	Date
FIELD				0110510 D	40/40/00
CONDUCTIVITY (FIELD)	81	μmhos/cm	1	SM 2510 B	12/12/08
pH (FIELD)	10.1	pH Units	0.1	SM 4500-H B	12/12/08
TEMPERATURE	7.1	Deg. C	0.1	SM 2550 B	12/12/08
GENERAL					
TOTAL SUSPENDED SOLIDS	108	mg/L	2	SM 2540 D	12/13/08
METALS					
MERCURY	0.014	μg/L	0.002	WPCLSOP M-10.02	12/18/08
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	1.14	μg/L	0.1	EPA 200.8	12/15/08
CADMIUM	0.43	. υ μg/L	0.1	EPA 200.8	12/15/08
CHROMIUM	5.94	μg/L	0.4	EPA 200.8	12/15/08
COPPER	19.4	μg/L	0.2	EPA 200.8	12/15/08
LEAD	15.0	μg/L	0.1	EPA 200.8	12/15/08
NICKEL	3.94	μg/L	0.2	EPA 200.8	12/15/08
SILVER	<0.10	μg/L	0.1	EPA 200.8	12/15/08
ZINC	127	μg/L	0.5	EPA 200.8	12/15/08
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	< 0.49	ng/L	0.49	EPA 8081	12/17/08
4,4'-DDE	<1.5	ng/L	1.5	EPA 8081	12/17/08
4,4'-DDT	<14	ng/L	14	EPA 8081	12/17/08
Aldrin	<1.9	ng/L	1.9	EPA 8081	12/17/08
Alpha-BHC	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Alpha-Chlordane	14	ng/L	0.49	EPA 8081	12/17/08
Beta-BHC	<1.1	ng/L	1.1	EPA 8081	12/17/08
Delta-BHC	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Dieldrin	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endosulfan I	<9.9	ng/L	9.9	EPA 8081	12/17/08
Endosulfan II	<1.5	ng/L	1.5	EPA 8081	12/17/08
Endosulfan Sulfate	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endrin	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endrin Aldehyde	<6.1	ng/L	6.1	EPA 8081	12/17/08

Report Date: 02/02/09





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PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 2 of 4

Address/Location:

SW-44-ABC352-1208 N HARDING & RIVER

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Test Parameter	Result	Units	MRL	Method	Analysis Date
Endrin Ketone	EST 4.9	ng/L	0.49	EPA 8081	12/17/08
Gamma-BHC(Lindane)	<0.49	ng/L	0.49	EPA 8081	12/17/08
Gamma-Chlordane	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Heptachlor	<5.6	ng/L	5.6	EPA 8081	12/17/08
Heptachlor Epoxide	<2.5	ng/L	2.5	EPA 8081	12/17/08
Methoxychlor	<1.9	ng/L	1.9	EPA 8081	12/17/08
Toxaphene	<660	ng/L	660	EPA 8081	12/17/08
POLYCHLORINATED BIPHENYL CO	NGENERS -PACE				
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	01/05/09
POLYNUCLEAR AROMATICS & PHT	HALATES - TA	* .			•
Acenaphthene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Acenaphthylene	<0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Anthracene	<0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Benzo(a)anthracene	0.0113	μ g/L	0.00971	EPA 8270M-SIM	12/17/08
Benzo(a)pyrene	0.0123	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Benzo(b)fluoranthene	0.0217	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Benzo(ghi)perylene	0.0252	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Benzo(k)fluoranthene	0.0133	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Bis(2-ethylhexyl) phthalate	0.992	μg/L	0.971	EPA 8270M-SIM	12/17/08
Butyl benzyl phthalate	< 0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Chrysene	0.0410	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Dibenzo(a,h)anthracene	<0.00971	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Diethyl phthalate	< 0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Dimethyl phthalate	<0.971	μ g/L	0.971	EPA 8270M-SIM	12/17/08
Di-n-butyl phthalate	<0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Di-n-octyl phthalate	<0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Fluoranthene	0.0883	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Fluorene	0.0204	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Indeno(1,2,3-cd)pyrene	0.0119	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Naphthalene	0.187	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Phenanthrene	0.102	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Pyrene	0.0611	μg/L	0.0194	EPA 8270M-SIM	12/17/08
·					

SEMI-VOLATILE ORGANICS - CAS

Report Date: 02/02/09 Validated By:





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LABORATORY ANALYSIS REPORT

11:44

Sample ID: FO081479

Sample Collected: 12/12/08

Sample Status: COMPLETE AND

Sample Received: 12/12/08

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Page 3 of 4 Report Page:

Address/Location:

SW-44-ABC352-1208

Sample Point Code:

N HARDING & RIVER

System ID: AM11638

Sample Type:

44_SW1

1020.005

Sample Matrix:

GRAB

LocCode:

EID File #:

PORTHASW

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Some Organochlorine Pesticide compounds are reported as estimates because results from the primary and verification GC columns varied significantly (>40% RPD).

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,2,4-Trichlorobenzene	<0.99	μg/L.	0.99	EPA 8270	12/18/08
1,2-Dichlorobenzene	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
1,3-Dichlorobenzene	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
1,4-Dichlorobenzene	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
2,4,5-Trichlorophenol	<2.5	μg/L μg/L	2.5	EPA 8270	12/18/08
2,4,6-Trichlorophenol	<2.5 <2.5	μg/L μg/L	2.5 2.5	EPA 8270	12/18/08
2,4-Dichlorophenol	<2.5	μg/L μg/L	2.5 2.5	EPA 8270	12/18/08
2,4-Dimethylphenol	<20	μg/L μg/L	20	EPA 8270	12/18/08
2,4-Dinitrophenol	<20 <20	μg/L μg/L	20	EPA 8270	12/18/08
2,4-Dinitrotoluene	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
2,6-Dinitrotoluene	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
2-Chloronaphthalene	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
2-Chlorophenol	<0.99 <2.5	μg/L μg/L	2.5	EPA 8270	12/18/08
2-Methylnaphthalene	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
2-Methylphenol	<0.99 <2.5	μg/L μg/L	2.5	EPA 8270	12/18/08
2-Nitroaniline	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
2-Nitrophenol	<0.99 <2.5	μg/L μg/L	2.5	EPA 8270	12/18/08
3,3'-Dichlorobenzidine	<9.9	μg/L μg/L	9.9	EPA 8270	12/18/08
3-Nitroaniline	<5.0	μg/L μg/L	5.0	EPA 8270	12/18/08
4,6-Dinitro-2-methylphenol	<9.9	μg/L	9.9	EPA 8270	12/18/08
4-Bromophenylphenyl ether	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
4-Chloro-3-methylphenol	<0.99 <2.5	μg/L μg/L	2.5	EPA 8270	12/18/08
4-Chloroaniline	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
4-Chlorophenylphenyl ether	<0.99		0.99	EPA 8270	12/18/08
4-Methylphenol	<0.99	μg/L	2.5	EPA 8270	12/18/08
4-Nitroaniline	<5.0	μg/L	5.0	EPA 8270	12/18/08
4-Nitrophenol	<9.9	μg/L	9.9	EPA 8270	12/18/08
Acenaphthene	<0.99	μg/L	0.99	EPA 8270	12/18/08
Acenaphthele Acenaphthylene	<0.99	μg/L μg/L	0.99	EPA 8270	12/18/08
Anthracene	<0.99		0.99	EPA 8270	12/18/08
Benzo(a)anthracene	<0.99	μg/L μg/L	0.99	EPA 8270 EPA 8270	12/18/08
Benzo(a)pyrene	<0.99 <0.99		0.99	EPA 8270 EPA 8270	12/18/08
Benzo(a)pyrene Benzo(b)fluoranthene	<0.99 <0.99	μg/L ug/l	0.99	EPA 8270 EPA 8270	12/18/08
Benzo(g,h,i)perylene	<0.99 <0.99	μg/L	0.99	EPA 8270 EPA 8270	12/18/08
Benzo(k)fluoranthene	<0.99 <0.99	μg/L	0.99	EPA 8270	12/18/08
Denzo(k)nuoranmene	<0.99	μg/L	0.88	EF# 02/U	12/10/00

Report Date: 02/02/09



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LABORATORY ANALYSIS REPORT

Sample ID: FO081479 Sample Collected: 12/12/08 11:44 Sample Status: COMPLETE AND

Sample Received: 12/12/08 VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 4 of 4

Address/Location: SW-44-ABC352-1208

N HARDING & RIVER System ID: AM11638

Sample Point Code: 44_SW1 EID File #: 1020.005
Sample Type: GRAB LocCode: PORTHASW

Sample Matrix: STORMWTR Collected By: MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Some Organochlorine Pesticide compounds are reported as estimates because results from the primary and verification GC columns varied significantly (>40% RPD).

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
Benzoic acid	<25	μg/L	25	EPA 8270	12/18/08
Benzyl alcohol	<2.5	μg/L	2.5	EPA 8270	12/18/08
Bis(2-chloroethoxy) methane	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Bis(2-chloroethyl) ether	<0.99	μg/L	0.99	EPA 8270	12/18/08
Bis(2-chloroisopropyl) ether	<0.99	μg/L	0.99	EPA 8270	12/18/08
Bis(2-ethylhexyl) phthalate	<5.0	μg/L	5.0	EPA 8270	12/18/08
Butyl benzyl phthalate	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Chrysene	<0.99	μg/L	0.99	EPA 8270	12/18/08
Dibenzo(a,h)anthracene	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Dibenzofuran	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Diethyl phthalate	<0.99	μg/L	0.99	EPA 8270	12/18/08
Dimethyl phthalate	<0.99	μg/L	0.99	EPA 8270	12/18/08
Di-n-butyl phthalate	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Di-n-octyl phthalate	<0.99	μg/L	0.99	EPA 8270	12/18/08
Fluoranthene	<0.99	μg/L	0.99	EPA 8270	12/18/08
Fluorene	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Hexachlorobenzene	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Hexachlorobutadiene	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Hexachlorocyclopentadiene	<5.0	μg/L	5.0	EPA 8270	12/18/08
Hexachloroethane	<0.99	μg/L	0.99	EPA 8270	12/18/08
Indeno(1,2,3-cd)pyrene	<0.99	μg/L	0.99	EPA 8270	12/18/08
Isophorone	<0.99	μg/L	0.99	EPA 8270	12/18/08
Naphthalene	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Nitrobenzene	< 0.99	μg/L	0.99	EPA 8270	12/18/08
N-Nitrosodi-n-propylamine	< 0.99	μg/L	0.99	EPA 8270	12/18/08
N-Nitrosodiphenylamine	< 0.99	μg/L	0.99	EPA 8270	12/18/08
Pentachlorophenol	<5.0	μg/L	5.0	EPA 8270	12/18/08
Phenanthrene	<0.99	μg/L	0.99	EPA 8270	12/18/08
Phenol	<2.5	μg/L	2.5	EPA 8270	12/18/08
Pyrene	<0.99	μg/L	0.99	EPA 8270	12/18/08

End of Report for Sample ID: FO081479

Report Date: 02/02/09 Validated By:





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656





Sample ID: FO081481

Sample Collected: 12/12/08 Sample Received: 12/12/08 13:44

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AM11640

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type: Sample Matrix: GRAB **STORMWTR**

LocCode: Collected By: MJS/JXB

PORTHASW

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL	·				
TOTAL SUSPENDED SOLIDS	<2	mg/L	2	SM 2540 D	12/13/08
	~_	111g/ L	-	GIVI 2040 B	12, 10,00
METALS	0.0000		2.222		40/40/00
MERCURY	<0.0020	μg/L	0.002	WPCLSOP M-10.02	12/18/08
METALS BY ICP-MS (TOTAL) - 8			•		
ARSENIC	<0.10	μg/L	0.1	EPA 200.8	12/15/08
CADMIUM	<0.10	μ g/L	0.1	EPA 200.8	12/15/08
CHROMIUM	<0.40	μg/L	0.4	EPA 200.8	12/15/08
COPPER	<0.20	μg/L	0.2	EPA 200.8	12/15/08
LEAD	<0.10	μg/L	0.1	EPA 200.8	12/15/08
NICKEL	<0.20	μg/L	0.2	EPA 200.8	12/15/08
SILVER	<0.10	μg/L	0.1	EPA 200.8	12/15/08
ZINC	<0.50	μg/L	0.5	EPA 200.8	12/15/08
OUTSIDE ANALYSIS			•		
PESTICIDES BY EPA 8081 - CAS	•		1		
4,4'-DDD	< 0.49	ng/L	0.49	EPA 8081	12/17/08
4,4'-DDE	< 0.49	ng/L	0.49	EPA 8081	12/17/08
4,4'-DDT	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Aldrin	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Alpha-BHC	<0.49	ng/L	0.49	EPA 8081	12/17/08
Alpha-Chlordane	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Beta-BHC	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Delta-BHC	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Dieldrin	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endosulfan í	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endosulfan II	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endosulfan Sulfate	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endrin	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endrin Aldehyde	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Endrin Ketone	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Gamma-BHC(Lindane)	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Gamma-Chlordane	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Heptachlor	< 0.49	ng/L	0.49	EPA 8081	12/17/08
Heptachlor Epoxide	< 0.49	ng/L	0.49	EPA 8081	12/17/08

Report Date: 02/09/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO081481

Sample Collected: 12/12/08

13:44 Sample Received: 12/12/08

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 2 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AM11640

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Methoxychlor	<0.49	ng/L	0.49	EPA 8081	12/17/08
Toxaphene	<25	ng/L	25	EPA 8081	12/17/08
POLYCHLORINATED BIPHENYL CONGI	ENERS -PACE				٠
Refer to Contract Report	Completed	ng/L	-	EPA 1668 MOD	01/05/09
POLYNUCLEAR AROMATICS & PHTHAI	LATES - TA				
Acenaphthene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Acenaphthylene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Anthracene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Benzo(a)anthracene	< 0.00971	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Benzo(a)pyrene	< 0.00971	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Benzo(b)fluoranthene	< 0.00971	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Benzo(ghi)perylene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Benzo(k)fluoranthene	< 0.00971	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Bis(2-ethylhexyl) phthalate	< 0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Butyl benzyl phthalate	< 0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Chrysene	< 0.00971	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Dibenzo(a,h)anthracene	< 0.00971	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Diethyl phthalate	< 0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Dimethyl phthalate	< 0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Di-n-butyl phthalate	< 0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Di-n-octyl phthalate	<0.971	μg/L	0.971	EPA 8270M-SIM	12/17/08
Fluoranthene	<0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Fluorene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Indeno(1,2,3-cd)pyrene	< 0.00971	μg/L	0.00971	EPA 8270M-SIM	12/17/08
Naphthalene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Phenanthrene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
Pyrene	< 0.0194	μg/L	0.0194	EPA 8270M-SIM	12/17/08
SEMI-VOLATILE ORGANICS - CAS	•				
1,2,4-Trichlorobenzene	<0.20	μg/L	0.20	EPA 8270	12/18/08
1,2-Dichlorobenzene	<0.20	μg/L	0.20	EPA 8270	12/18/08
1,3-Dichlorobenzene	<0.20	μg/L	0.20	EPA 8270	12/18/08
1,4-Dichlorobenzene	<0.20	<i>μ</i> g/L	0.20	EPA 8270	12/18/08
2,4,5-Trichlorophenol	<0.50	μg/L	0.50	EPA 8270	12/18/08
2,4,6-Trichlorophenol	<0.50	μg/L	0.50	EPA 8270	12/18/08

Report Date: 02/09/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO081481

Sample Collected: 12/12/08

13:44

Sample Status: COMPLETE AND

Sample Received: 12/12/08

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Page 3 of 4 Report Page:

Address/Location:

FIELD DECON BLANK

System ID:

AM11640

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type: Sample Matrix: **GRAB STORMWTR** LocCode: Collected By: MJS/JXB

PORTHASW

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
2,4-Dichlorophenol	<0.50	μg/L	0.50	EPA 8270	12/18/08
2,4-Dimethylphenol	<4.0	μg/L	4.0	EPA 8270	12/18/08
2,4-Dinitrophenol	<4.0	μg/L	4.0	EPA 8270	12/18/0
2,4-Dinitrotoluene	<0.20	μg/L	0.20	EPA 8270	12/18/08
2,6-Dinitrotoluene	<0.20	μg/L	0.20	EPA 8270	12/18/0
2-Chloronaphthalene	<0.20	μg/L	0.20	EPA 8270	12/18/0
2-Chlorophenol	< 0.50	μg/L	0.50	EPA 8270	12/18/0
2-Methylnaphthalene	<0.20	μg/L	0.20	EPA 8270	12/18/0
2-Methylphenol	< 0.50	μg/L	0.50	EPA 8270	12/18/08
2-Nitroaniline	<0.20	μg/L	0.20	EPA 8270	12/18/08
2-Nitrophenol	<0.50	μg/L	0.50	EPA 8270	12/18/08
3,3'-Dichlorobenzidine	<2.0	μg/L	2.0	EPA 8270	12/18/08
3-Nitroaniline	<1.0	μg/L	1.0	EPA 8270	12/18/0
4,6-Dinitro-2-methylphenol	<2.0	μg/L	2.0	EPA 8270	12/18/0
4-Bromophenylphenyl ether	<0.20	μg/L	0.20	EPA 8270	12/18/0
4-Chloro-3-methylphenol	<0.50	μg/L	0.50	EPA 8270	12/18/0
4-Chloroaniline	<0.20	μg/L	0.20	EPA 8270	12/18/0
4-Chlorophenylphenyl ether	<0.20	μg/L	0.20	EPA 8270	12/18/0
4-Methylphenol	<0.50	μg/L	0.50	EPA 8270	12/18/0
4-Nitroaniline	<1.0	μg/L	1.0	EPA 8270	12/18/0
4-Nitrophenol	<2.0	μg/L	2.0	EPA 8270	12/18/0
Acenaphthene	<0.20	μg/L	0.20	EPA 8270	12/18/0
Acenaphthylene	<0.20	μg/L	0.20	EPA 8270	12/18/0
Anthracene	<0.20	μg/L	0.20	EPA 8270	12/18/0
Benzo(a)anthracene	<0.20	μg/L	0.20	EPA 8270	12/18/0
Benzo(a)pyrene	<1.0	μg/L	1.0	EPA 8270	12/18/0
Benzo(b)fluoranthene	<1.0	μg/L	1.0	EPA 8270	12/18/0
Benzo(g,h,i)perylene	<1.0	μg/L	1.0	EPA 8270	12/18/0
Benzo(k)fluoranthene	<1.0	μg/L	1.0	EPA 8270	12/18/0
Benzoic acid	<5.0	μg/L	5.0	EPA 8270	12/18/0
Benzyl alcohol	<0.50	μg/L	0.50	EPA 8270	12/18/0
Bis(2-chloroethoxy) methane	<0.20	μg/L	0.20	EPA 8270	12/18/0
Bis(2-chloroethyl) ether	<0.20	μg/L	0.20	EPA 8270	12/18/0
Bis(2-chloroisopropyl) ether	<0.20	μg/L	0.20	EPA 8270	12/18/0
Bis(2-ethylhexyl) phthalate	<1.0	μg/L	1.0	EPA 8270	12/18/0
Butyl benzyl phthalate	<0.20	μg/L	0.20	EPA 8270	12/18/0

Report Date: 02/09/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO081481

Sample Collected: 12/12/08 Sample Received: 12/12/08 13:44

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 4 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AM11640

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Chrysene	<0.20	μg/L	0.20	EPA 8270	12/18/08
Dibenzo(a,h)anthracene	<1.0	μg/L	1.0	EPA 8270	12/18/08
Dibenzofuran	<0.20	μg/L	0.20	EPA 8270	12/18/08
Diethyl phthalate	<0.20	μg/L	0.20	EPA 8270	12/18/08
Dimethyl phthalate	<0.20	μg/L	0.20	EPA 8270	12/18/08
Di-n-butyl phthalate	<0.20	μg/L	0.20	EPA 8270	12/18/08
Di-n-octyl phthalate	<1.0	μg/L	1.0	EPA 8270	12/18/08
Fluoranthene	<0.20	μg/L	0.20	EPA 8270	12/18/08
Fluorene	< 0.20	μg/L	0.20	EPA 8270	12/18/08
Hexachlorobenzene	<0.20	μg/L	0.20	EPA 8270	12/18/08
Hexachlorobutadiene	<0.20	μg/L	0.20	EPA 8270	12/18/08
Hexachlorocyclopentadiene	<1.0	μg/L	1.0	EPA 8270	12/18/08
Hexachloroethane	<0.20	μg/L	0.20	EPA 8270	12/18/08
Indeno(1,2,3-cd)pyrene	<1.0	μg/L	1.0	EPA 8270	12/18/08
Isophorone	<0.20	μg/L	0.20	EPA 8270	12/18/08
Naphthalene	<0.20	μg/L	0.20	EPA 8270	12/18/08
Nitrobenzene	< 0.20	μg/L	0.20	EPA 8270	12/18/08
N-Nitrosodi-n-propylamine	<0.20	μg/L	0.20	EPA 8270	12/18/08
N-Nitrosodiphenylamine	<0.20	μg/L	0.20	EPA 8270	12/18/08
Pentachlorophenol	<1.0	μg/L	1.0	EPA 8270	12/18/08
Phenanthrene	< 0.20	μg/L	0.20	EPA 8270	12/18/08
Phenol	<0.50	μg/L	0.50	EPA 8270	12/18/08
Pyrene	<0.20	μg/L	0.20	EPA 8270	12/18/08

End of Report for Sample ID: FO081481

Report Date: 02/09/09 Validated By:



January 22, 2009

Analytical Report for Service Request No: K0812190

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor Stormwater Samp

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on December 16, 2008. For your reference, these analyses have been assigned our service request number K0812190.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/lb

Page 1 of <u>53</u>

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- $A \quad \ \ A \ \ tentatively \ identified \ compound, \ a \ suspected \ ald ol-condensation \ product.$
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-







Case Narrative

Client:

Portland, City of

Service Request No.:

K0812190

Project:

Portland Harbor Stormwater Samp

Date Received:

12/16/2008

Sample Matrix:

Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix Spike (MS), and Laboratory Control Sample (LCS).

Sample Receipt

Eight water samples were received for analysis at Columbia Analytical Services on 12/16/2008. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A

Continuing Calibration Verification (CCV) Exceptions:

The primary evaluation criterion was exceeded for few analytes in CCV 0102F055, 0102F056, 0102F073 and 0102F074. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the average percent recovery of all analytes in the verification standard. The standard meets the alternative evaluation criteria.

Second Source Exceptions:

The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the Initial Calibration Verification (ICV) criteria are met for both columns, the higher of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for 4,4'-DDE in ICAL 8115. The ICV results are reported from the acceptable column. The data quality is not affected. No further corrective action was necessary.

Sample Confirmation Notes:

The confirmation comparison criterion of 40% difference for at least one analyte was exceeded in several samples. The higher of the two values was reported when both peaks were within the expected retention time window for this analysis and Gaussian in shape.

Elevated Method Reporting Limits:

The reporting limit is elevated for at least one analyte in most samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the reporting limit. The results are flagged to indicate the matrix interference.

100

No other anomalies associated with the analysis of these samples were observed.

	W.	01/250	Mari
Approved by		Date	

Semivolatile Organic Compounds by EPA Method 8270C

Lab Control Sample (LCS) Exceptions:

The advisory criteria were exceeded for the following analytes in replicate Laboratory Control Sample (LCS/DLCS) KWG0813479-1 and KWG0813479-2: Benzoic Acid, 2,4-dinitrophenol. As per the CAS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analytes used to control the analysis. The recovery information reported for these analytes is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

The spike recovery of Pentachlorophenol for LCS KWG0813479-1 was outside the lower control criterion. The analyte in question was not detected at levels greater than the MRL in the associated field samples. The error associated with reduced recovery equates to a potential low bias. Additional analysis of the associated field samples could not be performed because insufficient sample remained for testing. The data is flagged to indicate the problem.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) criterion for the replicate analysis of 2,4-Dinitrophenol in the replicate Laboratory Control Samples (LCS/DLCS) KWG0813479-1 and KWG0813479-2 is not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

The Relative Percent Difference (RPD) for 4-Chloroaniline in the replicate Laboratory Control Sample (LCS/DLCS) analyses KWG0813479-1 and KWG0813479-2) was outside control criteria. All spike recoveries for the analyte in question were within acceptance limits in the LCS/DLCS, indicating the analytical batch was in control. No further corrective action was appropriate.

Elevated Method Reporting Limits:

The reporting limits are elevated for most samples. The sample extracts were diluted prior to instrumental analysis due to relatively high levels of non-target background components. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilutions. Semi-quantitative screens were performed prior to final analysis. The results of the screening indicated the need to perform dilutions.

No anomalies associated with the analysis of these samples were observed.

	By	01/23/09
Approved by	•	Date

Chain of Custody Documentation



CHAIN OF CUSTODY

OF \$R#: 608 2000

PAGE

An Emplayer - Owned Company PROJECT NAME POTHANA Harbor PROJECT NUMBER	1317 South 13th Ave. •	we. • Kelso, WA 98626		(360) 57	(360) 577-7222 • (800) 695-7222x07 • FAX (360	FAX (360) 636-1068 PAGE	OF COC #
COMPANY/ADDRESS ()) of forthwood	SUS	SCL		AINERS	160	solved	PO 4. F PO 4. F PO 5 (circ P, TKN, NO3
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REPORT REQUIREMENTS	P.O. #	EINFORMATION		Circle w	tals are to be analyzed:		
I. Routine Report: Method Blank, Surrogate, as	B. 7			Total	Al As Sb Ba Be B Ca	Co Cr Cu Fe Pb Mg Mn	Ni K Ag Na Se Sr
				*INDICATE	*INDICATE STATE HYDROCARBON PROCEDUR	E: AK CA WI NORTI	HWEST OTHER: (CIRCLE
II. Report Dup., MS, MSD as required	TURNAROUND	A8 hr		SPECI	SPECIAL INSTRUCTIONS/COMMENTS:	à	27.72
III. Data Validation Report (includes all raw data)	5 Day				tease run Low	level Semi-	Semi-vols 8<+0 +
IV. CLP Deliverable Report	Stand	Standard (10-15 working days) Provide FAX Results	days)		Low-level pe	whites 8081.	Thank
	Requ	Requested Report Date			and constraint dynamics and advantages and an extension of the second of		, Dr.
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9

Columbia Analytical Services, Inc. Cogler Receipt and Preservation Form

PC DA	
"Standard Market	

Client / Project: CHY of R	Man	gier Recei	1) (2111)				μ est $K08$	12/92	Ì	
Received: 12-16-08	Opened:_	12:16	-08	В	y: 			The state of the s	The first of the same of the s	my year and a shiften mine of an analysis of
 Samples were received via? U Samples were received in: (circle) Were <u>custody seals</u> on coolers? If present, were custody seals intact. Is shipper's air-bill filed? If not, r 	N/	Y	UPS	Envelo	ope es, how If presen	t, were		d dated?	ier Hand De NA Y	elivered ON N
 Temperature of cooler(s) upon reference Blank (°C): If applicable, list Chain of Custody Packing material used. <i>Inserts</i> Were custody papers properly filled 	Number Baggies	s: Bubble Wi	- Constitution	el Pac	ks Wei	Ice .	Sleeves Other	<i>r</i>	NA Y	
9. Did all bottles arrive in good con	dition (u	nbroken)?	'ndicate	e in the	table bei	ow.			NA (Y	И
10. Were all sample labels complete (i.e analys:	is, preservatio	on, etc.)	?			y		NA (Y	И
11. Did all sample labels and tags agre	ee with cu	stody papers	? Indic	ate in l	he table .	below	ž.		NA Y) N
12. Were appropriate bottles/contai	ners and	volumes rec	eived f	or the	tests indi	cated?	•		NA (Y	N
13. Were the pH-preserved bottles tes	ted* recei	ved at the app	propriat	e pH?	Indicate	in the	table below		(NA) Y	И
14. Were VOA vials and 1631 Mercui	•			•					(NA) Y	Ν
15. Are CWA Microbiology samples	received	with $>1/2$ th	ie 24hr	. hold	time rem	aining	g from collection	on?	(NA) Y	N
16. Was C12/Res negative?									NA (Y) N
Sample ID on Bottle	Samp	le ID on COC			Sample	ID on I	Bottle	Sa	mple ID on COC	
Sample ID	Bottle Count	Bottle Type	1	Head- space	Broken	рН	Reagent	Volume added	Reagent Lot Number	Initials
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*Does not include all pH preserved sample alique Additional Notes, Discrepancies, &			seiving S	OP (SMC	O-GEN).					

1

Organochlorine Pesticides EPA Method 8081

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190 **Date Collected:** 12/12/2008

Date Received: 12/16/2008

Organochlorine Pesticides

Sample Name:

FO 081479

Lab Code:

K0812190-005

Extraction Method:

EPA 3535

Analysis Method:

8081A

Units: ng/L Basis: NA

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
beta-BHC	ND Ui	1.1	1.1	1	12/17/08	01/04/09	KWG0813446	
gamma-BHC (Lindane)	ND U	0.49	0.47	1	12/17/08	01/04/09	KWG0813446	
delta-BHC	ND Ui	0.49	0.49	1	12/17/08	01/04/09	KWG0813446	
Heptachlor	ND Ui	5.6	5.6	1	12/17/08	01/04/09	KWG0813446	
Aldrin	ND Ui	1.9	1.9	1	12/17/08	01/04/09	KWG0813446	
Heptachlor Epoxide	ND Ui	2.5	2.5	1	12/17/08	01/04/09	KWG0813446	
gamma-Chlordane†	ND U	0.49	0.31	1	12/17/08	01/04/09	KWG0813446	
Endosulfan I	ND Ui	9.9	9.9	1	12/17/08	01/04/09	KWG0813446	
alpha-Chlordane	14	0.49	0.27	1	12/17/08	01/11/09	KWG0813446	
Dieldrin	ND U	0.49	0.37	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDE	ND Ui	1.5	1.5	1	12/17/08	01/04/09	KWG0813446	
Endrin	ND U	0.49	0.49	1	12/17/08	01/04/09	KWG0813446	
Endosulfan II	ND Ui	1.5	1.5	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDD *** **	ND Ui	0.49	0.49	1	12/17/08	01/04/09	KWG0813446	
Endrin Aldehyde	ND Ui	6.1	6.1	1	12/17/08	01/04/09	KWG0813446	
Endosulfan Sulfate	ND U	0.49	0.28	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDT	ND Ui	14	14	1	12/17/08	01/04/09	KWG0813446	
Endrin Ketone	4.9 P	0.49	0.32	1	12/17/08	01/11/09	KWG0813446	***************************************
Methoxychlor	ND Ui	1.9	1.9	1	12/17/08	01/04/09	KWG0813446	
Toxaphene	ND Ui	660	660	1	12/17/08	01/04/09	KWG0813446	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Tetrachloro-m-xylene	44	10-121	01/04/09	Acceptable	
Decachlorobiphenyl	58	17-150	01/04/09	Acceptable	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic

Page 1 of 1

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190 Date Collected: 12/12/2008

Date Received: 12/16/2008

Organochlorine Pesticides

Sample Name: Lab Code:

FO 081481 K0812190-007

Extraction Method: Analysis Method:

EPA 3535

8081A

Units: ng/L Basis: NA

Level: Low

A R / TAY	70 B.	_	74. AF WY W	*****	Dilution	Date	Date	Extraction	W.T.
Analyte Name	Result		MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND	U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
beta-BHC	ND	U	0.49	0.41	1	12/17/08	01/04/09	KWG0813446	
gamma-BHC (Lindane)	ND	U	0.49	0.47	1	12/17/08	01/04/09	KWG0813446	
delta-BHC	ND	U	0.49	0.14	1	12/17/08	01/04/09	KWG0813446	
Heptachlor	ND	U	0.49	0.18	1	12/17/08	01/04/09	KWG0813446	
Aldrin	ND	U	0.49	0.11	1	12/17/08	01/04/09	KWG0813446	
Heptachlor Epoxide	ND	U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
gamma-Chlordane†	ND	U	0.49	0.31	1	12/17/08	01/04/09	KWG0813446	
Endosulfan I	ND	U	0.49	0.25	1	12/17/08	01/04/09	KWG0813446	
alpha-Chlordane	ND	U	0.49	0.27	1	12/17/08	01/04/09	KWG0813446	***************************************
Dieldrin	ND	U	0.49	0.37	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDE	ND	U	0.49	0.19	1	12/17/08	01/04/09	KWG0813446	
Endrin	ND	U	0.49	0.49	1	12/17/08	01/04/09	KWG0813446	
Endosulfan II	ND	U	0.49	0.35	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDD	ND	U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
Endrin Aldehyde	ND	U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
Endosulfan Sulfate	ND	U	0.49	0.28	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDT	ND	U	0.49	0.17	1	12/17/08	01/04/09	KWG0813446	
Endrin Ketone	ND	U	0.49	0.32	1	12/17/08	01/04/09	KWG0813446	
Methoxychlor	ND	U	0.49	0.28	1	12/17/08	01/04/09	KWG0813446	
Toxaphene	ND	U	25	9.0	1	12/17/08	01/04/09	KWG0813446	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Tetrachloro-m-xylene	50	10-121	01/04/09	Acceptable	
Decachlorobiphenyl	54	17-150	01/04/09	Acceptable	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190

Date Collected: NA Date Received: NA

Organochlorine Pesticides

Sample Name: Lab Code:

Method Blank KWG0813446-3

Extraction Method:

EPA 3535

Analysis Method:

8081A

Units: ng/L Basis: NA

Level: Low

A X		76 W W W T	W WYS W	Dilution	Date	Date	Extraction	W.Y.
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
beta-BHC	ND U	0.49	0.41	1	12/17/08	01/04/09	KWG0813446	
gamma-BHC (Lindane)	ND U	0.49	0.47	1	12/17/08	01/04/09	KWG0813446	
delta-BHC	ND U	0.49	0.14	1	12/17/08	01/04/09	KWG0813446	
Heptachlor	ND U	0.49	0.18	1	12/17/08	01/04/09	KWG0813446	
Aldrin	ND U	0.49	0.11	1	12/17/08	01/04/09	KWG0813446	
Heptachlor Epoxide	ND U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
gamma-Chlordane†	ND U	0.49	0.31	1	12/17/08	01/04/09	KWG0813446	
Endosulfan I	ND U	0.49	0.25	1	12/17/08	01/04/09	KWG0813446	
alpha-Chlordane	ND U	0.49	0.27	1	12/17/08	01/04/09	KWG0813446	***************************************
Dieldrin	ND U	0.49	0.37	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDE	ND U	0.49	0.19	1	12/17/08	01/04/09	KWG0813446	
Endrin	ND U	0.49	0.49	1	12/17/08	01/04/09	KWG0813446	
Endosulfan II	ND U	0.49	0.35	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDD	ND U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
Endrin Aldehyde	ND U	0.49	0.21	1	12/17/08	01/04/09	KWG0813446	
Endosulfan Sulfate	ND U	0.49	0.28	1	12/17/08	01/04/09	KWG0813446	
4,4'-DDT	ND U	0.49	0.17	1	12/17/08	01/04/09	KWG0813446	
Endrin Ketone	ND U	0.49	0.32	1	12/17/08	01/04/09	KWG0813446	
Methoxychlor	ND U	0.49	0.28	1	12/17/08	01/04/09	KWG0813446	
Toxaphene	ND U	25	9.0	1	12/17/08	01/04/09	KWG0813446	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Tetrachloro-m-xylene	50	10-121	01/04/09	Acceptable	
Decachlorobiphenyl	79	17-150	01/04/09	Acceptable	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic 20

Page 1 of 1

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Surrogate Recovery Summary Organochlorine Pesticides

Extraction Method: EPA 3535

Analysis Method:

8081A

Units: PERCENT

Level: Low

Service Request: K0812190

Sample Name	Lab Code	Sur1	Sur2
FO 081475	K0812190-001	46	64
FO 081476	K0812190-002	48	67
FO 081477	K0812190-003	39	42
FO 081478	K0812190-004	48	53
FO 081479	K0812190-005	44	58
FO 081480	K0812190-006	41	57
FO 081481	K0812190-007	50	54
FO 081482	K0812190-008	43	56
Method Blank	KWG0813446-3	50	79
Lab Control Sample	KWG0813446-1	48	83
Duplicate Lab Control Sample	KWG0813446-2	51	85

Surrogate Recovery Control Limits (%)

Sur1 = Tetrachloro-m-xylene 10-121 Sur2 = Decachlorobiphenyl 17-150

Results flagged with an asterisk (*) indicate values outside control criteria. Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

Page 1 of 1

SuperSet Reference:

RR98054

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190

Date Extracted: 12/17/2008 **Date Analyzed:** 01/04/2009

Lab Control Spike/Duplicate Lab Control Spike Summary **Organochlorine Pesticides**

Extraction Method:

EPA 3535

Analysis Method:

8081A

Units: ng/L

Basis: NA Level: Low

Extraction Lot: KWG0813446

Lab Control Sample KWG0813446-1

Duplicate Lab Control Sample KWG0813446-2

		Control Spik			VGU813446-2 e Lab Control		%Rec	RPD	RPD Limit
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits		
alpha-BHC	6.73	10.0	67	6.37	10.0	64	43-127	6	30
beta-BHC	7.27	10.0	73	6.83	10.0	68	41-129	6	30
gamma-BHC (Lindane)	7.17	10.0	72	6.71	10.0	67	42-128	7	30
delta-BHC	7.58	10.0	76	7.06	10.0	71	47-141	7	30
Heptachlor	7.23	10.0	72	6.51	10.0	65	34-126	10	30
Aldrin	6.45	10.0	65	5.85	10.0	59	10-125	10	30
Heptachlor Epoxide	7.44	10.0	74	6.98	10.0	70	45-124	6	30
gamma-Chlordane	7.18	10.0	72	6.66	10.0	67	48-119	7	30
Endosulfan I	7.57	10.0	76	7.09	10.0	71	30-115	7	30
alpha-Chlordane	7.36	10.0	74	6.70	10.0	67	48-119	9	30
Dieldrin	7.82	10.0	78	7.26	10.0	73	50-120	7	30
4,4'-DDE	8.79	10.0	88	8.55	10.0	86	36-137	3	30
Endrin	8.10	10.0	81	7.09	10.0	71	53-132	13	30
Endosulfan II	7.85	10.0	78	7.39	10.0	74	32-123	6	30
4,4'-DDD	8.69	10.0	87	7.90	10.0	79	38-140	10	30
Endrin Aldehyde	5.51	10.0	55	5.29	10.0	53	30-114	4	30
Endosulfan Sulfate	7.18	10.0	72	6.89	10.0	69	46-120	4	30
4,4'-DDT	8.17	10.0	82	7.93	10.0	79	45-146	3	30
Endrin Ketone	7.51	10.0	75	7.28	10.0	73	45-127	3	30
Methoxychlor	7.83	10.0	78	7.50	10.0	75	48-140	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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1 of 1

Semi-Volatile Organic Compounds EPA Method 8270C

Analytical Results

Client: Portland, City of

Project: Portland Harbor Stormwater Samp

Sample Matrix: Water Service Request: K0812190 Date Collected: 12/12/2008 **Date Received:** 12/16/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO 081479 Units: ug/L Lab Code: K0812190-005 Basis: NA **Extraction Method:** EPA 3520C Level: Low

Analysis Method: 8270C

Analyte Name Result Q MRL MDL Factor Extracted Analyzed Lot Note	Amalusta Nama	Th	0	RAIDY.	RATE T	Dilution	Date	Date	Extraction	MT - 4 -
Phenol	Analyte Name			MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
2-Chlorophenol ND U 2.5 0.27 5 12/18/08 01/02/09 KWG0813479 1,3-Dichlorobenzene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 1,4-Dichlorobenzene ND U 0.99 0.15 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 1,2-Methylphenol ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 1,2-Methylphenol ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 1,2-Methylphenol† ND U 0.99 0.19 5 12/18/08 01/02/09 KWG0813479 1,3-Dichlorobenzene ND U 0.99 0.19 5 12/18/08 01/02/09 KWG0813479 1,3-Dichlorobenzene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 1,3-Dichlorobenzene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.13	• •									
1,3-Dichlorobenzene										
1,4-Dichlorobenzene ND U 0.99 0.15 5 12/18/08 01/02/09 KWG0813479 1,2-Dichlorobenzene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 Benzyl Alcohol 0.81 JD 2.5 0.37 5 12/18/08 01/02/09 KWG0813479 Beisig-chloroisopropyl) Ether ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 2-Methylphenol ND U 2.5 0.55 5 12/18/08 01/02/09 KWG0813479 Hexachloroethane ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Hexachlorophanic ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Nitrobenzene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 Nitrobenzene ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 2-Nitrophenol ND U <th< td=""><td>*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	*									
1,2-Dichlorobenzene										
Benzyl Alcohol Bist2-chloroisopropyl) Ether ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479	•									
Bis(2-chloroisopropyl) Ether ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479	*									
2-Methylphenol ND U 2.5 0.55 5 12/18/08 01/02/09 KWG0813479 Hexachloroethane ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 N-Nitrosodi-n-propylamine ND U 0.99 0.19 5 12/18/08 01/02/09 KWG0813479 4-Methylphenol† ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 Nitrobenzene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 Isophorone ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 2-Nitrophenol ND U 2.5 0.32 5 12/18/08 01/02/09 KWG0813479 2,4-Dimethylphenol ND U 2.0 11 5 12/18/08 01/02/09 KWG0813479 2,4-Dichlorophenol ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 2,4-Dirichlorophenol ND U 0.99 <td></td>										
Hexachloroethane										
N-Nitrosodi-n-propylamine					0.55	5	12/18/08			
4-Methylphenol† ND U 2.5 0.60 5 12/18/08 01/02/09 KWG0813479 Nitrobenzene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 Isophorone ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 2-Nitrophenol ND U 2.5 0.32 5 12/18/08 01/02/09 KWG0813479 2,4-Dimethylphenol ND U 20 11 5 12/18/08 01/02/09 KWG0813479 2,4-Dichlorothoxylmethane ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 2,4-Dichlorophenol ND U 2.5 0.24 5 12/18/08 01/02/09 KWG0813479 2,4-Trichlorophenol ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 1,2,4-Trichlorobenzene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 4-Chloroaniline ND U 0.9				0.99		5	12/18/08			
Nitrobenzene	1 10						12/18/08			
Isophorone	4-Methylphenol†	ND	U	2.5	0.60	5	12/18/08	01/02/09	KWG0813479	
2-Nitrophenol ND U 2.5 0.32 5 12/18/08 01/02/09 KWG0813479 2,4-Dimethylphenol ND U 20 11 5 12/18/08 01/02/09 KWG0813479 Bis(2-chloroethoxy)methane ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 2,4-Dichlorophenol ND U 2.5 0.24 5 12/18/08 01/02/09 KWG0813479 Benzoic Acid 16 JD 25 5.5 5 12/18/08 01/02/09 KWG0813479 1,2,4-Trichlorobenzene ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 4-Chloroaniline ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 4-Chloro-3-methylphenol ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 J	Nitrobenzene	ND	U	0.99	0.14	5	12/18/08	01/02/09	KWG0813479	
2,4-Dimethylphenol	Isophorone	ND	U	0.99	0.080	5	12/18/08	01/02/09	KWG0813479	
Bis(2-chloroethoxy)methane	2-Nitrophenol	ND	U	2.5	0.32	5	12/18/08	01/02/09	KWG0813479	
2,4-Dichlorophenol ND U 2.5 0.24 5 12/18/08 01/02/09 KWG0813479 Benzoic Acid 16 JD 25 5.5 5 12/18/08 01/02/09 KWG0813479 1,2,4-Trichlorobenzene ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 Naphthalene 0.25 JD 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 4-Chloroaniline ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorobutadiene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 4-Chloro-3-methylphenol ND U 2.5 0.19 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorocyclopentadiene ND U 5.0 0.95 5 12/18/08 01/02/09 KWG0813479 2,4,5-Trichlorophenol		ND	U	20	11	5	12/18/08	01/02/09	KWG0813479	
Benzoic Acid 16 JD 25 5.5 5 12/18/08 01/02/09 KWG0813479 1,2,4-Trichlorobenzene ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 Naphthalene 0.25 JD 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 4-Chloroaniline ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorobutadiene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 4-Chloro-3-methylphenol ND U 2.5 0.19 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorocyclopentadiene ND U 5.0 0.95 5 12/18/08 01/02/09 KWG0813479 2,4,6-Trichlorophenol ND U 2.5 0.29 5 12/18/08 01/02/09 KWG0813479 2-Chloronaphthalene <td< td=""><td>• • • • • • • • • • • • • • • • • • • •</td><td></td><td></td><td>0.99</td><td></td><td></td><td>12/18/08</td><td></td><td>KWG0813479</td><td></td></td<>	• • • • • • • • • • • • • • • • • • • •			0.99			12/18/08		KWG0813479	
1,2,4-Trichlorobenzene ND U 0.99 0.080 5 12/18/08 01/02/09 KWG0813479 Naphthalene 0.25 JD 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 4-Chloroaniline ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorobutadiene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 4-Chloro-3-methylphenol ND U 2.5 0.19 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorocyclopentadiene ND U 5.0 0.95 5 12/18/08 01/02/09 KWG0813479 2,4,5-Trichlorophenol ND U 2.5 0.16	2,4-Dichlorophenol	ND	U	2.5	0.24	5	12/18/08	01/02/09	KWG0813479	
Naphthalene 0.25 JD 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 4-Chloroaniline ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorobutadiene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 4-Chloro-3-methylphenol ND U 2.5 0.19 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorocyclopentadiene ND U 5.0 0.95 5 12/18/08 01/02/09 KWG0813479 2,4,6-Trichlorophenol ND U 2.5 0.29 5 12/18/08 01/02/09 KWG0813479 2,4,5-Trichlorophenol ND U 2.5 0.16 5 12/18/08 01/02/09 KWG0813479 2-Nitroaniline ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene ND	Benzoic Acid	16	JD	25	5.5	5	12/18/08	01/02/09	KWG0813479	
4-Chloroaniline ND U 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorobutadiene ND U 0.99 0.14 5 12/18/08 01/02/09 KWG0813479 4-Chloro-3-methylphenol ND U 2.5 0.19 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorocyclopentadiene ND U 5.0 0.95 5 12/18/08 01/02/09 KWG0813479 2,4,6-Trichlorophenol ND U 2.5 0.29 5 12/18/08 01/02/09 KWG0813479 2,4,5-Trichlorophenol ND U 2.5 0.16 5 12/18/08 01/02/09 KWG0813479 2-Chloronaphthalene ND U 0.99 0.21 5 12/18/08 01/02/09 KWG0813479 2-Nitroaniline ND U 0.99 0.075 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene <	1,2,4-Trichlorobenzene	ND	U	0.99	0.080	5	12/18/08	01/02/09	KWG0813479	
Hexachlorobutadiene	Naphthalene	0.25	JD	0.99	0.11	5	12/18/08	01/02/09	KWG0813479	
4-Chloro-3-methylphenol ND U 2.5 0.19 5 12/18/08 01/02/09 KWG0813479 2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorocyclopentadiene ND U 5.0 0.95 5 12/18/08 01/02/09 KWG0813479 2,4,6-Trichlorophenol ND U 2.5 0.29 5 12/18/08 01/02/09 KWG0813479 2,4,5-Trichlorophenol ND U 2.5 0.16 5 12/18/08 01/02/09 KWG0813479 2-Chloronaphthalene ND U 0.99 0.21 5 12/18/08 01/02/09 KWG0813479 2-Nitroaniline ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479	4-Chloroaniline	ND	U	0.99	0.13	5	12/18/08	01/02/09	KWG0813479	
2-Methylnaphthalene 0.22 JD 0.99 0.13 5 12/18/08 01/02/09 KWG0813479 Hexachlorocyclopentadiene ND U 5.0 0.95 5 12/18/08 01/02/09 KWG0813479 2,4,6-Trichlorophenol ND U 2.5 0.29 5 12/18/08 01/02/09 KWG0813479 2,4,5-Trichlorophenol ND U 2.5 0.16 5 12/18/08 01/02/09 KWG0813479 2-Chloronaphthalene ND U 0.99 0.21 5 12/18/08 01/02/09 KWG0813479 2-Nitroaniline ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479	Hexachlorobutadiene	ND	U	0.99	0.14	5	12/18/08	01/02/09	KWG0813479	
Hexachlorocyclopentadiene ND U 5.0 0.95 5 12/18/08 01/02/09 KWG0813479 2,4,6-Trichlorophenol ND U 2.5 0.29 5 12/18/08 01/02/09 KWG0813479 2,4,5-Trichlorophenol ND U 2.5 0.16 5 12/18/08 01/02/09 KWG0813479 2-Chloronaphthalene ND U 0.99 0.21 5 12/18/08 01/02/09 KWG0813479 2-Nitroaniline ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479	4-Chloro-3-methylphenol	ND	U	2.5	0.19	5	12/18/08	01/02/09	KWG0813479	
2,4,6-Trichlorophenol ND U 2.5 0.29 5 12/18/08 01/02/09 KWG0813479 2,4,5-Trichlorophenol ND U 2.5 0.16 5 12/18/08 01/02/09 KWG0813479 2-Chloronaphthalene ND U 0.99 0.21 5 12/18/08 01/02/09 KWG0813479 2-Nitroaniline ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479 Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479	2-Methylnaphthalene	0.22	JD	0.99	0.13	5	12/18/08	01/02/09		
2,4,5-Trichlorophenol ND U 2.5 0.16 5 12/18/08 01/02/09 KWG0813479 2-Chloronaphthalene ND U 0.99 0.21 5 12/18/08 01/02/09 KWG0813479 2-Nitroaniline ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene ND U 0.99 0.075 5 12/18/08 01/02/09 KWG0813479 Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479				5.0			12/18/08			
2-Chloronaphthalene ND U 0.99 0.21 5 12/18/08 01/02/09 KWG0813479 2-Nitroaniline ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene ND U 0.99 0.075 5 12/18/08 01/02/09 KWG0813479 Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479	2,4,6-Trichlorophenol	ND	U	2.5	0.29	5	12/18/08	01/02/09	KWG0813479	
2-Nitroaniline ND U 0.99 0.12 5 12/18/08 01/02/09 KWG0813479 Acenaphthylene ND U 0.99 0.075 5 12/18/08 01/02/09 KWG0813479 Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479	2,4,5-Trichlorophenol	ND	U	2.5	0.16	5	12/18/08	01/02/09		
Acenaphthylene ND U 0.99 0.075 5 12/18/08 01/02/09 KWG0813479 Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479	2-Chloronaphthalene	ND	U	0.99	0.21	5	12/18/08	01/02/09		
Dimethyl Phthalate ND U 0.99 0.11 5 12/18/08 01/02/09 KWG0813479	2-Nitroaniline	ND	U	0.99	0.12	5	12/18/08	01/02/09	KWG0813479	
					0.075	5				
2,6-Dinitrotoluene ND U 0.99 0.17 5 12/18/08 01/02/09 KWG0813479	•									
	2,6-Dinitrotoluene	ND	U	0.99	0.17	5	12/18/08	01/02/09	KWG0813479	

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190

Date Collected: 12/12/2008 **Date Received:** 12/16/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: FO 081479 K0812190-005

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND	U	0.99	0.13	5	12/18/08	01/02/09	KWG0813479	2000001
3-Nitroaniline	ND	U	5.0	0.15	5	12/18/08	01/02/09	KWG0813479	
2,4-Dinitrophenol	ND	U	20	0.85	5	12/18/08	01/02/09	KWG0813479	
Dibenzofuran	ND	U	0.99	0.090	5	12/18/08	01/02/09	KWG0813479	
4-Nitrophenol	ND		9.9	1.4	5	12/18/08	01/02/09	KWG0813479	
2,4-Dinitrotoluene	ND	U	0.99	0.090	5	12/18/08	01/02/09	KWG0813479	
Fluorene	ND	U	0.99	0.14	5	12/18/08	01/02/09	KWG0813479	
4-Chlorophenyl Phenyl Ether	ND	U	0.99	0.14	5	12/18/08	01/02/09	KWG0813479	
Diethyl Phthalate	ND	U	0.99	0.060	5	12/18/08	01/02/09	KWG0813479	
4-Nitroaniline	ND	U	5.0	0.095	5	12/18/08	01/02/09	KWG0813479	
2-Methyl-4,6-dinitrophenol	ND	U	9.9	0.13	5	12/18/08	01/02/09	KWG0813479	
N-Nitrosodiphenylamine	ND	U	0.99	0.24	5	12/18/08	01/02/09	KWG0813479	
4-Bromophenyl Phenyl Ether	ND	U	0.99	0.13	5	12/18/08	01/02/09	KWG0813479	
Hexachlorobenzene	ND	U	0.99	0.11	5	12/18/08	01/02/09	KWG0813479	
Pentachlorophenol	ND	U	5.0	1.7	5	12/18/08	01/02/09	KWG0813479	
Phenanthrene	0.13		0.99	0.11	5	12/18/08	01/02/09	KWG0813479	
Anthracene	ND		0.99	0.12	5	12/18/08	01/02/09	KWG0813479	
Di-n-butyl Phthalate	0.31	JD	0.99	0.12	5	12/18/08	01/02/09	KWG0813479	
Fluoranthene	0.14		0.99	0.10	5	12/18/08	01/02/09	KWG0813479	
Pyrene	0.19		0.99	0.095	5	12/18/08	01/02/09	KWG0813479	
Butyl Benzyl Phthalate	ND	U	0.99	0.090	5	12/18/08	01/02/09	KWG0813479	
3,3'-Dichlorobenzidine	ND	U	9.9	2.2	5	12/18/08	01/02/09	KWG0813479	
Benz(a)anthracene	ND		0.99	0.090	5	12/18/08	01/02/09	KWG0813479	
Chrysene	ND	U	0.99	0.14	5	12/18/08	01/02/09	KWG0813479	
Bis(2-ethylhexyl) Phthalate	1.6		5.0	0.65	5	12/18/08	01/02/09	KWG0813479	
Di-n-octyl Phthalate	ND		0.99	0.090	5	12/18/08	01/02/09	KWG0813479	
Benzo(b)fluoranthene	ND	U	0.99	0.085	5	12/18/08	01/02/09	KWG0813479	
Benzo(k)fluoranthene	ND	-	0.99	0.12	5	12/18/08	01/02/09	KWG0813479	
Benzo(a)pyrene	ND		0.99	0.16	5	12/18/08	01/02/09	KWG0813479	
Indeno(1,2,3-cd)pyrene	ND	U	0.99	0.11	5	12/18/08	01/02/09	KWG0813479	
Dibenz(a,h)anthracene	ND		0.99	0.085	5	12/18/08	01/02/09	KWG0813479	
Benzo(g,h,i)perylene	ND	U	0.99	0.095	5	12/18/08	01/02/09	KWG0813479	
5.3%									

Comments	

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190

Date Collected: 12/12/2008 **Date Received:** 12/16/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: FO 081479

K0812190-005

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	55	21-119	01/02/09	Acceptable
Phenol-d6	59	31-121	01/02/09	Acceptable
Nitrobenzene-d5	63	29-121	01/02/09	Acceptable
2-Fluorobiphenyl	58	25-109	01/02/09	Acceptable
2,4,6-Tribromophenol	69	30-131	01/02/09	Acceptable
Terphenyl-d14	53	20-140	01/02/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190 **Date Collected:** 12/12/2008

Units: ug/L

Basis: NA

Level: Low

Date Received: 12/16/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 081481

Lab Code:

K0812190-007

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND U	0.20	0.035	1	12/18/08	12/30/08	KWG0813479	
Phenol	ND U	0.50	0.063	1	12/18/08	12/30/08	KWG0813479	
2-Chlorophenol	ND U	0.50	0.054	1	12/18/08	12/30/08	KWG0813479	
1,3-Dichlorobenzene	ND U	0.20	0.021	1	12/18/08	12/30/08	KWG0813479	
1,4-Dichlorobenzene	ND U	0.20	0.029	1	12/18/08	12/30/08	KWG0813479	
1,2-Dichlorobenzene	ND U	0.20	0.022	1	12/18/08	12/30/08	KWG0813479	
Benzyl Alcohol	ND U	0.50	0.073	1	12/18/08	12/30/08	KWG0813479	-
Bis(2-chloroisopropyl) Ether	ND U	0.20	0.026	1	12/18/08	12/30/08	KWG0813479	
2-Methylphenol	ND U	0.50	0.11	1	12/18/08	12/30/08	KWG0813479	
Hexachloroethane	ND U	0.20	0.024	1	12/18/08	12/30/08	KWG0813479	
N-Nitrosodi-n-propylamine	ND U	0.20	0.037	1	12/18/08	12/30/08	KWG0813479	
4-Methylphenol†	ND U	0.50	0.12	1	12/18/08	12/30/08	KWG0813479	
Nitrobenzene	ND U	0.20	0.028	1	12/18/08	12/30/08	KWG0813479	
Isophorone	ND U	0.20	0.016	1	12/18/08	12/30/08	KWG0813479	
2-Nitrophenol	ND U	0.50	0.063	1	12/18/08	12/30/08	KWG0813479	
2,4-Dimethylphenol	ND U	4.0	2.2	1	12/18/08	12/30/08	KWG0813479	
Bis(2-chloroethoxy)methane	ND U	0.20	0.024	1	12/18/08	12/30/08	KWG0813479	
2,4-Dichlorophenol	ND U	0.50	0.047	1	12/18/08	12/30/08	KWG0813479	
Benzoic Acid	ND U	5.0	1.1	1	12/18/08	12/30/08	KWG0813479	
1,2,4-Trichlorobenzene	ND U	0.20	0.016	1	12/18/08	12/30/08	KWG0813479	
Naphthalene	ND U	0.20	0.022	1	12/18/08	12/30/08	KWG0813479	
4-Chloroaniline	ND U	0.20	0.025	1	12/18/08	12/30/08	KWG0813479	
Hexachlorobutadiene	ND U	0.20	0.027	1	12/18/08	12/30/08	KWG0813479	
4-Chloro-3-methylphenol	ND U	0.50	0.037	1	12/18/08	12/30/08	KWG0813479	
2-Methylnaphthalene	ND U	0.20	0.026	1	12/18/08	12/30/08	KWG0813479	
Hexachlorocyclopentadiene	ND U	1.0	0.19	1	12/18/08	12/30/08	KWG0813479	
2,4,6-Trichlorophenol	ND U	0.50	0.058	1	12/18/08	12/30/08	KWG0813479	
2,4,5-Trichlorophenol	ND U	0.50	0.031	1	12/18/08	12/30/08	KWG0813479	
2-Chloronaphthalene	ND U	0.20	0.041	1	12/18/08	12/30/08	KWG0813479	
2-Nitroaniline	ND U	0.20	0.024	1	12/18/08	12/30/08	KWG0813479	
Acenaphthylene	ND U	0.20	0.015	1	12/18/08	12/30/08	KWG0813479	
Dimethyl Phthalate	ND U	0.20	0.021	1	12/18/08	12/30/08	KWG0813479	
2,6-Dinitrotoluene	ND U	0.20	0.033	1	12/18/08	12/30/08	KWG0813479	

Comments:	
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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190 Date Collected: 12/12/2008

Units: ug/L

Basis: NA

Level: Low

Date Received: 12/16/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

FO 081481

Extraction Method:

K0812190-007

EPA 3520C

Analysis Method:

8270C

						NAMES .		
A	W% 84	^	y news	Dilution		Date	Extraction	max 4
Analyte Name	Result					Analyzed	Lot	Note
Acenaphthene	ND 1			1	12/18/08	12/30/08	KWG0813479	
3-Nitroaniline	ND 1				12/18/08	12/30/08	KWG0813479	
2,4-Dinitrophenol	ND 1	U 4.0	0.17	1	12/18/08	12/30/08	KWG0813479	
Dibenzofuran	ND 1	U 0.2	0.018	1	12/18/08	12/30/08	KWG0813479	
4-Nitrophenol	ND 1		0.28	1	12/18/08	12/30/08	KWG0813479	
2,4-Dinitrotoluene	ND 1	U 0.2	0.018	1	12/18/08	12/30/08	KWG0813479	
Fluorene	ND 1	U 0.2	0 0.027	1	12/18/08	12/30/08	KWG0813479	AMARINA AND AND AND AND AND AND AND AND AND A
4-Chlorophenyl Phenyl Ether	ND 1	U 0.2	0.027	1	12/18/08	12/30/08	KWG0813479	
Diethyl Phthalate	0.035	J 0.2	0.012	1	12/18/08	12/30/08	KWG0813479	
4-Nitroaniline	ND 1	U 1.0	0.019	1	12/18/08	12/30/08	KWG0813479	
2-Methyl-4,6-dinitrophenol	ND 1	U 2.0	0.025	1	12/18/08	12/30/08	KWG0813479	
N-Nitrosodiphenylamine	ND I	U 0.2	0.048	1	12/18/08	12/30/08	KWG0813479	
4-Bromophenyl Phenyl Ether	ND I	U 0.2	0 0.026	1	12/18/08	12/30/08	KWG0813479	
Hexachlorobenzene	ND I	U 0.2	0.022	1	12/18/08	12/30/08	KWG0813479	
Pentachlorophenol	ND 1	U 1.0	0.34	1	12/18/08	12/30/08	KWG0813479	
Phenanthrene	ND I	U 0.2	0.022	1	12/18/08	12/30/08	KWG0813479	
Anthracene	ND I	U 0.20	0.024	1	12/18/08	12/30/08	KWG0813479	
Di-n-butyl Phthalate	0.13	J 0.20	0.023	1	12/18/08	12/30/08	KWG0813479	
Fluoranthene	ND I	U 0.20	0.020	1	12/18/08	12/30/08	KWG0813479	
Pyrene	ND I			1	12/18/08	12/30/08	KWG0813479	
Butyl Benzyl Phthalate	ND I	U 0.2	0.018	1	12/18/08	12/30/08	KWG0813479	
3,3'-Dichlorobenzidine	ND I	U 2.0	0.43	1	12/18/08	12/30/08	KWG0813479	
Benz(a)anthracene	ND I	U 0.20	0.018	1	12/18/08	12/30/08	KWG0813479	
Chrysene	ND I	U 0.20	0.028	1	12/18/08	12/30/08	KWG0813479	
Bis(2-ethylhexyl) Phthalate	0.33	J 1.0	0.13	1	12/18/08	12/30/08	KWG0813479	
Di-n-octyl Phthalate	ND I	U 1.0	0.090	5	12/18/08	01/02/09	KWG0813479	
Benzo(b)fluoranthene	ND I	U 1.0	0.085	5	12/18/08	01/02/09	KWG0813479	
Benzo(k)fluoranthene	ND I	U 1.0	0.12	5	12/18/08	01/02/09	KWG0813479	
Benzo(a)pyrene	ND I	U 1.0	0.16	5	12/18/08	01/02/09	KWG0813479	
Indeno(1,2,3-cd)pyrene	ND U	U 1.0	0.11	5	12/18/08	01/02/09	KWG0813479	
Dibenz(a,h)anthracene	ND U	U 1.0	0.085	5	12/18/08	01/02/09	KWG0813479	
Benzo(g,h,i)perylene	ND U	U 1.0	0.095	5	12/18/08	01/02/09	KWG0813479	

Comments:

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Form 1A - Organic

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190

Date Collected: 12/12/2008

Date Received: 12/16/2008

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 081481

Lab Code:

K0812190-007

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	79	21-119	12/30/08	Acceptable
Phenol-d6	82	31-121	12/30/08	Acceptable
Nitrobenzene-d5	80	29-121	12/30/08	Acceptable
2-Fluorobiphenyl	76	25-109	12/30/08	Acceptable
2,4,6-Tribromophenol	58	30-131	12/30/08	Acceptable
Terphenyl-d14	96	20-140	12/30/08	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190

Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0813479-3

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units:	ug/L
Basis:	NA

Level: Low

Analyte Name	Result	0	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND		0.19	0.035	1	12/18/08	12/30/08	KWG0813479	
Phenol	0.25		0.48	0.063	1	12/18/08	12/30/08	KWG0813479	
2-Chlorophenol	ND		0.48	0.054	1	12/18/08	12/30/08	KWG0813479	
1,3-Dichlorobenzene	ND	U	0.19	0.021	1	12/18/08	12/30/08	KWG0813479	
1,4-Dichlorobenzene	ND		0.19	0.029	1	12/18/08	12/30/08	KWG0813479	
1,2-Dichlorobenzene	ND	U	0.19	0.022	1	12/18/08	12/30/08	KWG0813479	
Benzyl Alcohol	ND	U	0.48	0.073	1	12/18/08	12/30/08	KWG0813479	Manufacture of American American
Bis(2-chloroisopropyl) Ether	ND	U	0.19	0.026	1	12/18/08	12/30/08	KWG0813479	
2-Methylphenol	ND	U	0.48	0.11	1	12/18/08	12/30/08	KWG0813479	
Hexachloroethane	ND		0.19	0.024	1	12/18/08	12/30/08	KWG0813479	-
N-Nitrosodi-n-propylamine	ND		0.19	0.037	1	12/18/08	12/30/08	KWG0813479	
4-Methylphenol†	ND	U	0.48	0.12	1	12/18/08	12/30/08	KWG0813479	
Nitrobenzene	ND		0.19	0.028	1	12/18/08	12/30/08	KWG0813479	
Isophorone	ND	U	0.19	0.016	1	12/18/08	12/30/08	KWG0813479	
2-Nitrophenol	ND	U	0.48	0.063	1	12/18/08	12/30/08	KWG0813479	
2,4-Dimethylphenol	ND		3.8	2.2	1	12/18/08	12/30/08	KWG0813479	
Bis(2-chloroethoxy)methane	ND		0.19	0.024	1	12/18/08	12/30/08	KWG0813479	
2,4-Dichlorophenol	ND	U	0.48	0.047	1	12/18/08	12/30/08	KWG0813479	
Benzoic Acid	ND		4.8	1.1	1	12/18/08	12/30/08	KWG0813479	
1,2,4-Trichlorobenzene	ND		0.19	0.016	1	12/18/08	12/30/08	KWG0813479	
Naphthalene	ND	U	0.19	0.022	1	12/18/08	12/30/08	KWG0813479	
4-Chloroaniline	ND		0.19	0.025	1	12/18/08	12/30/08	KWG0813479	
Hexachlorobutadiene	ND		0.19	0.027	1	12/18/08	12/30/08	KWG0813479	
4-Chloro-3-methylphenol	ND	U	0.48	0.037	1	12/18/08	12/30/08	KWG0813479	
2-Methylnaphthalene		U	0.19	0.026	1	12/18/08	12/30/08	KWG0813479	
Hexachlorocyclopentadiene		U	0.95	0.19	1	12/18/08	12/30/08	KWG0813479	
2,4,6-Trichlorophenol	ND	U	0.48	0.058	1	12/18/08	12/30/08	KWG0813479	
2,4,5-Trichlorophenol	ND		0.48	0.031	1	12/18/08	12/30/08	KWG0813479	
2-Chloronaphthalene	ND		0.19	0.041	1	12/18/08	12/30/08	KWG0813479	
2-Nitroaniline	ND	U	0.19	0.024	1	12/18/08	12/30/08	KWG0813479	
Acenaphthylene	ND		0.19	0.015	1	12/18/08	12/30/08	KWG0813479	
Dimethyl Phthalate	ND		0.19	0.021	1	12/18/08	12/30/08	KWG0813479	
2,6-Dinitrotoluene	ND	U	0.19	0.033	1	12/18/08	12/30/08	KWG0813479	

Comments:

Page

Analytical Results

Client:

Portland, City of

Project: Sample Matrix: Portland Harbor Stormwater Samp

Water

Date Collected: NA

Service Request: K0812190

Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0813479-3

Extraction Method: EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	NO DESCRIPTION OF THE PARTY OF	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND		0.19	0.026	1	12/18/08	12/30/08	KWG0813479	
3-Nitroaniline	ND		0.95	0.029	1	12/18/08	12/30/08	KWG0813479	
2,4-Dinitrophenol	ND	U	3.8	0.17	1	12/18/08	12/30/08	KWG0813479	
Dibenzofuran	ND	U	0.19	0.018	1	12/18/08	12/30/08	KWG0813479	
4-Nitrophenol	ND	U	1.9	0.28	1	12/18/08	12/30/08	KWG0813479	
2,4-Dinitrotoluene	ND	U	0.19	0.018	1	12/18/08	12/30/08	KWG0813479	
Fluorene	ND	U	0.19	0.027	1	12/18/08	12/30/08	KWG0813479	
4-Chlorophenyl Phenyl Ether	ND	U	0.19	0.027	1	12/18/08	12/30/08	KWG0813479	
Diethyl Phthalate	0.024	J	0.19	0.012	1	12/18/08	12/30/08	KWG0813479	
4-Nitroaniline	ND	U	0.95	0.019	1	12/18/08	12/30/08	KWG0813479	
2-Methyl-4,6-dinitrophenol	ND	U	1.9	0.025	1	12/18/08	12/30/08	KWG0813479	
N-Nitrosodiphenylamine	ND	U	0.19	0.048	1	12/18/08	12/30/08	KWG0813479	
4-Bromophenyl Phenyl Ether	ND	U	0.19	0.026	1	12/18/08	12/30/08	KWG0813479	
Hexachlorobenzene	ND		0.19	0.022	1	12/18/08	12/30/08	KWG0813479	
Pentachlorophenol	ND	U	0.95	0.34	1	12/18/08	12/30/08	KWG0813479	
Phenanthrene	ND	U	0.19	0.022	1	12/18/08	12/30/08	KWG0813479	
Anthracene	ND	U	0.19	0.024	1	12/18/08	12/30/08	KWG0813479	
Di-n-butyl Phthalate	0.15	J	0.19	0.023	1	12/18/08	12/30/08	KWG0813479	
Fluoranthene	ND	U	0.19	0.020	1	12/18/08	12/30/08	KWG0813479	
Pyrene	ND	U	0.19	0.019	1	12/18/08	12/30/08	KWG0813479	
Butyl Benzyl Phthalate	0.066	J	0.19	0.018	1	12/18/08	12/30/08	KWG0813479	
3,3'-Dichlorobenzidine	ND	U	1.9	0.43	1	12/18/08	12/30/08	KWG0813479	
Benz(a)anthracene	ND	U	0.19	0.018	1	12/18/08	12/30/08	KWG0813479	
Chrysene	ND	U	0.19	0.028	1	12/18/08	12/30/08	KWG0813479	
Bis(2-ethylhexyl) Phthalate	ND	U	0.95	0.13	1	12/18/08	12/30/08	KWG0813479	
Di-n-octyl Phthalate	ND	U	0.19	0.018	1	12/18/08	12/30/08	KWG0813479	
Benzo(b)fluoranthene	ND	U	0.19	0.017	1	12/18/08	12/30/08	KWG0813479	
Benzo(k)fluoranthene	ND	U	0.19	0.024	1	12/18/08	12/30/08	KWG0813479	
Benzo(a)pyrene	ND	U	0.19	0.031	1	12/18/08	12/30/08	KWG0813479	
Indeno(1,2,3-cd)pyrene	ND	U	0.19	0.021	1	12/18/08	12/30/08	KWG0813479	
Dibenz(a,h)anthracene	ND	U	0.19	0.017	ì	12/18/08	12/30/08	KWG0813479	
Benzo(g,h,i)perylene	ND	U	0.19	0.019	1	12/18/08	12/30/08	KWG0813479	
* ************************************									

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

Method Blank

KWG0813479-3

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	71	21-119	12/30/08	Acceptable
Phenol-d6	73	31-121	12/30/08	Acceptable
Nitrobenzene-d5	85	29-121	12/30/08	Acceptable
2-Fluorobiphenyl	77	25-109	12/30/08	Acceptable
2,4,6-Tribromophenol	85	30-131	12/30/08	Acceptable
Terphenyl-d14	101	20-140	12/30/08	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

Page 3 of 3

RR97700 SuperSet Reference:

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C **Analysis Method:**

8270C

Units: PERCENT

Level: Low

Service Request: K0812190

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4	Sur5	Sur6
FO 081475	K0812190-001	68	71	77	62 D	86	81
FO 081476	K0812190-002	65	72	77	57 D	71 D	62 D
FO 081477	K0812190-003	69 D	67 D	69 D	59 D	82 D	44 D
FO 081478	K0812190-004	51 D	53 D	57 D	58 D	68 D	55 D
FO 081479	K0812190-005	55 D	59 D	63 D	58 D	69 D	53 D
FO 081480	K0812190-006	62 D	61 D	68 D	60 D	74 D	55 D
FO 081481	K0812190-007	79	82	80	76	58	96
FO 081482	K0812190-008	72	78	79	58 D	69 D	65
Method Blank	KWG0813479-3	71	73	85	77	85	101
Lab Control Sample	KWG0813479-1	69	68	79	72	89	94
Duplicate Lab Control Sample	KWG0813479-2	67	70	79	74	87	98

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	21-119	Sur5 = 2,4,6-Tribromophenol	30-131
Sur2 = Phenol-d6	31-121	Sur6 = Terphenyl-d14	20-140
Sur3 = Nitrobenzene-d5	29-121		
Sur4 = 2-Fluorobiphenyl	25-109		

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

Page 1 of 1

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190

Date Extracted: 12/18/2008 **Date Applyized:** 12/30/2008

Date Analyzed: 12/30/2008

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: Analysis Method:

EPA 3520C

8270C

Units: ug/L Basis: NA

Level: Low

Extraction Lot: KWG0813479

Lab Control Sample KWG0813479-1 Duplicate Lab Control Sample KWG0813479-2

		Control Spik			e Lab Control		9/ D		22.22.2
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	%Rec Limits	RPD	RPD Limit
Bis(2-chloroethyl) Ether	3.49	5.00	70	3.64	5.00	73	39-115	4	30
Phenol	3.35	5.00	67	3.69	5.00	74	39-117	10	30
2-Chlorophenol	3.63	5.00	73	3.78	5.00	76	40-113	4	30
1,3-Dichlorobenzene	2.05	5.00	41	2.07	5.00	41	18-71	1	30
1,4-Dichlorobenzene	2.13	5.00	43	2.23	5.00	45	19-73	4	30
1,2-Dichlorobenzene	2.42	5.00	48	2.37	5.00	47	22-78	2	30
Benzyl Alcohol	3.56	5.00	71	3.82	5.00	76	37-119	7	30
Bis(2-chloroisopropyl) Ether	3.58	5.00	72	3.60	5.00	72	35-113	1	30
2-Methylphenol	3.62	5.00	72	3,59	5.00	72	26-113	1	30
Hexachloroethane	1.74	5.00	35	1.64	5.00	33	11-62	6	30
N-Nitrosodi-n-propylamine	3.72	5.00	74	3.74	5.00	75	32-117	1	30
4-Methylphenol	3.46	5.00	69	3.76	5.00	75	25-118	8	30
Nitrobenzene	3.97	5.00	79	3.97	5.00	79	37-116	0	30
Isophorone	3.96	5.00	79	4.19	5.00	84	39-112	5	30
2-Nitrophenol	3.83	5.00	77	4.16	5.00	83	42-116	8	30
2,4-Dimethylphenol	3.43	5.00	69	3.78	5.00	76	10-113	10	30
Bis(2-chloroethoxy)methane	3.76	5.00	75	3.95	5.00	79	40-113	5	30
2,4-Dichlorophenol	3.90	5.00	78	4.16	5.00	83	39-115	6	30
Benzoic Acid	ND	15.0	0 *	ND	15.0	0 *	10-102		30
1,2,4-Trichlorobenzene	2.46	5.00	49	2.56	5.00	51	21-78	4	30
Naphthalene	2.90	5.00	58	3.30	5.00	66	33-98	13	30
4-Chloroaniline	1.48	5.00	30	2.57	5.00	51	10-119	54 *	30
Hexachlorobutadiene	1.63	5.00	33	1.77	5.00	35	10-61	8	30
4-Chloro-3-methylphenol	3.96	5.00	79	4.39	5.00	88	37-119	10	30
2-Methylnaphthalene	2.86	5.00	57	3.38	5.00	68	32-95	17	30
Hexachlorocyclopentadiene	0.739	5.00	15	0.932	5.00	19	10-39	23	30
2,4,6-Trichlorophenol	3.82	5.00	76	4.41	5.00	88	40-117	14	30
2,4,5-Trichlorophenol	3.92	5.00	78	4.18	5.00	84	44-116	6	30
2-Chloronaphthalene	3.06	5.00	61	3.42	5.00	68	21-115	11	30
2-Nitroaniline	4.18	5.00	84	4.47	5.00	89	43-124	7	30
Acenaphthylene	3.42	5.00	68	3.99	5.00	80	41-114	15	30
Dimethyl Phthalate	4.08	5.00	82	4.36	5.00	87	47-117	7	30
2,6-Dinitrotoluene	4.09	5.00	82	4.50	5.00	90	45-120	9	30
Acenaphthene	3.23	5.00	65	3.67	5.00	73	38-106	13	30
3-Nitroaniline	3.65	5.00	73	4.60	5.00	92	31-125	23	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Printed: 01/13/2009 10:20:02 u:\Stealth\Crystal.rpt\Form3DLC.rpt

Form 3C - Organic

52

SuperSet Reference: RR97700

Page

1 of 2

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0812190 Date Extracted: 12/18/2008

Date Analyzed: 12/30/2008

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Extraction Lot: KWG0813479

Lab Control Sample KWG0813479-1

Duplicate Lab Control Sample KWG0813479-2

	Lab	Control Spik	e	Duplicate	Lab Control	Spike	%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
2,4-Dinitrophenol	0.131	5.00	3 *	0.254	5.00	5 *	10-121	64 *	30
Dibenzofuran	3.37	5.00	67	3.84	5.00	77	40-107	13	30
4-Nitrophenol	3.33	5.00	67	4.21	5.00	84	43-133	23	30
2,4-Dinitrotoluene	4.29	5.00	86	4.50	5.00	90	47-125	5	30
Fluorene	3.44	5.00	69	4.00	5.00	80	40-112	15	30
4-Chlorophenyl Phenyl Ether	3.32	5.00	66	3.67	5.00	73	39-108	10	30
Diethyl Phthalate	4.15	5.00	83	4.51	5.00	90	47-120	9	30
4-Nitroaniline	4.07	5.00	81	4.33	5.00	87	36-128	6	30
2-Methyl-4,6-dinitrophenol	1.28	5.00	26	1.50	5.00	30	19-127	16	30
N-Nitrosodiphenylamine	4.06	5.00	81	4.45	5.00	89	36-114	9	30
4-Bromophenyl Phenyl Ether	3.55	5.00	71	4.17	5.00	83	43-110	16	30
Hexachlorobenzene	3.34	5.00	67	3.80	5.00	76	42-107	13	30
Pentachlorophenol	1.08	5.00	22 *	1.39	5.00	28	28-114	25	30
Phenanthrene	3.56	5.00	71	4.03	5.00	81	43-110	12	30
Anthracene	3.44	5.00	69	3.86	5.00	77	40-110	12	30
Di-n-butyl Phthalate	3.87	5.00	77	4.32	5.00	86	45-135	11	30
Fluoranthene	3.64	5.00	73	4.10	5.00	82	42-119	12	30
Pyrene	3.72	5.00	74	4.13	5.00	83	43-118	10	30
Butyl Benzyl Phthalate	3.82	5.00	76	4.33	5.00	87	48-124	12	30
3,3'-Dichlorobenzidine	3.48	5.00	70	3.66	5.00	73	15-108	5	30
Benz(a)anthracene	3.50	5.00	70	4.01	5.00	80	45-112	14	30
Chrysene	3.60	5.00	72	4.04	5.00	81	47-112	12	30
Bis(2-ethylhexyl) Phthalate	3.81	5.00	76	4.19	5.00	84	32-149	9	30
Di-n-octyl Phthalate	3.54	5.00	71	4.06	5.00	81	49-127	14	30
Benzo(b)fluoranthene	3.50	5.00	70	4.02	5.00	80	45-115	14	30
Benzo(k)fluoranthene	3.53	5.00	71	4.05	5.00	81	46-115	14	30
Benzo(a)pyrene	3.36	5.00	67	3.86	5.00	77	40-117	14	30
Indeno(1,2,3-cd)pyrene	3.49	5.00	70	3.98	5.00	80	44-119	13	30
Dibenz(a,h)anthracene	3.40	5.00	68	3.94	5.00	79	45-118	15	30
Benzo(g,h,i)perylene	3.44	5.00	69	3.90	5.00	78	45-116	13	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

January 21, 2009

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 12/16/08 16:50. The following list is a summary of the Work Orders contained in this report, generated on 01/21/09 13:37.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	<u>ProjectNumber</u>
PRL0548	Portland Harbor	36238

TestAmerica Portland







City of Portland Water Pollution Laboratory Project Name: Portland Harbor

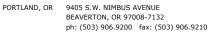
6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 01/21/09 13:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO081475	PRL0548-01	Water	12/12/08 11:57	12/16/08 16:50
FO081476	PRL0548-02	Water	12/12/08 13:21	12/16/08 16:50
FO081477	PRL0548-03	Water	12/12/08 13:32	12/16/08 16:50
FO081478	PRL0548-04	Water	12/12/08 13:10	12/16/08 16:50
FO081479	PRL0548-05	Water	12/12/08 11:44	12/16/08 16:50
FO081480	PRL0548-06	Water	12/12/08 11:20	12/16/08 16:50
FO081481	PRL0548-07	Water	12/12/08 13:44	12/16/08 16:50
FO081482	PRL0548-08	Water	12/12/08 00:00	12/16/08 16:50

TestAmerica Portland

Howard Holmes, Project Manager





ph: (503) 906.9200 fax: (503) 906.92

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 01/21/09 13:37

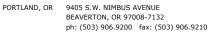
Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PRL0548-03 ((FO081477)			Water Sampled: 12/12/08 13:32							
Indeno (1,2,3-cd) p	yrene	EPA 8270m	0.0145	0.00971	0.00971	ug/l	1x	8120560	12/17/08 10:20	12/29/08 22:25	
Naphthalene		"	ND	0.0291	0.0291	"	"	"	"	"	RL1
Phenanthrene		"	0.0540	0.0194	0.0194	"	"	"	"	"	
Pyrene		"	0.0651	0.0194	0.0194	"	"	"	"	"	
Surrogate(s):	Fluorene-d10				91.1%		25 - 125 %	"			"
	Pyrene-d10				42.9%		23 - 150 %	"			"
	Benzo (a) pyrene-d1	2			62.9%		10 - 125 %	"			"
PRL0548-04 ((FO081478)			W	ater		Sampl	led: 12/12/	08 13:10		
Bis(2-ethylhexyl)ph	thalate	EPA 8270m	2.34	0.511	0.971	ug/l	1x	8120560	12/17/08 10:20	12/29/08 18:05	
Butyl benzyl phthala	ate	"	ND	0.511	0.971	"	"	"	"	"	
Di-n-butyl phthalate		"	ND	0.511	0.971	"	"	"	"	"	
Di-n-octyl phthalate		"	ND	0.511	0.971	"	"	"	"	"	
Diethyl phthalate		"	ND	0.511	0.971	"	"	"	"	"	
Dimethyl phthalate		"	ND	0.511	0.971	"	"	"	"	"	
Acenaphthene		"	ND	0.0194	0.0194	"	"	"	"	12/29/08 22:55	
Acenaphthylene		"	0.0194	0.0194	0.0194	"	"	"	"	"	
Anthracene		"	ND	0.0194	0.0194	"	"	"	"	"	
Benzo (a) anthracei	ne	"	0.0149	0.00971	0.00971	"	"	"	"	"	
Benzo (a) pyrene		"	0.0162	0.00971	0.00971	"	"	"	"	"	
Benzo (b) fluoranth	iene	"	0.0293	0.00971	0.00971	"	"	"	"	"	
Benzo (ghi) perylen	ie	"	0.0302	0.0194	0.0194		"	"	"	"	
Benzo (k) fluoranth	iene	"	0.0192	0.00971	0.00971		"	"	"	"	
Chrysene		"	0.0510	0.00971	0.00971	"	"	"	"	"	
Dibenzo (a,h) anthra	acene	"	ND	0.00971	0.00971	"	"	"	"	"	
Fluoranthene		"	0.107	0.0194	0.0194	"	"	"	"	"	
Fluorene		"	ND	0.0194	0.0194	"	"	"	"	"	
Indeno (1,2,3-cd) p	yrene	"	0.0152	0.00971	0.00971		"	"	"	"	
Naphthalene		"	1.70	0.0194	0.0194	"	"	"	"	"	
Phenanthrene		"	0.107	0.0194	0.0194	"	"	"	"	"	
Pyrene		"	0.0637	0.0194	0.0194	"	"	"	"	"	
Surrogate(s):	Fluorene-d10				91.1%		25 - 125 %	"			n .
	Pyrene-d10				40.8%		23 - 150 %	"			"
	Benzo (a) pyrene-d1	2			53.1%		10 - 125 %	"			"

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

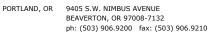
6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 01/21/09 13:37

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes			
PRL0548-05 (FO081479)			W	ater		Sampl	Sampled: 12/12/08 11:44						
Bis(2-ethylhexyl)phthalate	EPA 8270m	0.992	0.511	0.971	ug/l	1x	8120560	12/17/08 10:20	12/29/08 18:36				
Butyl benzyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Di-n-butyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Di-n-octyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Diethyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Dimethyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Acenaphthene	"	ND	0.0194	0.0194	"	"	"	"	12/29/08 23:25				
Acenaphthylene	"	ND	0.0194	0.0194	"	"	"	"	"				
Anthracene	"	ND	0.0194	0.0194	"	"	"	"	"				
Benzo (a) anthracene	"	0.0113	0.00971	0.00971	"	"	"	"	"				
Benzo (a) pyrene	"	0.0123	0.00971	0.00971	"	"	"	"	"				
Benzo (b) fluoranthene	"	0.0217	0.00971	0.00971	"	"	"	"	"				
Benzo (ghi) perylene	"	0.0252	0.0194	0.0194	"	"	"	"	"				
Benzo (k) fluoranthene	"	0.0133	0.00971	0.00971	"	"	"	"	"				
Chrysene	"	0.0410	0.00971	0.00971	"	"	"	"	"				
Dibenzo (a,h) anthracene	"	ND	0.00971	0.00971	"	"	"	"	"				
Fluoranthene	"	0.0883	0.0194	0.0194	"	"	"	"	"				
Fluorene	"	0.0204	0.0194	0.0194	"	"	"	"	"				
Indeno (1,2,3-cd) pyrene	"	0.0119	0.00971	0.00971	"	"	"	"	"				
Naphthalene	"	0.187	0.0194	0.0194	"	"	"	"	"				
Phenanthrene	"	0.102	0.0194	0.0194	"	"	"	"	"				
Pyrene	"	0.0611	0.0194	0.0194	"	"	"	"	"				
Surrogate(s): Fluorene-d1	9			91.9%		25 - 125 %	"			"			
Pyrene-d10	-			41.6%		23 - 150 %	"			"			
Benzo (a) py	rene-d12			41.1%		10 - 125 %	"			"			
PRL0548-06 (FO081480)			w	ater		Sampled: 12/12/08 11:20							
Bis(2-ethylhexyl)phthalate	EPA 8270m	2.24	0.511	0.971	ug/l	1x	8120560	12/17/08 10:20	12/29/08 19:07				
Butyl benzyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Di-n-butyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Di-n-octyl phthalate	"	0.579	0.511	0.971	"	"	"	"	"	J			
Diethyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Dimethyl phthalate	"	ND	0.511	0.971	"	"	"	"	"				
Acenaphthene	"	ND	0.0194	0.0194	"	"	"	"	12/29/08 23:55				
Acenaphthylene	"	0.0312	0.0194	0.0194	"	"	"	"	"				
Anthracene	,,	ND	0.0194	0.0194		,,	,,	,,	,,				

TestAmerica Portland





THE LEADER IN ENVIRONMENTAL TESTING

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 01/21/09 13:37

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PRL0548-06 (FO081480)			W	ater		Samp	led: 12/12/	08 11:20		
Benzo (a) anthracene	EPA 8270m	0.0312	0.00971	0.00971	ug/l	1x	8120560	12/17/08 10:20	12/29/08 23:55	
Benzo (a) pyrene	"	0.0383	0.00971	0.00971	"	"	"	"	"	
Benzo (b) fluoranthene	"	0.0516	0.00971	0.00971	"	"	"	"	"	
Benzo (ghi) perylene	"	0.0704	0.0194	0.0194	"	"	"	"	"	
Benzo (k) fluoranthene	"	0.0372	0.00971	0.00971	"	"	"	"	"	
Chrysene	"	0.0906	0.00971	0.00971	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	0.0104	0.00971	0.00971	"	"	"	"	"	
Fluoranthene	"	0.192	0.0194	0.0194	"	"	"	"	"	
Fluorene	"	0.0194	0.0194	0.0194	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	0.0326	0.00971	0.00971	"	"	"	"	"	
Naphthalene	"	0.781	0.0194	0.0194	"	"	"	"	"	
Phenanthrene	"	0.139	0.0194	0.0194	"	"	"		"	
Pyrene	"	0.0962	0.0194	0.0194	"	"	"	"	"	
Surrogate(s): Fluorene-d10)			95.3%		25 - 125 %	"			n .
Pyrene-d10				46.6%		23 - 150 %	"			"
Benzo (a) pyr	rene-d12			68.1%		10 - 125 %	"			"
PRL0548-07 (FO081481)			W	ater		Samp	led: 12/12/	08 13:44		
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	0.511	0.971	ug/l	1x	8120560	12/17/08 10:20	12/29/08 19:37	
Butyl benzyl phthalate	"	ND	0.511	0.971	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	0.511	0.971	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	0.511	0.971	"	"	"	"	"	
Diethyl phthalate	"	ND	0.511	0.971	"	"	"	"	"	
Dimethyl phthalate	"	ND	0.511	0.971	"	"	"	"	"	
Acenaphthene	"	ND	0.0194	0.0194	"	"	"	"	12/30/08 00:25	
Acenaphthylene	"	ND	0.0194	0.0194	"	"	"	"	"	
Anthracene	"	ND	0.0194	0.0194	"	"	"	"	"	
Benzo (a) anthracene	"	ND	0.00971	0.00971	"	"	"	"	"	
Benzo (a) pyrene	"	ND	0.00971	0.00971	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	0.00971	0.00971	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	0.0194	0.0194	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	0.00971	0.00971	"	"	"	"	"	
Chrysene	"	ND	0.00971	0.00971	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	0.00971	0.00971	"	"	"	"	"	
Fluoranthene	"	ND	0.0194	0.0194	"	"	"	"	"	
Fluorene	"	ND	0.0194	0.0194	"	"	"	"	"	

TestAmerica Portland

Howard Holmes, Project Manager





9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 01/21/09 13:37

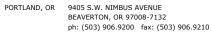
Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PRL0548-07 (FO08	1481)	Water Sampled: 12/12/08 13:44								
Indeno (1,2,3-cd) pyrene	EPA 8270m	ND	0.00971	0.00971	ug/l	1x	8120560	12/17/08 10:20	12/30/08 00:25	
Naphthalene	"	ND	0.0194	0.0194	"	"	"	"	m .	
Phenanthrene	"	ND	0.0194	0.0194	"	"	"	"	m .	
Pyrene	"	ND	0.0194	0.0194	"	"	"	"	"	
Surrogate(s): Fluore	ene-d10			97.2%		25 - 125 %	"		"	
Pyren				56.4%		23 - 150 %	"		"	
Benzo	(a) pyrene-d12			83.0%		10 - 125 %	"		"	
PRL0548-08 (FO08	1482)		W	ater		Samp	led: 12/12/	08 00:00		
Bis(2-ethylhexyl)phthalate	EPA 8270m	2.13	0.511	0.971	ug/l	1x	8120560	12/17/08 10:20	12/29/08 20:08	
Butyl benzyl phthalate	"	ND	0.511	0.971	"	"	"	"	m .	
Di-n-butyl phthalate	"	ND	0.511	0.971	"	"	"		"	
Di-n-octyl phthalate	"	ND	0.511	0.971	"	"	"		"	
Diethyl phthalate	"	ND	0.511	0.971	"	"	"		"	
Dimethyl phthalate	"	ND	0.511	0.971	"	"	"		"	
Acenaphthene	"	ND	0.0194	0.0194	"	"	"		12/30/08 00:55	
Acenaphthylene	"	0.0287	0.0194	0.0194	"	"	"	"	"	
Anthracene	"	0.112	0.0194	0.0194	"	"	"	"	"	
Benzo (a) anthracene	"	0.0231	0.0194	0.0194	"	2x	"	"	12/30/08 17:18	
Benzo (a) pyrene	"	0.0263	0.00971	0.00971	"	1x	"	"	12/30/08 00:55	
Benzo (b) fluoranthene	"	0.0362	0.00971	0.00971	"	"	"	"	"	
Benzo (ghi) perylene	"	0.0527	0.0194	0.0194	"	"	"	"	"	
Benzo (k) fluoranthene	"	0.0271	0.00971	0.00971	"	"	"		"	
Chrysene	"	0.0468	0.0194	0.0194	"	2x	"	"	12/30/08 17:18	
Dibenzo (a,h) anthracene	"	ND	0.00971	0.00971	"	1x	"	"	12/30/08 00:55	
Fluoranthene	"	0.144	0.0194	0.0194	"	"	"		"	
Fluorene	"	0.0365	0.0194	0.0194	"	"	"		"	
Indeno (1,2,3-cd) pyrene	"	0.0216	0.00971	0.00971	"	"	"		"	
Naphthalene	"	0.551	0.0194	0.0194	"	"	"		"	
Phenanthrene	"	0.163	0.0194	0.0194	"	"	"	"	"	
Pyrene	"	0.0523	0.0388	0.0388	"	2x	"	"	12/30/08 17:18	
Surrogate(s): Fluore	ene-d10			93.6%		25 - 125 %	lx		12/30/08	00:55
Pyren	e-d10			29.2%		23 - 150 %	2x		12/30/08	17:18
Benzo	(a) pyrene-d12			63.6%		10 - 125 %	1x		12/30/08	00:55

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 01/21/09 13:37

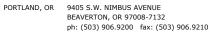
Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 8120560	Water F	Preparation	Method:	3520B Liq-	Liq									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8120560-BLK1)								Extr	acted:	12/17/08 10	:20			
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	0.526	1.00	ug/l	1x							12/29/08 14:59	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"							"	
Diethyl phthalate	"	ND	0.526	1.00	"	"							"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"							"	
Acenaphthene	"	ND	0.0200	0.0200	"	"							12/30/08 01:25	
Acenaphthylene	"	ND	0.0200	0.0200	"	"							"	
Anthracene	"	ND	0.0200	0.0200	"	"							"	
Benzo (a) anthracene	"	ND	0.0100	0.0100	"	"							"	
Benzo (a) pyrene	"	ND	0.0100	0.0100	"	"							"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	"	"							"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	"	"							"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	"	"							"	
Chrysene	"	ND	0.0100	0.0100	"	"							"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"	"							"	
Fluoranthene	"	ND	0.0200	0.0200	"	"							"	
Fluorene	"	ND	0.0200	0.0200	"	"							"	
Indeno (1,2,3-cd) pyrene	"	ND	0.0100	0.0100	"	"							"	
Naphthalene	"	ND	0.0200	0.0200	"	"							"	
Phenanthrene	"	ND	0.0200	0.0200	"	"							"	
Pyrene	"	ND	0.0200	0.0200	"	"							"	
Surrogate(s): Fluorene-d10		Recovery:	92.2%	Lin	nits: 25-125	% "							12/30/08 01:25	;
Pyrene-d10			54.5%		23-150								"	
Benzo (a) pyrene-d12			81.5%		10-125	% "							"	
LCS (8120560-BS1)								Extr	acted:	12/17/08 10	:20			
Bis(2-ethylhexyl)phthalate	EPA 8270m	2.39	0.526	1.00	ug/l	1x		4.00	59.8%	(20-150)			12/29/08 15:30	
Butyl benzyl phthalate	"	2.25	0.526	1.00	"	"		"	56.3%	"			"	
Di-n-butyl phthalate	"	3.60	0.526	1.00	"	"		"	89.9%	"			"	
Di-n-octyl phthalate	"	2.20	0.526	1.00	"	"		"	55.0%	"			"	
Diethyl phthalate	"	3.48	0.526	1.00	"	"		"	86.9%	"			"	
Dimethyl phthalate	"	3.16	0.526	1.00	"	"		,,	78.9%	,,			"	
Acenaphthene	"	2.60	0.0200	0.0200	"	"		2.50	104%	(35-120)			12/29/08 17:21	
Acenaphthylene	"	2.53	0.0200	0.0200	"	"		"	101%	(34-116)			"	
Anthracene	"	2.57	0.0200	0.0200	"	"		"	103%	(24-119)			"	
Benzo (a) anthracene	"	2.12	0.0100	0.0100	"	"		"	84.9%	(36-128)			"	
	"	2.23	0.0100	0.0100	"			,,	89.2%	(17-128)	_			
Benzo (a) pyrene														

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 01/21/09 13:37

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

Cross Cros	QC Batch: 8120560	Water I	Preparation	Method:	3520B Liq-	Liq								
Profession Pro	Analyte	Method	Result	MDL	* MRL	Units	Dil			(Limits)		(Limit	s) Analyzed	Notes
Parameter Para	LCS (8120560-BS1)							Ext	racted:	12/17/08 10	:20			
Character 1	Benzo (ghi) perylene	EPA 8270m	2.26	0.0200	0.0200	ug/l	1x	 2.50	90.4%	(26-126)			12/29/08 17:21	
Disease in the content of the cont	Benzo (k) fluoranthene	"	2.32	0.0100	0.0100	"	"	 "	92.8%	(18-145)			"	
Floorenthmententententententententententententente	Chrysene	"	2.20	0.0100	0.0100	"	"	 "	88.1%	(16-137)			"	
Profession 1	Dibenzo (a,h) anthracene	"	2.28	0.0100	0.0100	"	"	 "	91.2%	(20-141)			"	
Naphtalene	Fluoranthene	"	2.69	0.0200	0.0200	"	"	 "	108%	(31-125)			"	
Napululainer " 2,44 0,020 0,020 " " " 0, 19,7% (30-13) " 0, 20 " " 0, 10, 10, 10, 20 " 0, 20 " 0, 20 " 0, 20 " 0, 20 " 0, 20 10, 20 " 0, 20 "	Fluorene	"	2.56	0.0200	0.0200	"	"	 "	102%	(27-124)			"	
Premaiting	Indeno (1,2,3-cd) pyrene	"	2.29	0.0100	0.0100	"	"	 "	91.4%	(30-135)			"	
Pyrengan(s) Pyrene—d10 Recovery Pyrene—d10 Recovery Pyrene—d10 Recovery Pyrene—d10 Remo (a)	Naphthalene	"	2.44	0.0200	0.0200	"	"	 "	97.7%	(30-113)			"	
Surrogate(s) Fluorene-d10 Recovery 6.5% Limits 25-125% 1 1 1 1 1 1 1 1 1	Phenanthrene	"	2.55	0.0200	0.0200	"	"	 "	102%	(34-126)			"	
Pyrene-d10 St. 6% 22-13% " " " " " " " " "	Pyrene	"	2.16	0.0200	0.0200	"	"	 "	86.6%	(21-141)			"	
Pyrene d D	Surrogate(s): Fluorene-d10		Recovery:	96.5%	Lin	nits: 25-125%	ó "						12/29/08 17:21	
Part	• , ,												"	
Bis (2-ethylhexyl)phthalate	Benzo (a) pyrene-d12			88.4%		10-1259	% "						"	
Bis (2-ethylhexyl)phthalate														
Buyl benzyl phhalate	LCS Dup (8120560-BSD1)							Ext	racted:	12/17/08 10	:20			
Dis-butyl phthalate 1,49	Bis(2-ethylhexyl)phthalate	EPA 8270m	1.68	0.526	1.00	ug/l	1x	 4.00	42.0%	(20-150)	34.8%	(50)	12/29/08 16:00	
Dien-ortyl phthalate " 1.49 0.526 1.00 " " 1 2 1 37.3% " 38.4% " 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Butyl benzyl phthalate	"	2.37	0.526	1.00	"	"	 "	59.3%	"	5.12%	, "	"	
Diethylyphthalate " 3.77 0.526 1.00 " " " " 94.2% " 8.04% " " " " 1000 " " " 1000 " 1000 " " 10000 " 10000 " 1000 " 10000 " 1000 " 10000 " 10000 " 1000 " 10000 " 10000 " 100	Di-n-butyl phthalate	"	3.75	0.526	1.00	"	"	 "	93.8%	"	4.29%	, "	"	
Deling thy pluntation	Di-n-octyl phthalate	"	1.49	0.526	1.00	"	"	 "	37.3%	"	38.4%	, "	"	
Since Sinc	Diethyl phthalate	"	3.77	0.526	1.00	"	"	 "	94.2%	"	8.04%	, "	"	
Acenaphthylene " 2.64 0.0200 0.0200 " " " 106% (34-116) 4.33% " 1 Anthracene " 2.73 0.0200 0.0200 " " " 10 " 10 " 10 " (24-119) 6.22% " 1 10 " 10 " 10 " 10 " 10 " 10 " 10 "	Dimethyl phthalate	"	3.36	0.526	1.00	"	"	 "	84.1%	"	6.35%	, "	"	
Anthracene " 2.73 0.0200 0.0200 " " - 100% (34-11) 6.22% " " " Benzo (a) anthracene " 2.14 0.0100 0.0100 " " - 2.34 0.0100 0.0100 " " - 3.38% (36-128) 1.07% " " " Benzo (a) pyrene " 2.34 0.0100 0.0100 " " " - 2.34 0.0100 0.0100 " " " - 3.38% (17-128) 5.06% " " " Benzo (b) fluoranthene " 2.60 0.0100 0.0100 " " " - 2.31 0.0200 0.0200 " " " - 3.38% (37-131) 21.2% " " " Benzo (b) fluoranthene " 2.31 0.0200 0.0200 " " " - 2.38 (26-126) 2.03% " " " " Benzo (b) fluoranthene " 2.13 0.0100 0.0100 " " " - 2.38 (26-126) 2.03% " " " " Benzo (b) fluoranthene " 2.32 0.0100 0.0100 " " " - 2.38 (26-126) 2.03% " " " " " " Benzo (a) h) anthracene " 2.32 0.0100 0.0100 " " " - 2.38 (26-126) 2.03% " " " " " " " Benzo (a) h) anthracene " 2.32 0.0100 0.0100 " " " - 2.38 (26-126) 2.03% " " " " " " " " " " " " " " " " " " "	Acenaphthene	"	2.73	0.0200	0.0200	"	"	 2.50	109%	(35-120)	5.05%	(35)	12/29/08 17:53	
Benzo (a) anthracene " 2.14 0.0100 0.0100 " " 5.28	Acenaphthylene	"	2.64	0.0200	0.0200	"	"	 "	106%	(34-116)	4.33%	, "	"	
Benzo (a) pyrene " 2.34 0.0100 0.0100 " " " 2.0 " 93.8% (17-128) 5.06% " " Benzo (b) fluoranthene " 2.60 0.0100 0.0100 " " " 2.0 " 104% (37-131) 21.2% " " Benzo (b) fluoranthene " 2.31 0.0200 0.0200 " " " 2.0 " 92.3% (26-126) 2.03% " " Benzo (b) fluoranthene " 2.13 0.0100 0.0100 " " 2.0 " 85.1% (18-145) 8.72% " " Benzo (k) fluoranthene " 2.13 0.0100 0.0100 " " 2.0 " 93.0% (16-137) 5.34% " " Benzo (k) fluoranthene " 2.32 0.0100 0.0100 " 2.0 " 2.0 " 93.0% (16-137) 5.34% " 2.0 " 2.0 Dibenzo (a,h) anthracene " 2.32 0.0100 0.0100 " 2.0 " 2.0 " 92.6% (20-141) 1.56% " 2.0 " 116% (31-125) 7.07% " 2.0 " 116% (31-125) 7.07% " 2.0 "	Anthracene	"	2.73	0.0200	0.0200	"	"	 "	109%	(24-119)	6.22%	, "	"	
Benzo (b) fluoranthene " 2.60 0.0100 0.0100 " " - " 104% (37-131) 21.2% " " Benzo (b) fluoranthene " 2.31 0.0200 0.0200 " " - " 2.31 0.0100 0.0100 " " 2.31 0.0100 0.0100 " " 2.31 0.0100 0.0100 " " 2.31 0.0100 0.0100 " " 2.31 0.0100 0.0100 " " 2.31 0.0100 0.0100 " " 2.31 0.0100 0.0100 " " 2.32 0.0100 0.0100 " " 2.32 0.0100 0.0100 " " 2.32 0.0100 0.0100 " " 2.32 0.0100 0.0100 " " 2.32 0.0100 0.0100 " " 2.33 0.0100 0.0100 " " 2.34 0.0100 0.0100 " " 2.34 0.0100 0.0100 " 2.35 0.0100 0.0100 " " 2.35 0.0100 0.0100 " " 2.35 0.0100 0.0100 " " 2.35 0.0100 0.0200 " " 2.35 0.01000 0.0200 " " 2.35 0.0100 0.0200 " " 2.35 0.0100 0.0200 " " 2.35 0.0100 0.0200 " " 2.35 0.0100 0.0200 " " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " " 2.35 0.0100 0.0200 " " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35 0.0100 0.0200 " 2.35	Benzo (a) anthracene	"	2.14	0.0100	0.0100	"	"	 "	85.8%	(36-128)	1.07%	, "	"	
Benzo (ghi) perylene " 2.31 0.0200 0.0200 " " " 92.3% (26-126) 2.03% " " Benzo (ghi) perylene " 2.31 0.0200 0.0100 " " " 92.3% (26-126) 2.03% " " " Chrysene " 2.32 0.0100 0.0100 " " " 93.0% (16-137) 5.34% " " Dibenzo (a,h) anthracene " 2.32 0.0100 0.0100 " " " 92.6% (20-141) 1.56% " " Fluoranthene " 2.89 0.0200 0.0200 " " " 116% (31-125) 7.07% " " Fluorene " 2.69 0.0200 0.0200 " " " 108% (27-124) 5.24% " " Naphthalene " 2.32 0.0100 0.0100 " " " 108% (27-124) 5.24% " " Naphthalene " 2.54 0.0200 0.0200 " " " 102% (30-113) 4.03% " " Phenanthrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " 108% (34-126) 5.96% " " " " 108% (34-126) 5.96% " " " " 108% (34-126) 5.96% " " " " 108% (34-126) 5.96% " " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " 108% (34-126) 5.96% " " " " " " " " " " " " " " " " " "	Benzo (a) pyrene	"	2.34	0.0100	0.0100	"	"	 "	93.8%	(17-128)	5.06%	, "	"	
Benzo (k) fluoranthene " 2.13 0.0100 0.0100 " " " 85.1% (18-145) 8.72% " " " Chrysene " 2.32 0.0100 0.0100 " " " 93.0% (16-137) 5.34% " " " Dibenzo (a,h) anthracene " 2.89 0.0200 0.0200 " " " 116% (31-125) 7.07% " " " Fluoranthene " 2.69 0.0200 0.0200 " " " 108% (27-124) 5.24% " " " Indeno (1,2,3-cd) pyrene " 2.32 0.0100 0.0100 " " " 102% (30-113) 4.03% " " " Phenanthrene " 2.54 0.0200 0.0200 " " " 102% (30-113) 4.03% " " " Pyrene " 2.05 0.0200 0.0200 " " " 108% (34-126) 5.96% " " "	Benzo (b) fluoranthene	"	2.60	0.0100	0.0100	"	"	 "	104%	(37-131)	21.2%	, "	"	
Chrysene " 2.32 0.0100 0.0100 " " " 93.0% (16-137) 5.34% " " " Dibenzo (a,h) anthracene " 2.32 0.0100 0.0200 " " " 92.6% (20-141) 1.56% " " Fluoranthene " 2.89 0.0200 0.0200 " " " 116% (31-125) 7.07% " " Fluorene " 2.69 0.0200 0.0200 " " " 108% (27-124) 5.24% " " Indeno (1,2,3-cd) pyrene " 2.32 0.0100 0.0100 " " " 92.9% (30-135) 1.59% " " Naphthalene " 2.54 0.0200 0.0200 " " " 102% (30-113) 4.03% " " Phenanthrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 108% (34-126) 5.96% " "	Benzo (ghi) perylene	"	2.31	0.0200	0.0200	"	"	 "	92.3%	(26-126)	2.03%	, "	"	
Dibenzo (a,h) anthracene " 2.32 0.0100 0.0100 " " " 92.6% (20-141) 1.56% " " Fluoranthene " 2.89 0.0200 0.0200 " " " 116% (31-125) 7.07% " " Fluorene " 2.69 0.0200 0.0200 " " " 108% (27-124) 5.24% " " Indeno (1,2,3-cd) pyrene " 2.32 0.0100 0.0100 " " " 92.9% (30-135) 1.59% " " Naphthalene " 2.54 0.0200 0.0200 " " " 102% (30-113) 4.03% " " Pyrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 82.2% (21-141) 5.20% </td <td>Benzo (k) fluoranthene</td> <td>"</td> <td>2.13</td> <td>0.0100</td> <td>0.0100</td> <td>"</td> <td>"</td> <td> "</td> <td>85.1%</td> <td>(18-145)</td> <td>8.72%</td> <td>, "</td> <td>"</td> <td></td>	Benzo (k) fluoranthene	"	2.13	0.0100	0.0100	"	"	 "	85.1%	(18-145)	8.72%	, "	"	
Fluoranthene " 2.89 0.0200 0.0200 " " " 116% (31-125) 7.07% " " Fluorene " 2.69 0.0200 0.0200 " " " 108% (27-124) 5.24% " " Indeno (1,2,3-cd) pyrene " 2.32 0.0100 0.0100 " " " 92.9% (30-135) 1.59% " " Naphthalene " 2.54 0.0200 0.0200 " " " 102% (30-113) 4.03% " " Phenanthrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 82.2% (21-141) 5.20% " "	Chrysene	"	2.32	0.0100	0.0100	"	"	 "	93.0%	(16-137)	5.34%	, "	"	
Fluorene " 2.69 0.0200 0.0200 " " " 108% (27-124) 5.24% " " Indeno (1,2,3-cd) pyrene " 2.32 0.0100 0.0100 " " " 92.9% (30-135) 1.59% " " Naphthalene " 2.54 0.0200 0.0200 " " " 102% (30-113) 4.03% " " Phenanthrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 82.2% (21-141) 5.20% " "	Dibenzo (a,h) anthracene	"	2.32	0.0100	0.0100	"	"	 "	92.6%	(20-141)	1.56%	, "	"	
Indeno (1,2,3-cd) pyrene " 2.32 0.0100 0.0100 " " " 92.9% (30-135) 1.59% " " Naphthalene " 2.54 0.0200 0.0200 " " " 102% (30-113) 4.03% " " Phenanthrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 82.2% (21-141) 5.20% " "	Fluoranthene	"	2.89	0.0200	0.0200	"	"	 "	116%	(31-125)	7.07%	, "	"	
Naphthalene " 2.54 0.0200 0.0200 " " " 102% (30-135) 1.39% " " Phenanthrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 82.2% (21-141) 5.20% " "	Fluorene	"	2.69	0.0200	0.0200	"	"	 "	108%	(27-124)	5.24%	, "	"	
Naphthalene " 2.54 0.0200 0.0200 " " " 102% (30-113) 4.03% " " Phenanthrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 82.2% (21-141) 5.20% " "		"				"		 "					"	
Phenanthrene " 2.71 0.0200 0.0200 " " " 108% (34-126) 5.96% " " Pyrene " 2.05 0.0200 0.0200 " " " 82.2% (21-141) 5.20% " "	***	"				"	"	 "					"	
Pyrene " 2.05 0.0200 0.0200 " " " 82.2% (21-141) 5.20% " "	-	"				"	"	 "					"	
` ` '		"				"	"	 "						
Surrogate(s): Fluorene-d10 Recovery: 99.3% Limits: 25-125% " 12/29/08 17:53	Surrogate(s): Fluorene-d10		Recovery:				ć "			/			12/29/08 17:53	

TestAmerica Portland

Howard Holmes, Project Manager

Pyrene-d10

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

23-150%

79.1%



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford01/21/09 13:37

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 8120560 Water Preparation Method: 3520B Liq-Liq

Analyte Method Result MDL* MRL Units Dil Source Spike % (Limits) % (Limits) Analyzed Notes Result Amt REC

LCS Dup (8120560-BSD1) Extracted: 12/17/08 10:20

Surrogate(s): Benzo (a) pyrene-d12 Recovery: 91.8% Limits: 10-125% 1x 12/29/08 17:53

TestAmerica Portland

Howard Holmes, Project Manage



9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

THE LEADER IN ENVIRONMENTAL TESTING

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. 36238 Report Created: Project Number: Portland, OR 97203 Project Manager: Jennifer Shackelford 01/21/09 13:37

Notes and Definitions

Report Specific Notes:

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

Reporting limit raised due to sample matrix effects. RL1

Laboratory Reporting Conventions:

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA _ Not Reported / Not Available

dry Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries). RPD

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits

percent solids, where applicable.

Electronic Signature

- Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland



11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 11922 E. First Ave, Spokane, WA 99206-5302

9405 SW Nimbus Ave.Beaverton, OR 97008-7145

2000 W. International Airport Rd Ste A10, Anchorage, AK 99502-1119

425-420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 503-906-9200 FAX 906 9210 907-563-9200 FAX 563-9210

	CHAIN OF CUSTODY REPORT	00105/18
CLIENT City of Portland	INVOICE TO:	Work Order #: 10548
REPORT TO:	C0 and $C0$	TURNAROUND REQUEST in Business Days *
REPORT TO: ADDRESS: Jennifer Shackel ford	Charles Lytle	Organic & Inorganic Analyses
PHONE: FAX:	P.O. NUMBER: 34238	7 5 4 3 2 1 <1 Petroleum Hydrocarbon Analyses
PROJECT NAME: Partland Harbor	PRESERVATIVE	Petroleum Hydrocarbon Analyses
PROJECT NUMBER: Starmwater Sa		5 4 3 2 1 <1
SAMPLED BY:	REQUESTED ANALYSES	OTHER Specify:
7000		* Turnaround Requests less than standard may incur Rush Charges.
CLIENT SAMPLE SAMPLING DATE/TIME VAN DATE/TIME		MATRIX # OF LOCATION/ TA
FO081475 12/12/08 1157 X X		COMMENTS WORD
1,1,7/		W Z
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1478 1310 X X		
		W 2
		WZ
6 1480) 1120 X X		WZ
$\frac{1481}{1344} \times \times$		
1482 - XX		WZ
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PRINT NAME: DOS FIRM: TAD	TIME: 16.50 PRINT NAME: NAME: NAME:	DATE: 12/110/18
ADDITIONAL REMARKS: Place U.S. CALL PRULAL	Li del l'al marie de la company de la compan	FIRM: TIME: TO TEMP:
CACAL WAS UNS FORM I MITTIPA	Halate list as for UIC project of Ly	w DU, 13 11
COngenera -	to Pace Analytical -	7 TAL-1000(0408)
J	/ handes	2-1

TestAmerica Sample Receipt Checklist Cooler (D(c) Work Order No. 110548 Received by: Unpacked by: Logged-in by: *(section B) Client: (6 Initials: Temperature out of range: Initials:---Not enough ice ***ESI Clients (see Section C) No Ice _lce Melted Diai #1 _W/in 4 Hours Digi #2 Other: glass NA (oil/air samples, ESI client) Temperature Blank: Custody Seals: (# В Sample Status: (If N circled, see NOD) Signature: Y N Dated: General: Received from, None Intact? Ν **TA Courier** Container Type: # Containers Match COC? _Senvoy none given #Cooler(s) UPS IDs Match COC? Ν #Box(s) Fed Ex For Analyses Requested: None (#Other: Client Cyanide Checked? TDP Correct Type & Preservation? Coolant Type: DHL Gelice Adequate Volume? Ν SDS oose Ice Within Hold Time? ____Mid-Valley None Volatiles/ Oil Quality: GS/TA VOAs/ Syringes free of Headspace? Y Packing Material: GS/Senvoy NA **Bubble Bags** Other: TB on COC? not provided NA Styrøfoam Cubbies Metals: **Peanuts HNO3 Preserved?** NA None (Other: **Dissolved Metals Filtered?** ESI Clients Only: FED EX/ UPS: Was the tracking paper keepable? Temperature Blank: °C not provided Digi: #1 #2 If circled NO, what is the Tracking number? __ All preserved bottles checked NA (voas/soils/all unp.) FED EX Goldstreak **UPS** All preserved accordingly? DHL Other: ____ Y N (see NOD) NA (voas/soils/all unp.) Project Managers: Comments:

(Initial/Date)

PM Reviewed:



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

Report Prepared for:

Howard Holmes Test America 9405 SW Nimbus Avenue Beaverton OR 97008

> REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 1086550

Sample Receipt Date: 12/18/2008

Client Project #: PRL0548

Client Sub PO #: N/A

State Cert #: MN200001-005

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed and prepared by:

got C. Muye

Scott Unze, Project Manager (612) 607-6383

(612) 607-6444 (fax) scott.unze@pacelabs.com



Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

January 20, 2009



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on eight samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.5 parts-per-trillion and were adjusted for sample volume.

The isotopically-labeled PCB internal standards in the sample extracts were recovered at 46-235%. With fourteen exceptions, the labeled internal standard recoveries obtained for this project were within the target ranges specified in the method. Since the quantification of the native PCB congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of PCB congeners at the reporting limits. This indicates that the analytical process did not introduce significant levels of PCB congeners to the sample extracts.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native compounds in the lab spikes were recovered at 87-116% with relative percent differences of 11.9-18.8%. These results indicate high degrees of accuracy and precsion for these determinations. Matrix spikes were not prepared with the sample set.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Appendix A

Sample Management

SUBCONTRACT ORDER TestAmerica Portland PRL0548

SENDING LABORATORY:

TestAmerica Portland 9405 SW Nimbus Ave. Beaverton, OR 97008 Phone: (503) 906-9200

Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone :(612) 607-1700

Fax: (612) 607-6444 Project Location:

Receipt Temperature:___

°C Ice: Y / N

			<u> </u>			
Units	Due	Expires		Comments		
		······································			108655	000
				FZ9 60	11176	
			12/12/08 11:57		14/2	
ug/l	12/31/08	06/10/09 11:57		***209 Congeners	s to Pace	
						00
Water			12/12/08 13:21	PO DE	14/6	
ug/l	12/31/08	06/10/09 13:21		***209 Congeners	s*** to Pace	
						00
Water		Sampled:	12/12/08 13:32	FO 081	1477	
ug/l	12/31/08	06/10/09 13:32		***209 Congeners	s*** to Pace	
					- 01/	00
Water		Sampled:	12/12/08 13:10	FO 08		
ug/l	12/31/08	06/10/09 13:10		***209 Congeners	*** to Pace	
· · · · · · · · · · · · · · · · · · ·						3 0
Water		Sampled:	12/12/08 11:44	FODE	314 6	
ug/l	12/31/08	06/10/09 11:44		***209 Congeners	s*** to Pace 🏅	
						A A
Water		Sampled:	12/12/08 11:20	FO 08	1480	00
ug/l	12/31/08	06/10/09 11:20		***209 Congeners	s*** to Pace	
		•				
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Released By Date/

Released Report No.....1086550_1668 ime

//<u>////08_08</u>\$5 Date/Time Repaired By

12/18/08 0437 T-1.4.

Received By

Date/Time Page 1 of 2 Page 4 of 73

SUBCONTRACT ORDER

TestAmerica Portland PRL0548

Analysis	Units	Due	Expires	Comments
Sample ID: PRL0548-07	Water		Sampled: 12/12/08 13:44	108655000, FO 081481
1668 Coplanar PCBs - SUB	ug/l	12/31/08	06/10/09 13:44	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (B)				
Sample ID: PRL0548-08	Water		Sampled: 12/12/08 00:00	FO081482 008
1668 Coplanar PCBs - SUB	ug/l	12/31/08	06/10/09 00:00	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (B)				

	sv. acminiara aminintom abom c	<u>ଏକରକ୍ୟାରନ୍ନ୍ୟ </u>
Pace Analytical Client I	Name: 195+ Au	1977 ca Project # 1086SST
<i>:</i>	TO ME TO THE PARTY OF THE PARTY	100000
Courier: Ded Ex UPS USPS Tracking #: 976 57118457	Client Commercial Pace	Other Optional Proj. Due Date:
Custody Seal on Cooler/Box Present:	Nes 🗌 no Seals intact: 🛭	Ges ☐ no
Packing Material: 🔲 Bubble Wrap	Bubble Bags None Other	Temp Blank: Yes / No
Thermometer Used 80344042 179425	The same of the sa	
Cooler Temperature 1. 4"	Biological Tissue is Frozen:	2 process 1400 DCG
Temp should be above freezing to 6°C	Comments	contents:
Chain of Custody Present:	LEVES []No []N/A 1.	2(3-1)
Chain of Custody Filled Out:	Pes DNo DNA 2	THE REAL PROPERTY OF THE PROPE
Chain of Custody Relinquished:	ØKØs □No □N/A 3.	The second secon
Sampler Name & Signature on COC:	□Yes WA 4.	2865 at 1604 100 \$1004 100 to 1605 1005 1005 1005 1006 1006 1006 1006
Samples Arrived within Hold Time:	Maries ONO DINA 5.	SOUTH COMBREACH MONTH CONTINUES AND SPACED AND AND AND AND AND AND AND AND AND AN
Short Hold Time Analysis (<72hr):	Dyes Willio DN/A 6.	A SAMPLETT OF LABORITY STORES AND A SECURITY STORES AND A SECURITY STORES AND ASSOCIATION OF THE
Rush Turn Around Time Requested:	Dyes 1000 DNA 7.	SECTION OF THE PROPERTY OF THE
Sufficient Volume:	Wes DNo DNA 8.	ACCUMENTATION THE EXPLOSE GYET THE CONTRACT OF
Correct Containers Used:	Ges DNO DNA 9	AND RESIDENCE AND ADDRESS STEEL ST
-Pace Containers Used:		
Containers Intact:	Liyes (No Onia 10.	NELL-MANAGEMENT (VIIII) AND
Filtered volume received for Dissolved tests	AND THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER,	
Sample Labels match COC:	Dyes DNo AMA 11.	
	LIT ONO DIMA 12.	
-Includes date/time/ID/Analysis Matrix: All containers needing acid/base preservation have been	7	在上午中,我们我们就要看到人们还是在我们的身份,一个时间,我们们的时候,他们就是这个人们的,我们就是这个人们的,我们就是一个人们的,我们们们的一个人们的,他们们
checked. Noncompliance are noted in 13.	□Yes □No DAOVA 13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	n □yes □no □AAA	•
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (wa	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	□Yes □No □NNA 14.	
Headspace in VOA Vials (>6mm):	□Yes □No □N/A 15.	·····································
Trip Blank Present:	□Yes □No ☑N/A 16.	
Trip Blank Custody Seals Present	UYes UNO DA/A	
Pace Trip Blank Lot # (if purchased):		
Client Notification/ Resolution:		Field Data Required? Y / N
Person Contacted:	Date/Time:	•
Commantal Paralution:		THE STATE OF PARTY AND ADDRESS OF THE STATE
		p p
Project Manager Review;	(v)	Date: 12/19/08

Note: When experte No disort 0.86550 ind 6666 VI & WED 12/16/08

Page 6 of 73

Certification Office (Le. out of hold incorrect preservative out of targe incorrect contained)

Appendix B

Sample Analysis Summary



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID
Lab Sample ID
Filename

Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted ICAL ID

CCal Filename(s)
Method Blank ID

PRL0548-05;FO081479

1086550005

P90117A_07 BAL

1030 mL NA NA P90117A01 P90117A_02 Matrix Water Dilution NA

Collected 12/12/2008 Received 12/18/2008 Extracted 01/05/2009 Analyzed 01/17/2009

Method Blank ID BLANK-18669 Analyzed 01/17/2009 14:19

PCB Isomer IUPAC RT Ratio ng's Added ng's Found % Recovery

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.121	3.14	2.0	1.44	72
13C-4-MoCB	3 4	10.177	3.04	2.0	1.45	73
13C-2,2'-DiCB	4	10.512	1.59	2.0	1.57	78
13C-4,4'-DiCB	15	18.445	1.44	2.0	1.66	83 N2
13C-2,2',6-TrCB	19	14.790	1.09	2.0	1.71	85
13C-3,4,4'-TrCB	37	26.772	1.03	2.0	1.41	70
13C-2,2',6,6'-TeCB	54	18.756	0.80	2.0	1.63	82
13C-3,4,4',5-TeCB	81	34.150	0.79	2.0	1.22	61
13C-3,3',4,4'-TeCB	77	34.753	0.80	2.0	1.30	65
13C-2,2',4,6,6'-PeCB	104	25.363	1.55	2.0	1.88	94
13C-2,3,3',4,4'-PeCB	105	38.409	1.57	2.0	1.18	59
13C-2,3,4,4',5-PeCB	114	37.738	1.54	2.0	1.13	56
13C-2,3',4,4',5-PeCB	118	37.219	1.57	2.0	1.22	61
13C-2,3',4,4',5'-PeCB	123	36.866	1.51	2.0	1.18	59
13C-3,3',4,4',5-PeCB	126	41.646	1.55	2.0	1.05	52
13C-2,2',4,4',6,6'-HxCB	155	31.668	1.29	2.0	2.37	118
13C-HxCB (156/157)	156/157	44.714	1.23	4.0	2.40	60
13C-2,3',4,4`,5,5'-HxĆB	167	43.574	1.24	2.0	1.25	63
13C-3,3',4,4',5,5'-HxCB	169	48.068	1.28	2.0	1.14	57
13C-2,2',3,4',5,6,6'-HpCB	188	37.722	1.04	2.0	3.26	163 P
13C-2,3,3',4,4',5,5'-HpCB	189	50.595	1.02	2.0	1.64	82
13C-2.2'.3.3'.5.5'.6.6'-OcCB	202	43.255	0.91	2.0	2.73	137
13C-2,3,3',4,4',5,5',6-OcCB	205	53.182	0.89	2.0	1.46	73
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.906	0.78	2.0	1.69	84
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.035	0.82	2.0	1.92	96
13CDeCB	209	56.480	0.71	2.0	1.64	82
Cleanup Standards						
13C-2,4,4'-TrCB	28	22.177	1.04	2.0	1.54	77
13C-2,3,3',5,5'-PeCB	111	34.837	1.57	2.0	1.61	81
13C-2,2',3,3',5,5',6-HpCB	178	40.908	1.05	2.0	2.01	100
Recovery Standards						
13C-2,5-DiCB	9	13.316	1.55	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.323	0.81	2.0	NA	ŇÁ
13C-2,2',4,5,5'-PeCB	101	31.936	1.58	2.0	NA NA	NA NA
13C-2,2',3,4,4',5'-HxCB	138	40.421	1.26	2.0	NA NA	NA NA
13C-2,2',3,4,4',5,5'-OcCB	194	52.686	0.88	2.0	NA NA	NA NA
100-2,2,0,0,7,4,0,0-0000	134	52.000	0.00	2.0	INA	INA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-05;FO081479 1086550005 P90117A_07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.487
2				ND		0.487
3				ND		0.487
4				ND		0.487
5				ND		0.487
6				ND		0.487
7				ND		0.487
8				ND		0.487
9				ND		0.487
10				ND		0.487
11				ND		0.585
12	12/13			ND		0.487
13	12/13			ND		0.487
14	12/13			ND ND		0.487
15		18.469	1.49	1.35 N2		0.487
16		18.373	1.49	1.32		0.487
17		17.822	1.05	1.08		0.487
	40/20	17.022				
18	18/30	17.306	1.03	2.14		0.487
19	00/00		4.00	ND		0.487
20	20/28	22.194	1.00	7.21		0.585
21	21/33	22.462	0.98	2.13		0.487
22		22.915	0.98	3.21		0.487
23				ND		0.487
24				ND		0.487
25				ND		0.487
26	26/29	21.188	1.00	0.873		0.487
27				ND		0.487
28	20/28	22.194	1.00	(7.21)		0.585
29	26/29	21.188	1.00	(0.873)		0.487
30	18/30	17.306	1.03	(2.14)		0.487
31		21.842	0.99	4.13		0.487
32		19.058	0.99	0.969		0.487
33	21/33	22.462	0.98	(2.13)		0.487
34				ND		0.487
35				ND		0.487
36				ND		0.487
37		26.805	1.00	6.00		0.487
38				ND		0.487
39				ND		0.487
40	40/41/71	26.570	0.79	8.55		0.487
41	40/41/71	26.570	0.79	(8.55)		0.487
42		26.034	0.76	3.42		0.487
43				ND		0.487
44	44/47/65	25.447	0.78	10.6		0.585
45	45/51	22.244	0.79	1.65		0.487
46	.0/01	22.596	0.80	0.625		0.487
47	44/47/65	25.447	0.78	(10.6)		0.585
48	, 11700	25.212	0.78	2.33		0.487
.0		20.212	0.70	2.00		0.107

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
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Nn = Value obtained from additional analyses

ND = Not Detected
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*= See Discussion
! = Outside QC Limits
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-05;FO081479 1086550005 P90117A_07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69	24.910	0.77	5.55		0.487
50	50/53	21.473	0.78	1.03		0.487
51	45/51	22.244	0.79	(1.65)		0.487
52		24.357	0.78	`10.3		0.487
53	50/53	21.473	0.78	(1.03)		0.487
54				` NĎ		0.487
55				ND		0.487
56		30.763	0.75	6.27		0.487
57				ND		0.487
58				ND		0.487
59	59/62/75	25.816	0.78	1.16		0.487
60		30.997	0.76	3.39		0.487
61	61/70/74/76	29.723	0.76	19.4		0.487
62	59/62/75	25.816	0.78	(1.16)		0.487
63				` NĎ		0.487
64		26.839	0.77	5.71		0.487
65	44/47/65	25.447	0.78	(10.6)		0.585
66		30.058	0.75	10.5		0.487
67				ND		0.487
68				ND		0.487
69	49/69	24.910	0.77	(5.55)		0.487
70	61/70/74/76	29.723	0.76	(19.4)		0.487
71	40/41/71	26.570	0.79	(8.55)		0.487
72				NĎ		0.487
73				ND		0.487
74	61/70/74/76	29.723	0.76	(19.4)		0.487
75	59/62/75	25.816	0.78	(1.16)		0.487
76	61/70/74/76	29.723	0.76	(19.4)		0.487
77		34.770	0.75	2.79		0.487
78				ND		0.487
79				ND		0.487
80				ND		0.487
81				ND		0.487
82		34.334	1.61	3.96		0.487
83		32.423	1.59	1.26		0.487
84	05/440/447	29.874	1.57	5.56		0.487
85	85/116/117	33.848	1.56	4.98		0.585
86	86/87/97/108/119/125	33.144	1.55	18.4		0.975
87	86/87/97/108/119/125	33.144	1.55	(18.4)		0.975
88	88/91	29.656	1.57	2.82		0.487
89	00/404/442		 4.50	ND		0.487
90	90/101/113	31.970	1.58	21.8		0.487
91	88/91	29.656	1.57	(2.82)		0.487
92	02/08/400/402	31.333	1.56	3.46		0.487
93 94	93/98/100/102	29.102	1.54	0.826		0.731
94 95		 28.717	1.57	ND		0.487
		28.717	1.57	14.1 ND		0.487
96				ND		0.487

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-05;FO081479 1086550005

P90117A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	33.144	1.55	(18.4)		0.975
98	93/98/100/102	29.102	1.54	(0.826)		0.731
99	30,00,100,100	32.574	1.59	9.05		0.487
100	93/98/100/102	29.102	1.54	(0.826)		0.731
101	90/101/113	31.970	1.58	(21.8)		0.487
102	93/98/100/102	29.102	1.54	(0.826)		0.731
103	30,00,100,100			ND		0.487
104				ND		0.487
105		38.426	1.52	14.9		0.487
106				ND		0.487
107	107/124	36.514	1.48	1.04		0.487
108	86/87/97/108/119/125	33.144	1.55	(18.4)		0.975
109	30,01,01,100,110,120	36.783	1.52	1.73		0.487
110	110/115	34.032	1.57	33.1		0.487
111				ND		0.487
112				ND		0.487
113	90/101/113	31.970	1.58	(21.8)		0.487
114		37.772	1.43	0.710		0.487
115	110/115	34.032	1.57	(33.1)		0.487
116	85/116/117	33.848	1.56	(4.98)		0.585
117	85/116/117	33.848	1.56	(4.98)		0.585
118		37.235	1.51	28.4		0.487
119	86/87/97/108/119/125	33.144	1.55	(18.4)		0.975
120				ND		0.487
121				ND		0.487
122				ND		0.487
123				ND		0.487
124	107/124	36.514	1.48	(1.04)		0.487
125	86/87/97/108/119/125	33.144	1.55	(18.4)		0.975
126				` NĎ		0.487
127				ND		0.487
128	128/166	41.713	1.24	6.96		0.975
129	129/138/163	40.455	1.25	43.6		0.487
130		39.784	1.28	2.31		0.487
131				ND		0.487
132		37.269	1.24	13.0		0.487
133				ND		0.487
134	134/143	36.179	1.23	1.48		0.487
135	135/151	35.022	1.24	11.0		0.497
136		32.406	1.25	3.74		0.487
137		40.019	1.25	2.13		0.487
138	129/138/163	40.455	1.25	(43.6)		0.487
139	139/140	36.615	1.24	0.525		0.487
140	139/140	36.615	1.24	(0.525)		0.487
141		39.382	1.27	6.98		0.487
142				ND		0.487
143	134/143	36.179	1.23	(1.48)		0.487
144		35.564	1.26	`1.61 N2		0.487

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename

PRL0548-05;FO081479 1086550005 P90117A_07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
145				ND		0.487
146		38.560	1.24	4.42		0.487
147	147/149	35.994	1.25	26.1		0.487
148	-			ND		0.487
149	147/149	35.994	1.25	(26.1)		0.487
150	,			ND		0.487
151	135/151	35.022	1.24	(11.0)		0.497
152	100/101			ND		0.487
153	153/168	39.197	1.26	30.6		0.585
154	193/100	39.197		ND		0.487
155				ND		0.487
156	156/157	44.731	1.20	5.87		0.467
	156/157			(5.87)		
157	156/157	44.731	1.20 1.24	4.14		0.975 0.487
158		40.857				
159				ND ND		0.487
160				ND		0.487
161				ND		0.487
162	400/400/400	40.455	4.05	ND (40.6)		0.487
163	129/138/163	40.455	1.25	(43.6)		0.487
164		40.136	1.25	2.44		0.487
165	100/100			ND (2.22)		0.487
166	128/166	41.713	1.24	(6.96)		0.975
167	450/400	43.591	1.18	1.66		0.487
168	153/168	39.197	1.26	(30.6)		0.585
169				ND		0.487
170	474/470	47.414	1.04	11.4		0.487
171	171/173	43.792	1.05	3.25		0.487
172	474/470	45.502	1.04	1.82		0.487
173	171/173	43.792	1.05	(3.25)		0.487
174		42.702	1.05	11.9		0.487
175				ND		0.487
176		38.979	1.04	1.28		0.487
177		43.155	1.04	6.42		0.487
178		40.925	1.03	2.12		0.487
179		38.057	1.06	4.14		0.487
180	180/193	46.156	1.04	25.9		0.487
181				ND		0.487
182				ND		0.487
183	183/185	42.501	1.03	7.36		0.487
184				ND		0.487
185	183/185	42.501	1.03	(7.36)		0.487
186				NĎ		0.487
187		41.864	1.07	13.1		0.487
188				ND		0.487
189		50.617	0.98	0.490		0.487
190		47.967	1.04	2.47		0.487
191				ND		0.487
192				ND		0.487

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-05;FO081479 1086550005 P90117A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.156	1.04	(25.9)		0.487
194		52.729	0.89	6.39		0.487
195		50.315	0.90	2.43		0.487
196		48.789	0.88	3.28		0.682
197	197/200			ND		2.44
198	198/199	48.135	0.90	6.99		0.487
199	198/199	48.135	0.90	(6.99)		0.487
200	197/200			` NĎ		2.44
201		44.228	0.90	0.697		0.487
202		43.272	0.91	0.845		0.487
203		49.007	0.89	3.81		0.487
204				ND		0.487
205				ND		0.487
206		54.928	0.77	1.43		0.487
207				ND		0.487
208				ND		0.487
209				ND		0.487

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-05;FO081479 1086550005 P90117A_07

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	1.35	
Total Trichloro Biphenyls	29.1	
Total Tetrachloro Biphenyls	93.2	
Total Pentachloro Biphenyls	166	
Total Hexachloro Biphenyls	169	
Total Heptachloro Biphenyls	91.6	
Total Octachloro Biphenyls	24.4	
Total Nonachloro Biphenyls	1.43	
Decachloro Biphenyls	ND	
Total PCBs	576	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID Filename

Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted ICAL ID

CCal Filename(s) Method Blank ID PRL0548-07;FO081481

1086550007

P90118A_09

BAL 999 mL NA NA

P90118A01 P90118A_02 BLANK-18669 Matrix Water Dilution NA

Collected 12/12/2008 Received 12/18/2008 Extracted 01/05/2009

Analyzed 01/18/2009 23:05

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.145	3.18	2.0	1.55	78
13C-4-MoCB	3	10.201	3.23	2.0	1.57	79
13C-2,2'-DiCB	4	10.524	1.56	2.0	1.80	90
13C-4,4'-DiCB	15	18.457	1.54	2.0	1.63	82
13C-2,2',6-TrCB	19	14.790	1.07	2.0	1.85	93
13C-3,4,4'-TrCB	37	26.760	1.02	2.0	1.52	76
13C-2,2',6,6'-TeCB	54	18.744	0.81	2.0	1.42	71
13C-3,4,4',5-TeCB	81	34.105	0.77	2.0	1.63	82
13C-3,3',4,4'-TeCB	77	34.692	0.77	2.0	1.79	<u>89</u>
13C-2,2',4,6,6'-PeCB	104	25.318	1.60	2.0	1.55	77
13C-2,3,3',4,4'-PeCB	105	38.331	1.57	2.0	1.47	73
13C-2,3,4,4',5-PeCB	114	37.677	1.55	2.0	1.39	70
13C-2,3',4,4',5-PeCB	118	37.140	1.57	2.0	1.46	73
13C-2,3',4,4',5'-PeCB	123	36.805	1.53	2.0	1.43	71
13C-3,3',4,4',5-PeCB	126	41.568	1.56	2.0	1.35	67
13C-2,2',4,4',6,6'-HxCB	155	31.623	1.27	2.0	1.77	89
13C-HxCB (156/157)	156/157	44.636	1.21	4.0	2.45	61
13C-2,3',4,4',5,5'-HxCB	167	43.479	1.24	2.0	1.32	66
13C-3,3',4,4',5,5'-HxCB	169	47.957	1.23	2.0	1.13	56
13C-2,2',3,4',5,6,6'-HpCB	188	37.643	1.06	2.0	3.38	169 P
13C-2,3,3',4,4',5,5'-HpCB	189	50.477	1.01	2.0	1.66	83
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.161	0.92	2.0	3.24	162 P
13C-2,3,3',4,4',5,5',6-OcCB	205	53.042 54.766	0.89 0.77	2.0	1.71	86 90
13C-2,2',3,3',4,4',5,5',6-NoCB	206 208	49.938	0.77 0.77	2.0 2.0	1.81 2.36	118
13C-2,2',3,3',4,5,5',6,6'-NoCB 13CDeCB	208	49.936 56.361	0.77 0.72	2.0 2.0	1.93	96
I3CDeCB	209	30.301	0.72	2.0	1.93	90
Cleanup Standards						
13C-2,4,4'-TrCB	28	22.148	1.06	2.0	1.41	71
13C-2,3,3',5,5'-PeCB	111	34.776	1.59	2.0	1.73	86
13C-2,2',3,3',5,5',6-HpCB	178	40.813	1.08	2.0	1.98	99
Recovery Standards						
13C-2,5-DiCB	9	13.328	1.53	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.295	0.78	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.891	1.57	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.343	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.567	0.96	2.0	NA	NA

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-07;FO081481 1086550007 P90118A_09

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.501
2				ND		0.501
3				ND		0.501
4				ND		0.501
5				ND		0.501
6				ND		0.501
7				ND		0.501
8				ND		0.501
9				ND		0.501
10				ND		0.501
11				ND		0.601
12	12/13			ND		0.501
13	12/13			ND ND		0.501
14	12/13			ND ND		0.501
15				ND ND		0.501
16						0.501
				ND		0.501
17	40/00			ND		0.501
18	18/30			ND		0.501
19	00/00			ND		0.501
20	20/28			ND		0.601
21	21/33			ND		0.501
22				ND		0.501
23				ND		0.501
24				ND		0.501
25				ND		0.501
26	26/29			ND		0.501
27				ND		0.501
28	20/28			ND		0.601
29	26/29			ND		0.501
30	18/30			ND		0.501
31				ND		0.501
32				ND		0.501
33	21/33			ND		0.501
34				ND		0.501
35				ND		0.501
36				ND		0.501
37				ND		0.501
38				ND		0.501
39				ND		0.501
40	40/41/71			ND		0.501
41	40/41/71			ND		0.501
42				ND		0.501
43				ND		0.501
44	44/47/65			ND		0.601
45	45/51			ND		0.501
46	. = / • .			ND		0.501
47	44/47/65			ND		0.601
48				ND		0.501
				· · -		

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				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69			ND		0.501
50	50/53			ND		0.501
51	45/51			ND		0.501
52	10/01			ND		0.501
53	50/53			ND		0.501
54	30/33			ND		0.501
55				ND		0.501
56				ND		0.501
57				ND		0.501
58				ND ND		0.501
59	59/62/75			ND ND		0.501
60	39/02/13			ND ND		0.501
61	61/70/74/76					
				ND		0.501
62	59/62/75			ND		0.501
63				ND		0.501
64	44/47/05			ND		0.501
65	44/47/65			ND		0.601
66				ND		0.501
67				ND		0.501
68				ND		0.501
69	49/69			ND		0.501
70	61/70/74/76			ND		0.501
71	40/41/71			ND		0.501
72				ND		0.501
73				ND		0.501
74	61/70/74/76			ND		0.501
75	59/62/75			ND		0.501
76	61/70/74/76			ND		0.501
77				ND		0.501
78				ND		0.501
79				ND		0.501
80				ND		0.501
81				ND		0.501
82				ND		0.501
83				ND		0.501
84				ND		0.501
85	85/116/117			ND		0.601
86	86/87/97/108/119/125			ND		1.00
87	86/87/97/108/119/125			ND		1.00
88	88/91			ND		0.501
89	00/01			ND		0.501
90	90/101/113			ND		0.501
91	88/91			ND		0.501
92	00/31			ND ND		0.501
93	93/98/100/102			ND ND		0.751
93 94	33/30/100/102			ND ND		0.751
9 4 95				ND ND		0.501
96				ND		0.501

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-07;FO081481 1086550007 P90118A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		1.00
98	93/98/100/102			ND		0.751
99				ND		0.501
100	93/98/100/102			ND		0.751
101	90/101/113			ND		0.501
102	93/98/100/102			ND		0.751
103				ND		0.501
104				ND		0.501
105				ND		0.501
106				ND		0.501
107	107/124			ND		0.501
108	86/87/97/108/119/125			ND		1.00
109				ND		0.501
110	110/115			ND		0.501
111				ND		0.501
112				ND		0.501
113	90/101/113			ND		0.501
114				ND		0.501
115	110/115			ND		0.501
116	85/116/117			ND		0.601
117	85/116/117			ND		0.601
118				ND		0.501
119	86/87/97/108/119/125			ND		1.00
120				ND		0.501
121				ND		0.501
122				ND		0.501
123				ND		0.501
124	107/124			ND		0.501
125	86/87/97/108/119/125			ND		1.00
126				ND		0.501
127	400/400			ND		0.501
128	128/166			ND		1.00
129	129/138/163			ND		0.501
130				ND		0.501
131				ND ND		0.501
132 133				ND ND		0.501
134	124/142			ND ND		0.501
134	134/143 135/151			ND ND		0.501 0.511
136	135/151			ND ND		
137				ND ND		0.501 0.501
138	129/138/163			ND ND		0.501
139	139/140			ND ND		0.501
140	139/140			ND ND		0.501
140	100/140			ND ND		0.501
142				ND ND		0.501
142	134/143			ND ND		0.501
143	107/170			ND ND		0.501
177				ND		0.501

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
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NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PRL0548-07;FO081481 1086550007 P90118A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.501
146				ND		0.501
147	147/149			ND		0.501
148				ND		0.501
149	147/149			ND		0.501
150				ND		0.501
151	135/151			ND		0.511
152				ND		0.501
153	153/168			ND		0.601
154				ND		0.501
155				ND		0.501
156	156/157			ND		1.00
157	156/157			ND		1.00
158				ND		0.501
159				ND		0.501
160				ND		0.501
161				ND		0.501
162				ND		0.501
163	129/138/163			ND		0.501
164	0, .00, .00			ND		0.501
165				ND		0.501
166	128/166			ND		1.00
167	. = 0, . 0 0			ND		0.501
168	153/168			ND		0.601
169	100/100			ND		0.501
170				ND		0.501
171	171/173			ND		0.501
172	,			ND		0.501
173	171/173			ND		0.501
174	,			ND		0.501
175				ND		0.501
176				ND		0.501
177				ND		0.501
178				ND		0.501
179				ND		0.501
180	180/193			ND		0.501
181	. 5 67 . 5 5			ND		0.501
182				ND		0.501
183	183/185			ND		0.501
184	100/100			ND		0.501
185	183/185			ND		0.501
186	. 55/ . 55			ND		0.501
187				ND		0.501
188				ND		0.501
189				ND		0.501
190				ND		0.501
191				ND		0.501
192				ND		0.501
				.,,,		0.001

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-07;FO081481 1086550007 P90118A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		0.501
194				ND		0.501
195				ND		0.501
196				ND		0.701
197	197/200			ND		2.50
198	198/199			ND		0.501
199	198/199			ND		0.501
200	197/200			ND		2.50
201				ND		0.501
202				ND		0.501
203				ND		0.501
204				ND		0.501
205				ND		0.501
206				ND		0.501
207				ND		0.501
208				ND		0.501
209				ND		0.501

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PRL0548-07;FO081481 1086550007 P90118A_09

Congener Group	Concentration	
Congener Group	ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected

Water

01/05/2009

Matrix

Extracted



Tel: 612-607-1700 Fax: 612-607-6444

Method 1668A Polychlorobiphenyl **Blank Analysis Results**

Lab Sample ID **BLANK-18669** Filename P90116C 08 Injected By BAL **Total Amount Extracted** 960 mL **ICAL ID** P90116C04

CCal Filename(s) P90116C 03 Dilution

Analyzed 01/17/2009 01:00 NA

Coal Fileriame(s)	F90110C_	03		Dilution	INA	
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.109	3.03	2.0	1.22	61
13C-4-MoCB	3	10.141	3.20	2.0	1.22	61
13C-2,2'-DiCB	4	10.464	1.53	2.0	1.40	70
13C-4,4'-DiCB	15	18.384	1.57	2.0	1.15	58
13C-2,2',6-TrCB	19	14.730	1.08	2.0	1.37	69
13C-3,4,4'-TrCB	37	26.687	1.11	2.0	1.25	62
13C-2,2',6,6'-TeCB	54	18.688	0.81	2.0	1.26	63
13C-3,4,4',5-TeCB	81	34.032	0.78	2.0	1.21	60
13C-3,3',4,4'-TeCB	77	34.619	0.77	2.0	1.36	68
13C-2,2',4,6,6'-PeCB	104	25.262	1.59	2.0	1.45	72
13C-2,3,3',4,4'-PeCB	105	38.275	1.57	2.0	1.43	72
13C-2,3,4,4',5-PeCB	114	37.621	1.50	2.0	1.31	66
13C-2,3',4,4',5-PeCB	118	37.084	1.56	2.0	1.39	69
13C-2,3',4,4',5'-PeCB	123	36.732	1.57	2.0	1.30	65
13C-3,3',4,4',5-PeCB	126	41.495	1.52	2.0	1.40	70
13C-2,2',4,4',6,6'-HxCB	155	31.584	1.25	2.0	1.71	85
13C-HxCB (156/157)	156/157	44.564	1.26	4.0	3.29	82
13C-2,3',4,4',5,5'-HxĆB	167	43.423	1.29	2.0	1.69	84
13C-3,3',4,4',5,5'-HxCB	169	47.884	1.28	2.0	1.71	85
13C-2,2',3,4',5,6,6'-HpCB	188	37.604	1.04	2.0	1.94	97
13C-2,3,3',4,4',5,5'-HpCB	189	50.423	1.05	2.0	1.85	93
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.121	0.93	2.0	2.05	102
13C-2,3,3',4,4',5,5',6-OcCB	205	53.010	0.86	2.0	1.61	80
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.734	0.83	2.0	1.79	90
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.906	0.82	2.0	1.86	93
13CDeCB	209	56.329	0.72	2.0	1.83	92
Cleanup Standards						
13C-2,4,4'-TrCB	28	22.092	1.06	2.0	1.27	64
13C-2,3,3',5,5'-PeCB	111	34.720	1.59	2.0	1.48	74
13C-2,2',3,3',5,5',6-HpCB	178	40.774	1.03	2.0	1.98	99
Recovery Standards						
13C-2,5-DiCB	9	13.268	1.54	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.222	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.819	1.59	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.287	1.28	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.514	0.94	2.0	NA	NA

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Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18669 P90116C_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.521
2				ND		0.521
3				ND		0.521
4				ND		0.521
4 5 6 7				ND		0.521
6				ND		0.521
7				ND		0.521
8				ND		0.521
9				ND		0.521
10				ND		0.521
11				ND		0.625
12	12/13			ND		0.521
13	12/13			ND		0.521
14	12/10			ND		0.521
15				ND		0.521
16				ND		0.521
17				ND		0.521
18	18/30			ND		0.521
19	10/00			ND		0.521
20	20/28			ND		0.625
21	21/33			ND		0.521
22	21/00			ND		0.521
23				ND		0.521
24				ND		0.521
25				ND		0.521
26	26/29			ND		0.521
27	20/20			ND		0.521
28	20/28			ND		0.625
29	26/29			ND		0.521
30	18/30			ND		0.521
31	10/00			ND		0.521
32				ND		0.521
33	21/33			ND		0.521
34	21/00			ND		0.521
34 35				ND		0.521
36				ND		0.521
37				ND		0.521
38				ND		0.521
39				ND		0.521
40	40/41/71			ND		0.521
41	40/41/71			ND		0.521
42				ND		0.521
43				ND		0.521
44	44/47/65			ND		0.625
45	45/51			ND		0.521
						U.U

Conc = Concentration

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P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18669 P90116C_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46				ND		0.521
47	44/47/65			ND		0.625
48	44/4//00			ND		0.521
49	49/69			ND		0.521
50	50/53			ND		0.521
51	45/51			ND		0.521
52	45/51			ND		0.521
53	50/53			ND		0.521
54	30/33			ND		0.521
55				ND		0.521
56				ND		0.521
57				ND ND		0.521
58				ND ND		0.521
59	59/62/75			ND		0.521
60	39/02/13			ND ND		0.521
61	61/70/74/76			ND ND		0.521
62	59/62/75			ND ND		0.521
63	59/62/75			ND ND		0.521
				ND ND		0.521
64 65	44/47/CE			ND ND		0.625
65 66	44/47/65					
66				ND ND		0.521
67				ND ND		0.521
68	40/00			ND		0.521
69	49/69			ND		0.521
70	61/70/74/76			ND		0.521
71	40/41/71			ND		0.521
72				ND		0.521
73	0.4/=0/=4/=0			ND		0.521
74	61/70/74/76			ND		0.521
75	59/62/75			ND		0.521
<u>76</u>	61/70/74/76			ND		0.521
77				ND		0.521
78				ND		0.521
79				ND		0.521
80				ND		0.521
81				ND		0.521
82				ND		0.521
83				ND		0.521
84				ND		0.521
85	85/116/117			ND		0.625
86	86/87/97/108/119/125			ND		1.04
87	86/87/97/108/119/125			ND		1.04
88	88/91			ND		0.521
89				ND		0.521
90	90/101/113			ND		0.521

Conc = Concentration

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18669 P90116C_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91			ND		0.521
92				ND		0.521
93	93/98/100/102			ND		0.782
94	00,00,100,102			ND		0.521
95				ND		0.521
96				ND		0.521
97	86/87/97/108/119/125			ND		1.04
98	93/98/100/102			ND		0.782
99	33,33,133,132			ND		0.521
100	93/98/100/102			ND		0.782
101	90/101/113			ND		0.521
102	93/98/100/102			ND		0.782
103	00/00/100/102			ND		0.521
104				ND		0.521
105				ND		0.521
106				ND		0.521
107	107/124			ND		0.521
108	86/87/97/108/119/125			ND		1.04
109	00/01/31/100/113/123			ND		0.521
110	110/115			ND		0.521
111	110/113			ND ND		0.521
112				ND ND		0.521
113	90/101/113			ND ND		0.521
114	90/101/113			ND ND		0.521
115	110/115			ND ND		0.521
116	85/116/117			ND ND		0.625
117	85/116/117			ND ND		0.625
118	03/110/117			ND ND		0.521
119	86/87/97/108/119/125			ND ND		1.04
120	80/87/97/108/119/123			ND ND		0.521
120				ND ND		0.521
121				ND ND		0.521
122				ND ND		0.521
123	107/124			ND ND		0.521
125	86/87/97/108/119/125			ND ND		1.04
125	80/87/97/108/119/123			ND ND		0.521
120				ND ND		0.521
127	128/166			ND ND		1.04
120	129/138/163			ND ND		0.521
130	123/130/103			ND ND		0.521
130				ND ND		0.521
131				ND ND		0.521
132				ND ND		0.521
133	134/143			ND ND		0.521 0.521
134				ND ND		0.521
133	135/151			ואט		0.532

Conc = Concentration

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A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

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ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18669 P90116C_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136				ND		0.521
137				ND		0.521
138	129/138/163			ND		0.521
139	139/140			ND		0.521
140	139/140			ND		0.521
141	100/140			ND		0.521
142				ND		0.521
143	134/143			ND		0.521
144	10 1/1 10			ND		0.521
145				ND		0.521
146				ND		0.521
147	147/149			ND		0.521
148	1 117 1 10			ND		0.521
149	147/149			ND		0.521
150	1 117 1 10			ND		0.521
151	135/151			ND		0.532
152				ND		0.521
153	153/168			ND		0.625
154	100/100			ND		0.521
155				ND		0.521
156	156/157			ND		1.04
157	156/157			ND		1.04
158				ND		0.521
159				ND		0.521
160				ND		0.521
161				ND		0.521
162				ND		0.521
163	129/138/163			ND		0.521
164				ND		0.521
165				ND		0.521
166	128/166			ND		1.04
167				ND		0.521
168	153/168			ND		0.625
169				ND		0.521
170				ND		0.521
171	171/173			ND		0.521
172				ND		0.521
173	171/173			ND		0.521
174				ND		0.521
175				ND		0.521
176				ND		0.521
177				ND		0.521
178				ND		0.521
179				ND		0.521
180	180/193			ND		0.521

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

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ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18669 P90116C_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181				ND		0.521
182				ND		0.521
183	183/185			ND		0.521
184	100/100			ND		0.521
185	183/185			ND		0.521
186	100/100			ND		0.521
187				ND		0.521
188				ND		0.521
189				ND		0.521
190				ND		0.521
191				ND		0.521
192				ND		0.521
193	180/193			ND		0.521
194				ND		0.521
195				ND		0.521
196				ND		0.730
197	197/200			ND		2.61
198	198/199			ND		0.521
199	198/199			ND		0.521
200	197/200			ND		2.61
201				ND		0.521
202				ND		0.521
203				ND		0.521
204				ND		0.521
205				ND		0.521
206				ND		0.521
207				ND		0.521
208				ND		0.521
209				ND		0.521

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

ND = Not Detected

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename DFBLKEB BLANK-18669 P90116C_08

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename

Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID LCS-18670 P90116C_05 903 mL

P90116C04 P90116C_03 BLANK-18669 Matrix Water Dilution NA

Extracted 01/05/2009 Analyzed 01/16/2009 21:56

Injected By BAL

	N	lative Analy	tes	Lal	beled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.09	109	2.0	1.55	77
3	1.0	1.15	115	2.0	1.55	78
4	1.0	1.07	107	2.0	1.74	87
15	1.0	1.16	116	2.0	1.54	77
19	1.0	1.05	105	2.0	1.64	82
37	1.0	1.15	115	2.0	1.56	78
54	1.0	1.02	102	2.0	1.64	82
81	1.0	1.10	110	2.0	1.44	72
77	1.0	1.05	105	2.0	1.60	80
104	1.0	1.05	105	2.0	1.82	91
105	1.0	1.11	111	2.0	1.50	75
114	1.0	1.14	114	2.0	1.41	70
118	1.0	1.12	112	2.0	1.54	77
123	1.0	1.13	113	2.0	1.42	71
126	1.0	1.07	107	2.0	1.49	75
155	1.0	1.07	107	2.0	1.95	97
156/157	2.0	2.22	111	4.0	3.34	83
167	1.0	1.10	110	2.0	1.74	87
169	1.0	1.14	114	2.0	1.75	88
188	1.0	1.05	105	2.0	2.11	106
189	1.0	1.13	113	2.0	1.99	99
202	1.0	1.06	106	2.0	2.12	106
205	1.0	1.09	109	2.0	1.71	86
206	1.0	1.03	103	2.0	1.87	94
208	1.0	1.07	107	2.0	1.96	98
209	1.0	1.04	104	2.0	1.92	96

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms I = Interference

Nn = Result obtained from alternate analysis



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename

Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID LCSD-18671 P90116C_06 947 mL P90116C04 P90116C_03

BLANK-18669

Matrix V
Dilution N

Water NA

Extracted 01/05/2009 Analyzed 01/16/2009 22:57

Injected By BAL

	N	lative Analy	tes	Lal	peled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	0.963	96	2.0	1.68	84
3	1.0	0.994	99	2.0	1.68	84
4	1.0	0.919	92	2.0	1.94	97
15	1.0	1.03	103	2.0	1.65	82
19	1.0	0.870	87	2.0	1.91	95
37	1.0	1.01	101	2.0	1.70	85
54	1.0	0.889	89	2.0	1.78	89
81	1.0	0.962	96	2.0	1.60	80
77	1.0	0.921	92	2.0	1.79	90
104	1.0	0.913	91	2.0	2.12	106
105	1.0	0.952	95	2.0	1.76	88
114	1.0	0.995	100	2.0	1.66	83
118	1.0	0.992	99	2.0	1.79	90
123	1.0	0.960	96	2.0	1.64	82
126	1.0	0.932	93	2.0	1.75	88
155	1.0	0.919	92	2.0	2.17	108
156/157	2.0	1.96	98	4.0	3.72	93
167	1.0	0.961	96	2.0	1.93	96
169	1.0	0.986	99	2.0	1.93	96
188	1.0	0.923	92	2.0	2.48	124
189	1.0	0.991	99	2.0	2.24	112
202	1.0	0.892	89	2.0	2.49	124
205	1.0	0.932	93	2.0	1.93	97
206	1.0	0.894	89	2.0	2.07	103
208	1.0	0.922	92	2.0	2.24	112
209	1.0	0.900	90	2.0	2.18	109

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion ng = Nanograms

I = Interference

Nn = Result obtained from alternate analysis



Method 1668A Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

 Spike 1 ID
 LCS-18670
 Spike 2 ID
 LCSD-18671

 Spike 1 Filename
 P90116C_05
 Spike 2 Filename
 P90116C_06

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD	
2-MoCB	1	109	96	12.7	
4-MoCB	3	115	99	15.0	
2,2'-DiCB	4	107	92	15.1	
4,4'-DiCB	15	116	103	11.9	
2,2',6-TrCB	19	105	87	18.8	
3,4,4'-TrCB	37	115	101	13.0	
2,2',6,6'-TeCB	54	102	89	13.6	
3,3',4,4'-TeCB	77	105	92	13.2	
3,4,4',5-TeCB	81	110	96	13.6	
2,2',4,6,6'-PeCB	104	105	91	14.3	
2,3,3',4,4'-PeCB	105	111	95	15.5	
2,3,4,4',5-PeCB	114	114	100	13.1	
2,3',4,4',5-PeCB	118	112	99	12.3	
2,3',4,4',5'-PeCB	123	113	96	16.3	
3,3',4,4',5-PeCB	126	107	93	14.0	
2,2',4,4',6,6'-HxCB	155	107	92	15.1	
(156/157)	156/157	111	98	12.4	
2,3',4,4',5,5'-HxCB	167	110	96	13.6	
3,3',4,4',5,5'-HxCB	169	114	99	14.1	
2,2',3,4',5,6,6'-HpCB	188	105	92	13.2	
2,3,3',4,4',5,5'-HpCB	189	113	99	13.2	
2,2',3,3',5,5',6,6'-OcCB	202	106	89	17.4	
2,3,3',4,4',5,5',6-OcCB	205	109	93	15.8	
2,2',3,3',4,4',5,5',6-NoCB	206	103	89	14.6	
2,2',3,3',4,5,5',6,6'-NoCB	208	107	92	15.1	
Decachlorobiphenyl	209	104	90	14.4	

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value

Event 3: February 8, 2009



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.qsiwatersolutions.com

Laboratory Data QA/QC Review Albina Riverlots Source Control Investigation First Quarter 2008 Stormwater Sampling – Event 3

To: File

From: Erin Carroll, GSI

Date: March 20, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during a source control investigation sampling event conducted by the City of Portland Bureau of Environmental Services (BES) in the Albina Riverlots area on February 8, 2009. Six stormwater samples, a duplicate, and field decontamination blank were collected from Outfall Basins 43, 44, and 44A during this event. However, because the storm event was shorter in duration and less intense than anticipated, the samples from some locations were determined to be unrepresentative of stormwater discharges from entire target drainage areas. Samples were discarded with the exception of the Basin 44 field and duplicate samples, as described in the Quarterly Report – First Quarter 2009.

The laboratory analyses for these source control program samples were completed by the City's BES Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

- BES WPCL Laboratory
 - o Total Metals EPA 200.8
 - o Total Mercury WPCL SOP M-10.02
 - o Total suspended solids (TSS) SM 2540D
- Test America (TA)
 - o Polycyclic Aromatic Hydrocarbons (PAHs) EPA 8270M-SIM
 - o Phthalates EPA 8270M-SIM
- Columbia Analytical Services (CAS)
 - o Semivolatile Organic Compounds (SVOCs) EPA 8270C
 - o Organochlorine Pesticides EPA 8081

- Pace Analytical Services (Pace)
 - o Polychlorinated Biphenyls as Congeners (PCB Congeners) EPA 1668A

The field sample (FO095155) was analyzed for all parameters listed above. The duplicate sample (FO095156) was analyzed only for TSS and PCB Congeners.

The WPCL summary report for all analyses associated with this stormwater sampling event and the subcontracted laboratory's data reports are attached. The WPCL summary report comments that, with some exceptions (included in the following sections below), all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The following QA/QC review is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within laboratory control limits
- Internal standard recoveries within laboratory control limits
- Matrix spike and matrix spike duplicate results within control limits
- If applicable, laboratory control sample and duplicate laboratory control sample recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the required method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analyses of PAHs, phthalates, pesticides, SVOCs, and PCB congeners. There are no reported detections of PAHs, pesticides, and PCB congeners in the associated method blanks.

One SVOC, Di-n-butyl phthalate, was detected in the method blank for the EPA 8270C analysis and in the field sample at estimated concentrations (greater than the method detection limit but less than the method reporting limit). The presence of this SVOCs in the field sample at

concentrations less than the MRL is considered to be a result of laboratory contamination; therefore, these data are shown as not detected at a concentration greater than the MRL.

Surrogate Recoveries

Surrogate recoveries were completed during the subcontracted laboratory analysis of PAHs, pesticides, and SVOCs. All surrogate recoveries were within laboratory control limits.

Internal Standard Recoveries

Internal standard recoveries were processed during the subcontracted laboratory analysis of PCB congeners. The labeled internal standard recoveries were within the target ranges specified in the method, with one exception. This exception is flagged "P" in the Pace laboratory report. Pace states that the data were automatically corrected for variation in recovery and accurate values were obtained.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were processed during the subcontracted laboratory analysis of PAHs, pesticides, and PCB congeners. All MS/MSD recoveries were within the laboratory control limits.

Laboratory Control/Duplicate Laboratory Control Samples

Laboratory control/duplicate laboratory control samples (LCS/DLCS) were processed during the laboratory analysis of PAHs, phthalates, SVOCs and PCB congeners. The laboratory advisory criteria for percent recovery were exceeded during the SVOC analysis for benzoic acid and 2,4-dinotrophenol in the LCS and DLCS samples; however, CAS reports that because these compounds are not included in the subset of analytes used to control the analysis, no further corrective action was required.

The relative percent difference (RPD) of benzoic acid and 2,4-dinotrophenol in the LCS/DLCS was outside the lower control limit. CAS reports that the RPD criterion for benzoic acid and 2,4-dinitrophenol is not applicable for these samples because the analyte concentration was not significantly greater than the MRL.

Other

Some organochlorine pesticide compounds are reported as estimated ("P") because the results from the primary and verification gas chromatography columns varied by more than 40 percent RPD.

The laboratory reports for PAHs, phthalates, pesticides, and SVOCs indicate that the method reporting limits were elevated in a number of samples due to sample matrix effects.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



Chair of Castock

Date: 3/8/09

Page: `e. |^ |,

Collected By: MYS, JXB

Bureau of Environmental Service

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6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095155

Sample Collected: 02/08/09 Sample Received: 02/09/09 17:20

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page: Page 1 of 4

Address/Location:

SW-44-ABC352-0209

Sample Point Code:

N HARDING & RIVER

System ID:

AN01608

44_SW1

EID File #: LocCode:

1020.005 **PORTHASW**

Sample Type: Sample Matrix: **GRAB STORMWTR**

Collected By: MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The result for pesticide 4,4-DDE is flagged as an estimate because the confirmation criteria were not met. LAB: In addition to those reported, several other pesticide and semivolatile organic compounds were detected at trace levels (<MRL).

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	76	μmhos/cm	1 .	SM 2510 B	02/08/09
pH (FIELD)	7.7	pH Units	0.1	SM 4500-H B	02/08/09
TEMPERATURE	7.1	Deg. C	0.1	SM 2550 B	02/08/09
GENERAL					
TOTAL SUSPENDED SOLIDS	432	mg/L	2	SM 2540 D	02/10/09
METALS					
MERCURY	0.038	μg/L	0.002	WPCLSOP M-10.02	02/13/09
METALS BY ICP-MS (TOTAL) - 8	•				
ARSENIC	3.20	- μg/L	0.1	EPA 200.8	02/11/09
CADMIUM	1.72	μg/L	0.1	EPA 200.8	02/11/09
CHROMIUM	16.7	μ g/L	0.4	EPA 200.8	02/11/09
COPPER	53.3	μg/L	0.2	EPA 200.8	02/11/09
LEAD	41.5	μg/L	0.1	EPA 200.8	02/11/09
NICKEL	12.6	μg/L	0.2	EPA 200.8	02/11/09
SILVER	0.15	μg/L	0.1	EPA 200.8	02/11/09
ZINC	382	μg/L	0.5	EPA 200.8	02/11/09
OUTSIDE ANALYSIS				•	
PESTICIDES BY EPA 8081 - CAS	*			•	
4,4'-DDD	<5.0	ng/L	5.0	EPA 8081	02/12/09
4,4'-DDE	EST 6.8	ng/L	5.0	EPA 8081	02/12/09
4,4'-DDT	<16	ng/L	16	EPA 8081	02/12/09
Aldrin	<5.0	ng/L	5.0	EPA 8081	02/12/09
Alpha-BHC	<5.0	ng/L	5.0	EPA 8081	02/12/09
Alpha-Chlordane	<5.0	ng/L	5.0	EPA 8081	02/12/09
Beta-BHC	<5.0	ng/L	5.0	EPA 8081	02/12/09
Delta-BHC	<5.0	ng/L	5.0	EPA 8081	02/12/09
Dieldrin	<5.0	ng/L	5.0	EPA 8081	02/12/09
Endosulfan I	<5.1	ng/L	5.1	EPA 8081	02/12/09
Endosulfan II	<5.0	ng/L	5.0	EPA 8081	02/12/09
Endosulfan Sulfate	<5.0	ng/L	5.0	EPA 8081	02/12/09
Endrin	<5.0	ng/L	5.0	EPA 8081	02/12/09
Endrin Aldehyde	<5.0	ng/L	5.0	EPA 8081	02/12/09

Report Date: 03/25/09

Validated By:



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: **FO095155**

Sample Collected: 02/08/09

17:20

Sample Status: COMPLETE AND

VALIDATED

Sample Received: 02/09/09

Report Page:

Page 2 of 4

Address/Location:

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP SW-44-ABC352-0209

System ID:

AN01608

Sample Point Code:

N HARDING & RIVER

EID File #:

1020.005

Sample Type:

44 SW1 **GRAB**

LocCode:

PORTHASW

Amabasia

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The result for pesticide 4,4-DDE is flagged as an estimate because the confirmation criteria were not met. LAB: In addition to those reported, several other pesticide and semivolatile organic compounds were detected at trace levels (<MRL).

Test Parameter	Result	Units	MRL	Method	Analysis Date
Endrin Ketone	<5.0	ng/L	5.0	EPA 8081	02/12/09
Gamma-BHC(Lindane)	< 5.0	ng/L	5.0	EPA 8081	02/12/09
Gamma-Chlordane	<6.3	ng/L	6.3	EPA 8081	02/12/09
Heptachlor	5.3	ng/L	5.0	EPA 8081	02/12/09
Heptachlor Epoxide	<5.0	ng/L	5.0	EPA 8081	02/12/09
Methoxychlor	<5.0	ng/L	5.0	EPA 8081	02/12/09
Toxaphene	<250	ng/L	250	EPA 8081	02/12/09
POLYCHLORINATED BIPHENYL CO	NGENERS -PACE	•			
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	02/12/09
POLYNUCLEAR AROMATICS & PH	THALATES - TA				
Acenaphthene	0.0730	μ g/L	0.0211	EPA 8270M-SIM	02/12/09
Acenaphthylene	< 0.0316	μg/L	0.0316	EPA 8270M-SIM	02/12/09
Anthracene	< 0.0211	μ g/L	0.0211	EPA 8270M-SIM	02/12/09
Benzo(a)anthracene	0.0335	μg/L	0.0105	EPA 8270M-SIM	02/12/09
Benzo(a)pyrene	0.0401	μg/L	0.0105	EPA 8270M-SIM	02/12/09
Benzo(b)fluoranthene	0.0653	μ g/L	0.0105	EPA 8270M-SIM	02/12/09
Benzo(ghi)perylene	0.0835	μ g/L	0.0211	EPA 8270M-SIM	02/12/09
Benzo(k)fluoranthene	0.0412	μg/L	0.0105	EPA 8270M-SIM	02/12/09
Bis(2-ethylhexyl) phthalate	1.53	μg/L	1.05	EPA 8270M-SIM	02/12/09
Butyl benzyl phthalate	<1.05	μ g/L	1.05	EPA 8270M-SIM	02/12/09
Chrysene	0.125	μg/L	0.0105	EPA 8270M-SIM	02/12/09
Dibenzo(a,h)anthracene	0.0151	μ g/L .	0.0105	EPA 8270M-SIM	02/12/09
Diethyl phthalate	<1.05	μ g/L	1.05	EPA 8270M-SIM	02/12/09
Dimethyl phthalate	<1.05	μg/L	1.05	EPA 8270M-SIM	02/12/09
Di-n-butyl phthalate	<1.05	μ g/L	1.05	EPA 8270M-SIM	02/12/09
Di-n-octyl phthalate	1.45	μ g/L	1.05	EPA 8270M-SIM	02/12/09
Fluoranthene	0.229	μ g/L	0.0211	EPA 8270M-SIM	02/12/09
Fluorene	0.0313	μ g/L	0.0211	EPA 8270M-SIM	02/12/09
Indeno(1,2,3-cd)pyrene	0.0362	μg/L	0.0105	EPA 8270M-SÍM	02/12/09
Naphthalene	0.222	μ g/L	0.0211	EPA 8270M-SIM	02/12/09
Phenanthrene	0.241	μg/L	0.0211	EPA 8270M-SIM	02/12/09
Pyrene	0.133	μg/L	0.0211	EPA 8270M-SIM	02/12/09
SEMI-VOLATILE ORGANICS - CAS					

SEMI-VOLATILE ORGANICS - CAS

Report Date: 03/25/09 Validated By:





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656





Sample ID: FO095155

Sample Collected: 02/08/09 Sample Received: 02/09/09 17:20

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 3 of 4

Address/Location:

SW-44-ABC352-0209

System ID:

AN01608

Sample Point Code:

N HARDING & RIVER

EID File #:

1020.005

Sample Type:

44_SW1 GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The result for pesticide 4,4-DDE is flagged as an estimate because the confirmation criteria were not met. LAB: In addition to those reported, several other pesticide and semivolatile organic compounds were detected at trace levels (<MRL).

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,2,4-Trichlorobenzene	<0.22	μg/L	0.22	EPA 8270	02/13/09
1,2-Dichlorobenzene	<0.22	μ g/L	0.22	EPA 8270	02/13/09
1,3-Dichlorobenzene	<0.22	μg/L	0.22	EPA 8270	02/13/09
1,4-Dichlorobenzene	<0.22	μg/L	0.22	EPA 8270	02/13/09
2,4,5-Trichlorophenol	< 0.53	μg/L	0.53	EPA 8270	02/13/09
2,4,6-Trichlorophenol	< 0.53	μ g/L	0.53	EPA 8270	02/13/09
2,4-Dichlorophenol	<0.53	$\mu g/L$	0.53	EPA 8270	02/13/09
2,4-Dimethylphenol	<4.3	μ g/L	4.3	EPA 8270	02/13/09
2,4-Dinitrophenol	<4.3	μg/L	4.3	EPA 8270	02/13/09
2,4-Dinitrotoluene	<0.22	μg/L	0.22	EPA 8270	02/13/09
2,6-Dinitrotoluene	<0.22	μg/L	0.22	EPA 8270	02/13/09
2-Chloronaphthalene	<0.22	μg/L	0.22	EPA 8270	02/13/09
2-Chlorophenol	< 0.53	μg/L	0.53	EPA 8270	02/13/09
2-Methylnaphthalene	<0.22	μg/L	0.22	EPA 8270	02/13/09
2-Methylphenol	0.92	μg/L	0.53	EPA 8270	02/13/09
2-Nitroaniline	<0.22	μg/L	0.22	EPA 8270	02/13/09
2-Nitrophenol	<0.53	μg/L	0.53	EPA 8270	02/13/09
3,3'-Dichlorobenzidine	<2.2	μ g/L	2.2	EPA 8270	02/13/09
3-Nitroaniline	<1.1	μg/L	1.1	EPA 8270	02/13/09
4,6-Dinitro-2-methylphenol	<2.2	μ g/L	2.2	EPA 8270	02/13/09
4-Bromophenylphenyl ether	<0.22	μg/L	0.22	EPA 8270	02/13/09
4-Chloro-3-methylphenol	< 0.53	μg/L	0.53	EPA 8270	02/13/09
4-Chloroaniline	<0.22	μg/L	0.22	EPA 8270	02/13/09
4-Chlorophenylphenyl ether	<0.22	μg/L	0.22	EPA 8270	02/13/09
4-Methylphenol	1.5	μg/L	0.53	EPA 8270	02/13/09
4-Nitroaniline	<1.1	μg/L	1.1	EPA 8270	02/13/09
4-Nitrophenol	<2.2	μg/L	2.2	EPA 8270	02/13/09
Acenaphthene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Acenaphthylene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Anthracene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Benzo(a)anthracene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Benzo(a)pyrene	< 0.22	μg/L	0.22	EPA 8270	02/13/09
Benzo(b)fluoranthene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Benzo(g,h,i)perylene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Benzo(k)fluoranthene	<0.22	μg/L	0.22	EPA 8270	02/13/09

Report Date: 03/25/09

Validated By:



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: **FO095155**

Sample Collected: 02/08/09

17:20

Sample Status: COMPLETE AND

Sample Received: 02/09/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 4 of 4

Address/Location:

SW-44-ABC352-0209 N HARDING & RIVER

System ID:

AN01608

Sample Point Code:

44_SW1

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The result for pesticide 4,4-DDE is flagged as an estimate because the confirmation criteria were not met. LAB: In addition to those reported, several other pesticide and semivolatile organic compounds were detected at trace levels (<MRL).

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzoic acid	<5.3	μg/L	5.3	EPA 8270	02/13/09
Benzyl alcohol	0.71	μg/L	0.53	EPA 8270	02/13/09
Bis(2-chloroethoxy) methane	<0.22	μg/L	0.22	EPA 8270	02/13/09
Bis(2-chloroethyl) ether	<0.22	μg/L	0.22	EPA 8270	02/13/09
Bis(2-chloroisopropyl) ether	<0.22	μg/L	0.22	EPA 8270	02/13/09
Bis(2-ethylhexyl) phthalate	2.9	μg/L	1.1	EPA 8270	02/13/09
Butyl benzyl phthalate	0.28	μg/L	0.22	EPA 8270	02/13/09
Chrysene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Dibenzo(a,h)anthracene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Dibenzofuran	<0.22	μg/L	0.22	EPA 8270	02/13/09
Diethyl phthalate	<0.22	μg/L	0.22	EPA 8270	02/13/09
Dimethyl phthalate	<0.22	μg/L	0.22	EPA 8270	02/13/09
Di-n-butyl phthalate	<0.22	μg/L	0.22	EPA 8270	02/13/09
Di-n-octyl phthalate	<0.22	μg/L	0.22	EPA 8270	. 02/13/09
Fluoranthene	0.26	μg/L	0.22	EPA 8270	02/13/09
Fluorene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Hexachlorobenzene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Hexachlorobutadiene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Hexachlorocyclopentadiene	<1.1	μg/L	1.1	EPA 8270	02/13/09
Hexachloroethane	<0.22	μg/L	0.22	EPA 8270	02/13/09
Indeno(1,2,3-cd)pyrene	<0.22	μg/L	0.22	EPA 8270	02/13/09
Isophorone	<0.22	μg/L	0.22	EPA 8270	02/13/09
Naphthalene	0.25	μg/L	0.22	EPA 8270	02/13/09
Nitrobenzene	<0.22	μg/L	0.22	EPA 8270	02/13/09
N-Nitrosodi-n-propylamine	<0.22	μg/L	0.22	EPA 8270	02/13/09
N-Nitrosodiphenylamine	<0.22	μg/L	0.22	EPA 8270	02/13/09
Pentachlorophenol	, <1.1	μg/L	1.1	EPA 8270	02/13/09
Phenanthrene	0.29	μg/L	0.22	EPA 8270	02/13/09
Phenol	2.2	μ g/L	0.53	EPA 8270	02/13/09
Pyrene	0.26	μ g/L	0.22	EPA 8270	02/13/09

End of Report for Sample ID: FO095155

Validated By: Report Date: 03/25/09



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LABORATORY ANALYSIS REPORT

Sample ID: FO095156

Sample Collected: 02/08/09 Sample Received: 02/09/09 00:00

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

FIELD DUPLICATE

System ID:

AN01609

Sample Point Code:

DUP

1020.005

Sample Type:

GRAB

EID File #: LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL TOTAL SUSPENDED SOLIDS	436	mg/L	2	SM 2540 D	02/10/09
OUTSIDE ANALYSIS POLYCHLORINATED BIPHENYL CONGENT Refer to Contract Report	ERS -PACE Completed	ng/L		EPA 1668 MOD	02/12/09

End of Report for Sample ID: FO095156

Validated By:

Report Date: 03/25/09



March 6, 2009

Analytical Report for Service Request No: K0901090

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor Stormwater Samp

Dear Jennifer:

Enclosed are the results of the sample submitted to our laboratory on February 10, 2009. For your reference, these analyses have been assigned our service request number K0901090.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/lb

Page 1 of _2/___

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-







Client:

Portland, City of

Service Request No.:

K0901090

Project:

Portland Harbor Stormwater Samp

Date Received:

02/10/2009

Sample Matrix:

Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

One water sample was received for analysis at Columbia Analytical Services on 02/10/2009. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A ULL

Continuing Calibration Verification Exceptions:

The primary evaluation criterion was exceeded for the following analytes in Continuing Calibration Verification (CCV) 0224F006 and 0224F016: Several; in CCV 0227F020: delta-BHC and Methoxychlor, in CCV 0227F021: Toxaphene. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the average percent recovery of all analytes in the verification standard. The standard meets the alternative evaluation criteria.

Sample Confirmation Notes:

JP: The confirmation comparison criteria are not applicable because at least one of the values is below the Method Reporting Limit (MRL).

The confirmation comparison criterion of 40% difference for 4,4'-DDE was exceeded in sample F0095155. The higher of the two values was reported when both peaks were within the expected retention time window for this analysis and Gaussian in shape.

Elevated Method Reporting Limits:

The reporting limit is elevated for all analytes in sample F0095155 because the sample required dilution. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the reporting limit. The results are flagged to indicate the matrix interference.

The reporting limit is further elevated, for several analytes in sample F0095155. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the reporting limit. The results are flagged to indicate the matrix interference.

No other anomalies associated with the analysis of these samples were observed.

	De la companya della companya della companya de la companya della	25/08/08	
Approved by		Date	_

Semivolatile Organic Compounds by EPA Method 8270C LL

Initial Calibration Exceptions:

The primary evaluation criterion was exceeded for the following analytes in Initial Calibration (ICAL) ID CAL8270: Benzoic Acid, Hexachlorocyclopentadiene, 2,6-Dinitrotoluene, 2,4-Dinitrophenol, 4-Nitroaniline, 2-Methyl-4,6-dinitrophenol, Hexachlorobenzene. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the mean Relative Standard Deviation (RSD) of all analytes in the calibration. The result of the mean RSD calculation was 6.4%. The calibration meets the alternative evaluation criteria. Note that CAS/Kelso policy does not allow the use of averaging if any analyte in the ICAL exceeds 30% RSD.

Lab Control Sample Exceptions:

The advisory criterion was exceeded for the following analytes in the replicate Laboratory Control SampleS (LCS/DLCS) KWG0901279-1 and KWG0901249-2: Benzoic Acid and 2,4-Dinitrophenol. As per the CAS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analytes used to control the analysis. The recovery information reported for these analytes is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) criterion for Benzoic Acid and 2,4-Dinitrophenol in LCS/DLCS KWG0901279-1 and KWG0901249-2 is not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

No other anomalies associated with the analysis of these samples were observed.

	\$	03/09/09
Approved by	\	Date

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090 **Date Collected:** 02/08/2009

Date Received: 02/10/2009

Organochlorine Pesticides

Sample Name:

F0095155

Lab Code:

K0901090-001

Extraction Method: Analysis Method:

EPA 3535

8081A

Units: ng/L Basis: NA

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND U	5.0	2.1	10	02/12/09	02/28/09	KWG0901213	
beta-BHC	ND U	5.0	4.1	10	02/12/09	02/28/09	KWG0901213	
gamma-BHC (Lindane)	ND U	5.0	4.7	10	02/12/09	02/28/09	KWG0901213	
delta-BHC	ND Ui	5.0	2.0	10	02/12/09	02/28/09	KWG0901213	
Heptachlor	5.3 D	5.0	1.8	10	02/12/09	02/28/09	KWG0901213	
Aldrin	ND U	5.0	1.1	10	02/12/09	02/28/09	KWG0901213	
Heptachlor Epoxide	ND U	5.0	2.1	10	02/12/09	02/28/09	KWG0901213	
gamma-Chlordane†	ND Ui	6.3	6.3	10	02/12/09	02/28/09	KWG0901213	
Endosulfan I	ND Ui	5.1	5.1	10	02/12/09	02/28/09	KWG0901213	
alpha-Chlordane	3.9 JD	5.0	2.7	10	02/12/09	02/28/09	KWG0901213	
Dieldrin	ND U	5.0	3.7	10	02/12/09	02/28/09	KWG0901213	
4,4'-DDE	6.8 PD	5.0	1.9	10	02/12/09	02/28/09	KWG0901213	
Endrin	ND U	5.0	4.9	10	02/12/09	02/28/09	KWG0901213	
Endosulfan II	ND U	5.0	3.5	10	02/12/09	02/28/09	KWG0901213	
4,4'-DDD 38740	4.0 JD	5.0	2.1	10	02/12/09	02/28/09	KWG0901213	
Endrin Aldehyde	2.3 JPD	5.0	2.1	10	02/12/09	02/28/09	KWG0901213	
Endosulfan Sulfate	ND U	5.0	2.8	10	02/12/09	02/28/09	KWG0901213	
4,4'-DDT	ND Ui	16	16	10	02/12/09	02/28/09	KWG0901213	
Endrin Ketone	4.7 JD	5.0	3.2	10	02/12/09	02/28/09	KWG0901213	
Methoxychlor	ND U	5.0	2.8	10	02/12/09	02/28/09	KWG0901213	
Toxaphene	ND Ui	250	230	10	02/12/09	02/28/09	KWG0901213	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Tetrachloro-m-xylene Decachlorobiphenyl	50 70	10-121 17-150	02/28/09 02/28/09	Acceptable Acceptable	

† Analyte Comments

gamma-Chlordane

11、1400種大品

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

Printed: 03/03/2009 09:12:29 $u:\Stealth\Crystal.rpt\Form1m.rpt$

Merged

Form 1A - Organic

1 of 1 Page

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090

Date Collected: NA Date Received: NA

Organochlorine Pesticides

Sample Name: Lab Code:

Method Blank KWG0901213-3

Extraction Method:

EPA 3535

Analysis Method:

8081A

Units: ng/L Basis: NA

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND U	0.50	0.21	1	02/12/09	02/24/09	KWG0901213	
beta-BHC	ND U	0.50	0.41	1	02/12/09	02/24/09	KWG0901213	
gamma-BHC (Lindane)	ND U	0.50	0.47	1	02/12/09	02/24/09	KWG0901213	
delta-BHC	ND U	0.50	0.14	1	02/12/09	02/24/09	KWG0901213	
Heptachlor	ND U	0.50	0.18	1	02/12/09	02/24/09	KWG0901213	
Aldrin	ND U	0.50	0.11	1	02/12/09	02/24/09	KWG0901213	
Heptachlor Epoxide	ND U	0.50	0.21	1	02/12/09	02/24/09	KWG0901213	
gamma-Chlordane†	ND U	0.50	0.31	1	02/12/09	02/24/09	KWG0901213	
Endosulfan I	ND U	0.50	0.25	1	02/12/09	02/24/09	KWG0901213	
alpha-Chlordane	ND U	0.50	0.27	1	02/12/09	02/24/09	KWG0901213	
Dieldrin	ND U	0.50	0.37	1	02/12/09	02/24/09	KWG0901213	
4,4'-DDE	ND Ui	1.4	1.4	1	02/12/09	02/24/09	KWG0901213	
Endrin	ND U	0.50	0.49	1	02/12/09	02/24/09	KWG0901213	
Endosulfan II	ND U	0.50	0.35	1	02/12/09	02/24/09	KWG0901213	
4,4'-DDD	ND U	0.50	0.21	1	02/12/09	02/24/09	KWG0901213	
Endrin Aldehyde	ND U	0.50	0.21	1	02/12/09	02/24/09	KWG0901213	
Endosulfan Sulfate	ND U	0.50	0.28	1	02/12/09	02/24/09	KWG0901213	
4,4'-DDT	ND U	0.50	0.17	1	02/12/09	02/24/09	KWG0901213	
Endrin Ketone	ND U	0.50	0.32	1	02/12/09	02/24/09	KWG0901213	
Methoxychlor	ND U	0.50	0.28	1,	02/12/09	02/24/09	KWG0901213	
Toxaphene	ND U	25	9.0	1	02/12/09	02/24/09	KWG0901213	

× 10%		Control	Date	
Surrogate Name	%Rec	Limits	Analyzed	Note
Tetrachloro-m-xylene	36	10-121	02/24/09	Acceptable
Decachlorobiphenyl	76	17-150	02/24/09	Acceptable

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic

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Page

1 of 1

SuperSet Reference: RR99097

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Surrogate Recovery Summary

Organochlorine Pesticides

Extraction Method:

EPA 3535

Analysis Method:

- 1 \$7 akil

8081A

Service Request: K0901090

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2
F0095155	K0901090-001	50 D	70 D
Method Blank	KWG0901213-3	36	76
Lab Control Sample	KWG0901213-1	41	68
Duplicate Lab Control Sample	KWG0901213-2	39	64

Surrogate Recovery Control Limits (%)

Sur1 = Tetrachloro-m-xylene 10-121 Sur2 = Decachlorobiphenyl 17-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Printed: 03/03/2009 09:12:33

Form 2A - Organic

Page 1 of 1

SuperSet Reference: RR99097

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090 Date Extracted: 02/12/2009

Date Analyzed: 02/24/2009

Lab Control Spike/Duplicate Lab Control Spike Summary **Organochlorine Pesticides**

Extraction Method:

EPA 3535

Analysis Method: 8081A

Units: ng/L Basis: NA

Level: Low

Extraction Lot: KWG0901213

Lab Control	Sample
KWG0901	213-1

Duplicate Lab Control Sample

Subsection		KWG0901213-1 KWG0901213-2 Lab Control Spike Duplicate Lab Control Spike %Rec							RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
alpha-BHC	7.40	10.0	74	7.14	10.0	71	43-127	4	30
beta-BHC	8.22	10.0	82	8.59	10.0	86	41-129	4	30
gamma-BHC (Lindane)	7.62	10.0	76	7.46	10.0	75	42-128	2	30
delta-BHC	8.19	10.0	82	7.84	10.0	78	47-141	4	30
Heptachlor	8.22	10.0	82	7.97	10.0	80	34-126	3	30
Aldrin	6.97	10.0	70	6.68	10.0	67	10-125	4	30
Heptachlor Epoxide	7.35	10.0	73	7.12	10.0	71	45-124	3	30
gamma-Chlordane	8.29	10.0	83	7.87	10.0	79	48-119	5	30
Endosulfan I	7.14	10.0	71	6.40	10.0	64	30-115	11	30
alpha-Chlordane	8.21	10.0	82	7.98	10.0	80	48-119	3	30
Dieldrin	8.26	10.0	83	7.80	10.0	78	50-120	6	30
4,4'-DDE	8.46	10.0	85	8.38	10.0	84	36-137	1	30
Endrin	9.28	10.0	93	8.86	10.0	89	53-132	5	30
Endosulfan II	8.44	10.0	84	7.60	10.0	76	32-123	10	30
4,4'-DDD	10.6	10.0	106	8.48	10.0	85	38-140	23	30
Endrin Aldehyde	6.29	10.0	63	6.16	10.0	62	30-114	2	30
Endosulfan Sulfate	8.04	10.0	80	7.67	10.0	77	46-120	5	30
4,4'-DDT	11.8	10.0	118	11.1	10.0	111	45-146	6	30
Endrin Ketone	7.92	10.0	79	7.54	10.0	75	45-127	5	30
Methoxychlor	10.1	10.0	101	9.43	10.0	94	48-140	7	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

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SuperSet Reference: RR99097

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090 **Date Collected:** 02/08/2009

Date Received: 02/10/2009

Units: ug/L

Basis: NA

Level: Low

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095155

Lab Code:

K0901090-001

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Analyte Name	Result Q	MRL	MDL	Dilution	Date	Date	Extraction	% T - 4 -
Bis(2-chloroethyl) Ether	ND U	0.22	0.037	Factor	Extracted 02/13/09	Analyzed 02/26/09	Lot KWG0901249	Note
Phenol	2.2	0.22	0.037	1	02/13/09	02/26/09	KWG0901249	
2-Chlorophenol	ND U	0.53	0.067	1 1	02/13/09	02/26/09	KWG0901249	
1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND U	0.22	0.023	1	02/13/09	02/26/09	KWG0901249	
1,4-Dichlorobenzene	ND U	0.22	0.031	1	02/13/09	02/26/09	KWG0901249	
	ND U	0.22	0.024	1	02/13/09	02/26/09	KWG0901249	
Benzyl Alcohol	0.71	0.53	0.077	1	02/13/09	02/26/09	KWG0901249	
Bis(2-chloroisopropyl) Ether	ND U	0.22	0.028	1	02/13/09	02/26/09	KWG0901249	
2-Methylphenol	0.92	0.53	0.12	1	02/13/09	02/26/09	KWG0901249	
Hexachloroethane	ND U	0.22	0.026	1	02/13/09	02/26/09	KWG0901249	
N-Nitrosodi-n-propylamine	ND U	0.22	0.039	1	02/13/09	02/26/09	KWG0901249	
4-Methylphenol†	1.5	0.53	0.13	1	02/13/09	02/26/09	KWG0901249	
Nitrobenzene	ND U	0.22	0.030	1	02/13/09	02/26/09	KWG0901249	
Isophorone	ND U	0.22	0.017	1	02/13/09	02/26/09	KWG0901249	
2-Nitrophenol	ND U	0.53	0.067	1	02/13/09	02/26/09	KWG0901249	
2,4-Dimethylphenol	ND U	4.3	2.4	1	02/13/09	02/26/09	KWG0901249	
Bis(2-chloroethoxy)methane	ND U	0.22	0.026	1	02/13/09	02/26/09	KWG0901249	
2,4-Dichlorophenol	ND U	0.53	0.050	1	02/13/09	02/26/09	KWG0901249	
Benzoic Acid	4.5 J	5.3	1.2	1	02/13/09	02/26/09	KWG0901249	
1,2,4-Trichlorobenzene	ND U	0.22	0.017	1	02/13/09	02/26/09	KWG0901249	
Naphthalene	0.25	0.22	0.024	1	02/13/09	02/26/09	KWG0901249	
4-Chloroaniline	ND U	0.22	0.027	1	02/13/09	02/26/09	KWG0901249	
Hexachlorobutadiene	ND U	0.22	0.029	1	02/13/09	02/26/09	KWG0901249	
4-Chloro-3-methylphenol	ND U	0.53	0.039	1	02/13/09	02/26/09	KWG0901249	
2-Methylnaphthalene	0.099 J	0.22	0.028	1	02/13/09	02/26/09	KWG0901249	
Hexachlorocyclopentadiene	ND U	1.1	0.20	1	02/13/09	02/26/09	KWG0901249	
2,4,6-Trichlorophenol	ND U	0.53	0.062	1	02/13/09	02/26/09	KWG0901249	
2,4,5-Trichlorophenol	ND U	0.53	0.033	1	02/13/09	02/26/09	KWG0901249	
2-Chloronaphthalene	ND U	0.22	0.044	1	02/13/09	02/26/09	KWG0901249	
2-Nitroaniline	ND U	0.22	0.026	1	02/13/09	02/26/09	KWG0901249	
Acenaphthylene	0.14 J	0.22	0.016	1	02/13/09	02/26/09	KWG0901249	
Dimethyl Phthalate	0.17 J	0.22	0.023	1	02/13/09	02/26/09	KWG0901249	
2,6-Dinitrotoluene	ND U	0.22	0.035	1	02/13/09	02/26/09	KWG0901249	

Comments:

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Form 1A - Organic

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Date Collected: K0901090 **Date Received:** 02/08/2009 **Date Received:** 02/10/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095155

Lab Code:

K0901090-001

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result (Q MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND U	J 0.22	0.028	1	02/13/09	02/26/09	KWG0901249	
3-Nitroaniline	ND U	J 1.1	0.031	1	02/13/09	02/26/09	KWG0901249	
2,4-Dinitrophenol	ND U	J 4.3	0.18	1	02/13/09	02/26/09	KWG0901249	
Dibenzofuran	ND U		0.019	1	02/13/09	02/26/09	KWG0901249	
4-Nitrophenol	ND U		0.30	1	02/13/09	02/26/09	KWG0901249	
2,4-Dinitrotoluene	ND U	J 0.22	0.019	1	02/13/09	02/26/09	KWG0901249	
Fluorene	ND U		0.029	1	02/13/09	02/26/09	KWG0901249	
4-Chlorophenyl Phenyl Ether	ND (J 0.22	0.029	1	02/13/09	02/26/09	KWG0901249	
Diethyl Phthalate	0.15 J	0.22	0.013	1	02/13/09	02/26/09	KWG0901249	
4-Nitroaniline	ND U	J 1.1	0.020	1	02/13/09	02/26/09	KWG0901249	
2-Methyl-4,6-dinitrophenol	ND U	J 2.2	0.027	1	02/13/09	02/26/09	KWG0901249	
N-Nitrosodiphenylamine	ND U	J 0.22	0.051	1	02/13/09	02/26/09	KWG0901249	
4-Bromophenyl Phenyl Ether	ND U	J 0.22	0.028	1	02/13/09	02/26/09	KWG0901249	
Hexachlorobenzene	ND U	J 0.22	0.024	1	02/13/09	02/26/09	KWG0901249	
Pentachlorophenol	0.84 J	1.1	0.36	1	02/13/09	02/26/09	KWG0901249	
Phenanthrene	0.29	0.22	0.024	1	02/13/09	02/26/09	KWG0901249	
Anthracene	0.041 J	0.22	0.026	Î	02/13/09	02/26/09	KWG0901249	
Di-n-butyl Phthalate	0.16 J	0.22	0.025	1	02/13/09	02/26/09	KWG0901249	
Fluoranthene	0,26	0.22	0.022	1	02/13/09	02/26/09	KWG0901249	
Pyrene	0.26	0.22	0.020	1	02/13/09	02/26/09	KWG0901249	
Butyl Benzyl Phthalate	0.28	0.22	0.019	1	02/13/09	02/26/09	KWG0901249	
3,3'-Dichlorobenzidine	ND U	J 2.2	0.46	1	02/13/09	02/26/09	KWG0901249	
Benz(a)anthracene	0.060 Ј	0.22	0.019	1	02/13/09	02/26/09	KWG0901249	
Chrysene	0.18 J	0.22	0.030	1	02/13/09	02/26/09	KWG0901249	
Bis(2-ethylhexyl) Phthalate	2.9	1.1	0.14	1	02/13/09	02/26/09	KWG0901249	
Di-n-octyl Phthalate	ND U	J 0.22	0.019	1	02/13/09	02/26/09	KWG0901249	
Benzo(b)fluoranthene	0.15 J	0.22	0.018	1	02/13/09	02/26/09	KWG0901249	
Benzo(k)fluoranthene	0.045 J	0.22	0.026	1	02/13/09	02/26/09	KWG0901249	
Benzo(a)pyrene	0.078 J	0.22	0.033	1	02/13/09	02/26/09	KWG0901249	
Indeno(1,2,3-cd)pyrene	0.087 J	0.22	0.023	1	02/13/09	02/26/09	KWG0901249	
Dibenz(a,h)anthracene	ND L	J 0.22	0.018	1	02/13/09	02/26/09	KWG0901249	and described and an exercise
Benzo(g,h,i)perylene	0.13 Ј	0.22	0.020	1	02/13/09	02/26/09	KWG0901249	

Comments:

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Form 1A - Organic

SuperSet Reference: RR99198

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090 Date Collected: 02/08/2009

Date Received: 02/10/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095155

Lab Code:

K0901090-001

Units: ug/L Basis: NA

		Control	Date		
Surrogate Name	%Rec	Limits	Analyzed	Note	
2-Fluorophenol	67	21-119	02/26/09	Acceptable	
Phenol-d6	70	31-121	02/26/09	Acceptable	
Nitrobenzene-d5	73	29-121	02/26/09	Acceptable	
2-Fluorobiphenyl	54	25-109	02/26/09	Acceptable	
2,4,6-Tribromophenol	86	30-131	02/26/09	Acceptable	
Terphenyl-d14	45	20-140	02/26/09	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference: RR99198

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090

Date Collected: NA **Date Received:** NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0901249-3

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND U	0.20	0.035	1	02/13/09	02/26/09	KWG0901249	
Phenol	ND U	0.50	0.063	1	02/13/09	02/26/09	KWG0901249	
2-Chlorophenol	ND U	0.50	0.054	1	02/13/09	02/26/09	KWG0901249	
1,3-Dichlorobenzene	ND U	0.20	0.021	1	02/13/09	02/26/09	KWG0901249	
1,4-Dichlorobenzene	ND U	0.20	0.029	1	02/13/09	02/26/09	KWG0901249	
1,2-Dichlorobenzene	ND U	0.20	0.022	1	02/13/09	02/26/09	KWG0901249	
Benzyl Alcohol	ND U	0.50	0.073	1	02/13/09	02/26/09	KWG0901249	
Bis(2-chloroisopropyl) Ether	ND U	0.20	0.026	1	02/13/09	02/26/09	KWG0901249	
2-Methylphenol	ND U	0.50	0.11	1	02/13/09	02/26/09	KWG0901249	
Hexachloroethane	ND U	0.20	0.024	1	02/13/09	02/26/09	KWG0901249	
N-Nitrosodi-n-propylamine	ND U	0.20	0.037	1	02/13/09	02/26/09	KWG0901249	
4-Methylphenol†	ND U	0.50	0.12	1	02/13/09	02/26/09	KWG0901249	
Nitrobenzene	ND U	0.20	0.028	1	02/13/09	02/26/09	KWG0901249	pannagement and an arrangement and arrangement arr
Isophorone	ND U	0.20	0.016	1	02/13/09	02/26/09	KWG0901249	
2-Nitrophenol	ND U	0.50	0.063	1	02/13/09	02/26/09	KWG0901249	
2,4-Dimethylphenol	ND U	4.0	2.2	1	02/13/09	02/26/09	KWG0901249	
Bis(2-chloroethoxy)methane	ND U	0.20	0.024	1	02/13/09	02/26/09	KWG0901249	
2,4-Dichlorophenol	ND U	0.50	0.047	1	02/13/09	02/26/09	KWG0901249	
Benzoic Acid	ND U	5.0	1.1	1	02/13/09	02/26/09	KWG0901249	
1,2,4-Trichlorobenzene	ND U	0.20	0.016	1	02/13/09	02/26/09	KWG0901249	
Naphthalene	ND U	0.20	0.022	1	02/13/09	02/26/09	KWG0901249	
4-Chloroaniline	ND U	0.20	0.025	1	02/13/09	02/26/09	KWG0901249	
Hexachlorobutadiene	ND U	0.20	0.027	1	02/13/09	02/26/09	KWG0901249	
4-Chloro-3-methylphenol	ND U	0.50	0.037	1	02/13/09	02/26/09	KWG0901249	
2-Methylnaphthalene	ND U	0.20	0.026	1	02/13/09	02/26/09	KWG0901249	
Hexachlorocyclopentadiene	ND U	1.0	0.19	I	02/13/09	02/26/09	KWG0901249	
2,4,6-Trichlorophenol	ND U	0.50	0.058	1	02/13/09	02/26/09	KWG0901249	
2,4,5-Trichlorophenol	ND U	0.50	0.031	1	02/13/09	02/26/09	KWG0901249	
2-Chloronaphthalene	ND U	0.20	0.041	1	02/13/09	02/26/09	KWG0901249	
2-Nitroaniline	ND U	0.20	0.024	1	02/13/09	02/26/09	KWG0901249	
Acenaphthylene	ND U	0.20	0.015	1	02/13/09	02/26/09	KWG0901249	
Dimethyl Phthalate	ND U	0.20	0.021	1	02/13/09	02/26/09	KWG0901249	
2,6-Dinitrotoluene	ND U	0.20	0.033	1	02/13/09	02/26/09	KWG0901249	

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090

Units: ug/L

Basis: NA

Level: Low

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0901249-3

Extraction Method:

EPA 3520C

Analysis Method:

8270C

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note Note
Acenaphthene	ND U	0.20	0.026	1	02/13/09	02/26/09	KWG0901249	
3-Nitroaniline	ND U	1.0	0.029	1	02/13/09	02/26/09	KWG0901249	
2,4-Dinitrophenol	ND U	4.0	0.17	1	02/13/09	02/26/09	KWG0901249	
Dibenzofuran	ND U	0.20	0.018	1	02/13/09	02/26/09	KWG0901249	
4-Nitrophenol	ND U	2.0	0.28	1	02/13/09	02/26/09	KWG0901249	
2,4-Dinitrotoluene	ND U	0.20	0.018	1	02/13/09	02/26/09	KWG0901249	
Fluorene	ND U	0.20	0.027	1	02/13/09	02/26/09	KWG0901249	
4-Chlorophenyl Phenyl Ether	ND U	0.20	0.027	1	02/13/09	02/26/09	KWG0901249	
Diethyl Phthalate	ND U	0.20	0.012	1	02/13/09	02/26/09	KWG0901249	
4-Nitroaniline	ND U	1.0	0.019	1	02/13/09	02/26/09	KWG0901249	
2-Methyl-4,6-dinitrophenol	ND U	2.0	0.025	1	02/13/09	02/26/09	KWG0901249	
N-Nitrosodiphenylamine	ND U	0.20	0.048	1	02/13/09	02/26/09	KWG0901249	
4-Bromophenyl Phenyl Ether	ND U	0.20	0.026	1	02/13/09	02/26/09	KWG0901249	
Hexachlorobenzene	ND U	0.20	0.022	1	02/13/09	02/26/09	KWG0901249	
Pentachlorophenol	ND U	1.0	0.34	1	02/13/09	02/26/09	KWG0901249	
Phenanthrene	ND U	0.20	0.022	1	02/13/09	02/26/09	KWG0901249	
Anthracene	ND U	0.20	0.024	1	02/13/09	02/26/09	KWG0901249	
Di-n-butyl Phthalate	0.024 J	0.20	0.023	1	02/13/09	02/26/09	KWG0901249	
Fluoranthene	ND U	0.20	0.020	1	02/13/09	02/26/09	KWG0901249	
Pyrene	ND U	0.20	0.019	1	02/13/09	02/26/09	KWG0901249	
Butyl Benzyl Phthalate	ND U	0.20	0.018	1	02/13/09	02/26/09	KWG0901249	
3,3'-Dichlorobenzidine	ND U	2.0	0.43	1	02/13/09	02/26/09	KWG0901249	
Benz(a)anthracene	ND U	0.20	0.018	1	02/13/09	02/26/09	KWG0901249	
Chrysene	ND U	0.20	0.028	1	02/13/09	02/26/09	KWG0901249	
Bis(2-ethylhexyl) Phthalate	ND U	1.0	0.13	1	02/13/09	02/26/09	KWG0901249	
Di-n-octyl Phthalate	ND U	0.20	0.018	1	02/13/09	02/26/09	KWG0901249	
Benzo(b)fluoranthene	ND U	0.20	0.017	1	02/13/09	02/26/09	KWG0901249	
Benzo(k)fluoranthene	ND U	0.20	0.024	1	02/13/09	02/26/09	KWG0901249	
Benzo(a)pyrene	ND U	0.20	0.031	1	02/13/09	02/26/09	KWG0901249	
Indeno(1,2,3-cd)pyrene	ND U	0.20	0.021	1	02/13/09	02/26/09	KWG0901249	
Dibenz(a,h)anthracene	ND U	0.20	0.017	1	02/13/09	02/26/09	KWG0901249	
Benzo(g,h,i)perylene	ND U	0.20	0.019	1	02/13/09	02/26/09	KWG0901249	

Comments:

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Form 1A - Organic

15

RR99198

Page

2 of 3

SuperSet Reference:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0901249-3

Units: ug/L

Basis: NA

2-Fluorophenol 71 21-119 02/26/09 Acceptable Phenol-d6 74 31-121 02/26/09 Acceptable Nitrobenzene-d5 76 29-121 02/26/09 Acceptable 2-Fluorobiphenyl 68 25-109 02/26/09 Acceptable 2,4,6-Tribromophenol 81 30-131 02/26/09 Acceptable	Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Nitrobenzene-d5 76 29-121 02/26/09 Acceptable 2-Fluorobiphenyl 68 25-109 02/26/09 Acceptable	2-Fluorophenol	71	21-119	02/26/09	Acceptable	
2-Fluorobiphenyl 68 25-109 02/26/09 Acceptable	Phenol-d6	74	31-121	02/26/09	Acceptable	
	Nitrobenzene-d5	76	29-121	02/26/09	Acceptable	
2.4.6-Tribromophenol 81 30-131 02/26/09 Acceptable	2-Fluorobiphenyl	68	25-109	02/26/09	Acceptable	
	2,4,6-Tribromophenol	81	30-131	02/26/09	Acceptable	
Terphenyl-d14 92 20-140 02/26/09 Acceptable	Terphenyl-d14	92	20-140	02/26/09	•	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Merged

Form 1A - Organic

Page 3 of 3

SuperSet Reference: RR99198

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Service Request: K0901090

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4	<u>Sur5</u>	<u>Sur6</u>
F0095155	K0901090-001	67	70	73	54	86	45
Method Blank	KWG0901249-3	71	74	76	68	81	92
Lab Control Sample	KWG0901249-1	70	71	73	64	82	84
Duplicate Lab Control Sample	KWG0901249-2	62	65	66	60	81	85

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	21-119	Sur5 = 2,4,6-Tribromophenol	30-131
Sur2 = Phenol-d6	31-121	Sur6 = Terphenyl-d14	20-140
Sur3 = Nitrobenzene-d5	29-121	•	
Sur4 = 2-Fluorobiphenyl	25-109		

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Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

Page

1 of 1

QA/QC Report

Client: Portland, City of

Project: Portland Harbor Stormwater Samp

Sample Matrix: Water Service Request: K0901090 Date Extracted: 02/13/2009

Date Analyzed: 02/26/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C **Analysis Method:**

8270C

Units: ug/L Basis: NA Level: Low

Extraction Lot: KWG0901249

							Extraction Bot: 14 (1 G0) 012 ()			
Lab Control Sample KWG0901249-1 Lab Control Spike Duplicate Lab Control Sample KWG0901249-2 Duplicate Lab Control Spike			%Rec		RPD					
Analyte Name	Result Expected %Rec		Result	Expected	%Rec	Limits	RPD	Limit		
Bis(2-chloroethyl) Ether	3.68	5.00	74	2.97	5.00	59	39-115	21	30	
Phenol	3.75	5.00	75	3.06	5.00	61	39-117	20	30	
2-Chlorophenol	3.90	5.00	78	3.20	5.00	64	40-113	20	30	
1,3-Dichlorobenzene	1.94	5.00	39	1.75	5.00	35	18-71	10	30	
1,4-Dichlorobenzene	2.06	5.00	41	1.89	5.00	38	19-73	9	30	
1,2-Dichlorobenzene	2.23	5.00	45	1.99	5.00	40	22-78	11	30	
Benzyl Alcohol	3.95	5.00	79	3.28	5.00	66	37-119	19	30	
Bis(2-chloroisopropyl) Ether	3.83	5.00	77	3.11	5.00	62	35-113	21	30	
2-Methylphenol	3.62	5.00	72	3.05	5.00	61	26-113	17	30	
Hexachloroethane	1.52	5.00	30	1.44	5.00	29	11-62	5	30	
N-Nitrosodi-n-propylamine	3.85	5.00	77	3.17	5.00	63	32-117	19	30	
4-Methylphenol	3.71	5.00	74	3.14	5.00	63	25-118	17	30	
Nitrobenzene	3.85	5.00	77	3.18	5.00	64	37-116	19	30	
Isophorone	3.49	5.00	70	3.02	5.00	60	39-112	15	30	
2-Nitrophenol	3.85	5.00	77	3.32	5.00	66	42-116	15	30	
2,4-Dimethylphenol	3.11	5.00 ·	62	2.93	5.00	59	10-113	6	30	
Bis(2-chloroethoxy)methane	3.74	5.00	75	3.24	5.00	65	40-113	14	30	
2,4-Dichlorophenol	3.83	5.00	77	3.25	5.00	65	39-115	16	30	
Benzoic Acid	0.168	15.0	1 *	0.344	15.0	2 *	10-102	69 *	30	
1,2,4-Trichlorobenzene	2.21	5.00	44	2.05	5.00	41	21-78	8	30	
Naphthalene	3.13	5.00	63	2.79	5.00	56	33-98	11	30	
4-Chloroaniline	3.38	5.00	68	3.02	5.00	60	10-119	11	30	
Hexachlorobutadiene	1.40	5.00	28	1.35	5.00	27	10-61	3	30	
4-Chloro-3-methylphenol	4.08	5.00	82	3.66	5.00	73	37-119	11	30	
2-Methylnaphthalene	2.97	5.00	59	2.68	5.00	54	32-95	10	30	
Hexachlorocyclopentadiene	0.492	5.00	10	0.584	5.00	12	10-39	17	30	
2,4,6-Trichlorophenol	4.12	5.00	82	3.61	5.00	72	40-117	13	30	
2,4,5-Trichlorophenol	4.35	5.00	87	3.78	5.00	76	44-116	14	30	
2-Chloronaphthalene	3.08	5.00	62	2,75	5.00	55	21-115	11	30	
2-Nitroaniline	4.21	5.00	84	3.76	5.00	75	43-124	11	30	
Acenaphthylene	3.67	5.00	73	3.21	5.00	64	41-114	13	30	
Dimethyl Phthalate	3.89	5.00	78	3.51	5.00	70	47-117	10	30	
2,6-Dinitrotoluene	4.30	5.00	86	3.74	5.00	75	45-120	14	30	
Acenaphthene	3.45	5.00	69	3.05	5.00	61	38-106	12	30	
3-Nitroaniline	4.28	5.00	86	3.70	5.00	74	31-125	14	30	

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

Page

1 of 2

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Water

Service Request: K0901090 **Date Extracted:** 02/13/2009

Date Analyzed: 02/26/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA Level: Low

Extraction Lot: KWG0901249

Lab Control Sample KWG0901249-1

Duplicate Lab Control Sample KWG0901249-2

		Control Spike		G0901249-2 Lab Control		%Rec		RPD	
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
2,4-Dinitrophenol	0.128	5.00	3 *	0.214	5.00	4 *	10-121	51 *	30
Dibenzofuran	3.50	5.00	70	3.15	5.00	63	40-107	10	30
4-Nitrophenol	4.10	5.00	82	3.74	5.00	75	43-133	9	30
2,4-Dinitrotoluene	4.31	5.00	86	3.86	5.00	77	47-125	11	30
Fluorene	3.71	5.00	74	3.35	5.00	67	40-112	10	30
4-Chlorophenyl Phenyl Ether	3.43	5.00	69	3.15	5.00	63	39-108	9	30
Diethyl Phthalate	4.05	5.00	81	3.62	5.00	72	47-120	11	30
4-Nitroaniline	4.45	5.00	89	3.82	5.00	76	36-128	15	30
2-Methyl-4,6-dinitrophenol	1.87	5.00	37	1.86	5.00	37	19-127	0	30
N-Nitrosodiphenylamine	4.05	5.00	81	3.60	5.00	72	36-114	12	30
4-Bromophenyl Phenyl Ether	3.64	5.00	73	3.36	5.00	67	43-110	8	30
Hexachlorobenzene	3.61	5.00	72	3.22	5.00	64	42-107	12	30
Pentachlorophenol	1.50	5.00	30	1.54	5.00	31	28-114	2	30
Phenanthrene	3.91	5.00	78	3.55	5.00	71	43-110	10	30
Anthracene	3.84	5.00	77	3.44	5.00	69	40-110	11	30
Di-n-butyl Phthalate	3.78	5.00	76	3.44	5.00	69	45-135	9	30
Fluoranthene	3.96	5.00	79	3.61	5.00	72	42-119	9	30
Pyrene	3.89	5.00	78	3.57	5.00	71	43-118	9	30
Butyl Benzyl Phthalate	3.83	5.00	77	3.49	5.00	70	48-124	9	30
3,3'-Dichlorobenzidine	3.84	5.00	77	3.36	5.00	67	15-108	13	30
Benz(a)anthracene	3.82	5.00	76	3.48	5.00	70	45-112	9	30
Chrysene	3.91	5.00	78	3.54	5.00	71	47-112	10	30
Bis(2-ethylhexyl) Phthalate	3.69	5.00	74	3.48	5.00	70	32-149	6	30
Di-n-octyl Phthalate	3.87	5.00	77	3.52	5.00	70	49-127	10	30
Benzo(b)fluoranthene	3.87	5.00	77	3.49	5.00	70	45-115	10	30
Benzo(k)fluoranthene	3.97	5.00	79	3.57	5.00	71	46-115	11	30
Benzo(a)pyrene	3.42	5.00	68	3.04	5.00	61	40-117	12	30
ndeno(1,2,3-cd)pyrene	4.21	5.00	84	3.77	5.00	75	44-119	11	30
Dibenz(a,h)anthracene	3.99	5.00	80	3.54	5.00	71	45-118	12	30
Benzo(g,h,i)perylene	3.89	5.00	78	3.45	5.00	69	45-116	12	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic 19

Page SuperSet Reference: RR99198

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CHAIN OF CUSTODY

SR#: KOGGIOGO

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

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PAGE_

	RELINQUISHED BY: Signature Signature Signature Child of Portand Printed Name RELINQUISHED BY: Child of Portand	required III. Data Validation Report (includes all raw data) IV. CLP Deliverable Report V. EDD	Routine Report: Method Blank, Surrogate, as required				F0095155 28109172	PROJECT NUMBER PROJECT MANAGER COMPANY/ADDRESS CITY/STATEZIP E-MAIL ADDRESS PHONE # SAMPLE I.D. DATE TIME
	RECEIVED BY: And Signature Date: And Printed Name Film	24 hr48 hr5 Day Standard (10-15 working days) Provide FAX Results Requested Report Date	OCC INFORMATION	TOP NOTES			× 2	LABID. MATRIX NUMBER OF CONTAINERS
	Date Film	SPECIAL INSTRUCTIONS/COMMENTS	Circle which metals are to be analyzed Total Metals: Al As Sb Ba Be Dissolved Metals: Al As Sb Ba Ba *INDICATE STATE HYDROCARE				100	Semivolatile Organics by GC/MS Volatile Organics by GC/MS 8270 8270 8270
	RELINQUISHED I	MMENTS:	s Sb Ba Be B Ca Cd Co Cr Cu As Sb Ba Be B Ca Cd Co Cr Cu HYDROCARBON PROCEDURE: AK				X	Oil & Grease/TRPH 1664 SGT PCB's Aroctors Congeners Chlorophenolics 8151M PAHS PAHS Coll Screen 1664 SGT 1668 SHORID SGE 1668 SG
	8y: 00 100	8270. TX	Fe Pb Mg Mn Mo Ni Fe Pb Mg Mn Mo Ni CA WI NORTHWEST					Wetals, Total or Dissolved Cyanide Hex-Chrom NO3, BOD, TSS, TDS 4: F, NO
);	RECEIVED BY: J-I-O ignature Date/Time Cd S rinted Name Firm		K Ag Na Se Sr TI Sn K Ag Na Se Sr TI Sn OTHER: (CIRCL					TOX 9020 AOX 1650 506
BUUU #4 UB/UB	0 77 8		V Zn Hg N V Zn Hg		DATE OF THE PROPERTY OF THE PR		NOTION OF THE PROPERTY OF THE	REMARKS

20

PC PP Columbia Analytical Services, Inc. **Cooler Receipt and Preservation Form** Service Réquest $K09 \bigcirc 9 \bigcirc \ell$ 2-10-09 Opened: Received: Hand Delivered Courier GHGSDHLUS Mail_ Fed Ex Samples were received via? CAS COOLE NACooler Envelope Other Samples were received in: (circle) If yes, how many and where? NA Were custody seals on coolers? If present, were they signed and dated? Y Ν If present, were custody seals intact? N 4. Is shipper's air-bill filed? If not, record air-bill number: Temperature of cooler(s) upon receipt (°C): Temperature Blank (°C): Thermometer ID: If applicable, list Chain of Custody Numbers: Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Ice Sleeves NA Ν Were custody papers properly filled out (ink, signed, etc.)? Ν NA Did all bottles arrive in good condition (unbroken)? Indicate in the table below. Ν NA 10. Were all sample labels complete (i.e analysis, preservation, etc.)? 11. Did all sample labels and tags agree with custody papers? Indicate in the table below NA Ν N Were appropriate bottles/containers and volumes received for the tests indicated? NA Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below NA N Were VOA vials and 1631 Mercury bottles received without headspace? Indicate in the table below. NA 15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? NA Υ N N NA 16. Was C12/Res negative? Sample ID on COC Sample ID on Bottle Sample ID on COC Sample ID on Bottle Volume Reagent Lot Out of Head-Bottle Initials Number Temp space Broken Reagent added Bottle Type Count Sample ID *Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN). Additional Notes, Discrepancies, & Resolutions:

1



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

March 17, 2009

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 02/10/09 17:30. The following list is a summary of the Work Orders contained in this report, generated on 03/17/09 12:43.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
PSB0252	Portland Harbor	36238

TestAmerica Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford03/17/09 12:43

ANALYTICAL REPORT FOR SAMPLES								
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received				
FO 095155	PSB0252-01	Water	02/08/09 17:20	02/10/09 17:30				
FO 095156	PSB0252-02	Water	02/08/09 00:00	02/10/09 17:30				

TestAmerica Portland

Howard Holmes, Project Manager

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PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory

Portland Harbor Project Name: 36238 Project Number:

6543 N. Burlington Ave. Portland, OR 97203

Project Manager: Jennifer Shackelford

Report Created: 03/17/09 12:43

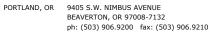
Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSB0252-01 (FO 09	PSB0252-01 (FO 095155) Water Sampled: 02/08/09 17:20									
Bis(2-ethylhexyl)phthalate	EPA 8270m	1.53	0.554	1.05	ug/l	1x	9020381	02/12/09 15:30	02/25/09 16:10	
Butyl benzyl phthalate	"	0.578	0.554	1.05	"	"	"	"	"	J
Di-n-butyl phthalate	n .	ND	0.554	1.05	"	"	"	"	"	
Di-n-octyl phthalate	"	1.45	0.554	1.05	"	"	"	"	"	
Diethyl phthalate	"	ND	0.554	1.05	"	"	"	"	"	
Dimethyl phthalate	"	ND	0.554	1.05	"	"	"	"	"	
Acenaphthene	"	0.0730	0.0211	0.0211	"	"	"	"	02/20/09 23:43	
Acenaphthylene	"	ND	0.0316	0.0316	"	"	"	"	"	RL1
Anthracene	"	ND	0.0211	0.0211	"	"	"	"	"	
Benzo (a) anthracene	"	0.0335	0.0105	0.0105	"	"	"	"	"	
Benzo (a) pyrene	"	0.0401	0.0105	0.0105	"	"	"	"	"	
Benzo (b) fluoranthene	"	0.0653	0.0105	0.0105	"	"	"	"	"	
Benzo (ghi) perylene	"	0.0835	0.0211	0.0211	"	"	"	"	"	
Benzo (k) fluoranthene	"	0.0412	0.0105	0.0105	"	"	"	"	"	
Chrysene	"	0.125	0.0105	0.0105	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	0.0151	0.0105	0.0105	"	"	"	"	"	
Fluoranthene	"	0.229	0.0211	0.0211	"	"	"	"	"	
Fluorene	"	0.0313	0.0211	0.0211	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	0.0362	0.0105	0.0105	"	"	"	"	"	
Naphthalene	"	0.222	0.0211	0.0211	"	"	"	"	"	
Phenanthrene	"	0.241	0.0211	0.0211	"	"	"	"	"	
Pyrene	"	0.133	0.0211	0.0211	"	"	"	"	"	
Surrogate(s): Fluore	ene-d10			70.0%		25 - 125 %	"			"
Pyren	e-d10			36.6%		23 - 150 %	"			"
Benzo	(a) pyrene-d12			58.4%		10 - 125 %	"			"

TestAmerica Portland

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 12:43

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

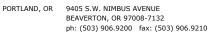
TestAmerica Portland

QC Batch: 9020381	Water I	reparation	Method:	3520B Liq-l	Liq									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9020381-BLK1)								Extr	acted:	02/12/09 15	:30			
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	0.526	1.00	ug/l	1x							02/24/09 22:04	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"							"	
Diethyl phthalate	"	ND	0.526	1.00	"	"							"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"							"	
Acenaphthene	"	ND	0.0200	0.0200	"	"							02/18/09 13:02	
Acenaphthylene	"	ND	0.0200	0.0200	"	"							"	
Anthracene	"	ND	0.0200	0.0200	"	"							"	
Benzo (a) anthracene	"	ND	0.0100	0.0100	"	"							"	
Benzo (a) pyrene	"	ND	0.0100	0.0100	"	"							"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	"	"							"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	"	"							"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	"	"							"	
Chrysene	"	ND	0.0100	0.0100	"	"							"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"	"							"	
Fluoranthene	"	ND	0.0200	0.0200	"	"							"	
Fluorene	"	ND	0.0200	0.0200	"	"							"	
Indeno (1,2,3-cd) pyrene	"	ND	0.0100	0.0100	"	"							"	
Naphthalene	"	ND	0.0200	0.0200	"	"							"	
Phenanthrene	"	ND	0.0200	0.0200	"	"							"	
Pyrene	"	ND	0.0200	0.0200	"	"							"	
Surrogate(s): Fluorene-d10		Recovery:	79.3%	Lin	nits: 25-1259	% "							02/18/09 13:02	?
Pyrene-d10			69.4%		23-150								"	
Benzo (a) pyrene-d12			87.5%		10-125	% "							"	
LCS (9020381-BS1)								Extr	acted:	02/12/09 15	:30			
Bis(2-ethylhexyl)phthalate	EPA 8270m	2.72	0.526	1.00	ug/l	1x		4.00	68.1%	(20-150)			02/24/09 23:54	
Butyl benzyl phthalate	"	2.74	0.526	1.00	"	"		"	68.6%	"			"	
Di-n-butyl phthalate	"	3.71	0.526	1.00	"	"		"	92.8%	"			"	
Di-n-octyl phthalate	"	1.98	0.526	1.00	"	"		"	49.5%	"			"	
Diethyl phthalate	"	3.20	0.526	1.00	"	"		"	80.0%	"			"	
Dimethyl phthalate	"	2.99	0.526	1.00	"	"		"	74.6%	,,			"	
Acenaphthene	"	2.19	0.0200	0.0200	"	"		2.50	87.5%	(35-120)			02/18/09 13:50	
Acenaphthylene	"	2.08	0.0200	0.0200	"	"		"	83.1%	(34-116)			"	
Anthracene	"	2.17	0.0200	0.0200	"	"		"	87.0%	(24-119)			"	
			0.0100	0.0100	,,	,,		,,	92.7%	(36-128)			"	
Benzo (a) anthracene	"	2.52												
Benzo (a) anthracene Benzo (a) pyrene	"	2.32 2.36	0.0100	0.0100	,,	"		,,	94.4%	(17-128)			,,	

TestAmerica Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.





City of Portland Water Pollution Laboratory

Project Name: Portland Harbor

6543 N. Burlington Ave.

Project Number: 36238 Report Created:

Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 12:43

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results	
TestAmerica Portland	

1000 111101100 1 01110

QC Bate	h: 9020381	water r	reparation	Method: 3	520B Liq-i	Liq									
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	« REC	(Limits)	% RPD	(Limits	Analyzed	Notes
LCS (9020381	1-BS1)								Ext	racted:	02/12/09 15	5:30			
Benzo (ghi) perylene	e	EPA 8270m	2.18	0.0200	0.0200	ug/l	1x		2.50	87.2%	(26-126)			02/18/09 13:50	
Benzo (k) fluoranthe	ene	"	2.43	0.0100	0.0100	"	"		"	97.4%	(18-145)			"	
Chrysene		"	2.57	0.0100	0.0100	"	"		"	103%	(16-137)			"	
Dibenzo (a,h) anthra	icene	"	2.29	0.0100	0.0100	"	"		"	91.6%	(20-141)			"	
Fluoranthene		"	2.44	0.0200	0.0200	"	"		"	97.6%	(31-125)			"	
Fluorene		"	2.20	0.0200	0.0200	"	"		"	87.9%	(27-124)			"	
Indeno (1,2,3-cd) py	rene	"	2.29	0.0100	0.0100	"	"		"	91.8%	(30-135)			"	
Naphthalene		"	2.19	0.0200	0.0200	"	"		"	87.6%	(30-113)			"	
Phenanthrene		"	2.38	0.0200	0.0200	"	"		"	95.2%	(34-126)			"	
Pyrene		"	1.83	0.0200	0.0200	"	"		"	73.3%	(21-141)			"	
Surrogate(s):	Fluorene-d10		Recovery:	92.1%	Lin	nits: 25-125%	"							02/18/09 13:50	
0 (/	Pyrene-d10		•	81.7%		23-150%	"							"	
	Benzo (a) pyrene-d12			99.0%		10-125%	"							"	
	(0000001 7501)				0.00	DCD022 (02					0040004				
	(9020381-MS1)	ED 1 0050	2.51	0.521		PSB0336-03		0.517			02/12/09 15			00/05/00 00 00	
Bis(2-ethylhexyl)ph		EPA 8270m	3.76	0.521	0.990	ug/l	1x	0.716	3.96	76.8%	(10-150)			02/25/09 02:22	
Butyl benzyl phthala		"	3.33	0.521	0.990	"		ND	"	84.1%					
Di-n-butyl phthalate		"	3.87	0.521	0.990	"		ND	"	97.8%	"		-		
Di-n-octyl phthalate			2.65	0.521	0.990			ND	"	67.0%					
Diethyl phthalate			3.46	0.521	0.990	"	"	ND	"	87.2%	"			"	
Dimethyl phthalate		"	3.31	0.521	0.990	"	"	ND	"	83.6%					
Acenaphthene		"	2.05	0.0198	0.0198	"	"	ND	2.48	82.8%	(35-120)	-		02/18/09 14:23	
Acenaphthylene		"	1.89	0.0198	0.0198	"	"	ND	"	76.3%	(34-116)			"	
Anthracene		"	2.18	0.0198	0.0198	"	"	ND	"	88.1%	(24-119)	-		"	
Benzo (a) anthracen	e	"	1.45	0.00990	0.00990	"	"	0.0199	"	57.9%	(22-129)			"	
Benzo (a) pyrene		"	1.11	0.00990	0.00990	"	"	0.0168	"	44.1%	(4-112)			"	
Benzo (b) fluoranthe	ene	"	1.24	0.00990	0.00990	"	"	0.0278	"	48.8%	(0-136)			"	
Benzo (ghi) perylene	e	"	0.950	0.0198	0.0198	"	"	0.0240	"	37.4%	(0-126)			"	
Benzo (k) fluoranthe	ene	"	1.13	0.00990	0.00990	"	"	0.0207	"	44.8%	(0-145)			"	
Chrysene		"	1.66	0.00990	0.00990	"	"	0.0512	"	65.1%	(7-137)			"	
Dibenzo (a,h) anthra	icene	"	0.952	0.00990	0.00990	"	"	ND	"	38.5%	(0-141)			"	
Fluoranthene		"	2.16	0.0198	0.0198	"	"	0.0892	"	83.6%	(30-125)			"	
Fluorene		"	2.21	0.0198	0.0198	"	"	ND	"	89.3%	(27-124)			"	
Indeno (1,2,3-cd) py	rene	"	0.952	0.00990	0.00990	"	"	0.0167	"	37.8%	(0-135)			"	
Naphthalene		"	2.17	0.0198	0.0198	"	"	ND	"	87.5%	(30-126)			"	
Dl 4l		"	2.39	0.0198	0.0198	"	"	0.0567	"	94.1%	(34-126)			"	
Phenanthrene															

TestAmerica Portland

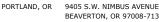
Howard Holmes, Project Manager

Pyrene-d10

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

23-150%

67.6%



BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory

Portland Harbor Project Name:

6543 N. Burlington Ave. Portland, OR 97203

Project Number: 36238 Project Manager: Jennifer Shackelford

ND

0.0199

0.0168

0.0278

0.0240

0.0207

0.0512

ND

0.0892

90.3%

57.2%

43.6%

45.5%

37.3%

46.8%

63.5%

38.2%

(24-119)

(22-129)

(4-112)

(0-136)

(0-126)

(0-145)

(7-137)

(0-141)

(30-125)

2.39%

1.25%

1.21%

7.18%

4.38%

2.45%

0.709%

Report Created: 03/17/09 12:43

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results TestAmerica Portland QC Batch: 9020381 Water Preparation Method: 3520B Liq-Liq REC (Limits) Source Spike Analyte Method Result MDL* MRL Units Dil (Limits) Analyzed Notes Matrix Spike (9020381-MS1) QC Source: PSB0336-03 Extracted: 02/12/09 15:30 Limits: 10-125% 02/18/09 14:23 Surrogate(s): Benzo (a) pyrene-d12 Recovery: 90.9% Matrix Spike Dup (9020381-MSD1) QC Source: PSB0336-03 Extracted: 02/12/09 15:30 3.84 0.526 02/25/09 02:59 Bis(2-ethylhexyl)phthalate EPA 8270m 1.00 1x 0.716 4 00 78.1% (10-150)1.70% (50) ug/l Butyl benzyl phthalate 3.42 0.526 1.00 ND 85.5% 1.69% 4.07 0.526 1.00 ND 102% 3.99% Di-n-butyl phthalate 2.77 0.526 1.00 ND 69.2% 3.18% Di-n-octvl phthalate 3.29% " Diethyl phthalate 3.61 0.526 1.00 ND 90.2% 3.36 0.526 1.00 ND 84.0% 0.562% Dimethyl phthalate 1.99 0.0200 0.0200 ND 02/18/09 14:56 Acenaphthene 2.50 79.6% (35-120)4.02% (45) Acenaphthylene 1 89 0.0200 0.0200 ND 75.5% (34-116)1.03%

2.26

1.45

1.11

1.16

0.956

1.19

1.64

0.955

2.27

0.0200

0.0100

0.0100

0.0100

0.0200

0.0100

0.0100

0.0100

0.0200

0.0200

0.0100

0.0100

0.0100

0.0200

0.0100

0.0100

0.0100

0.0200

Fluorene	"	2.18	0.0200	0.0200	"	"	ND	"	87.0%	(27-124)	2.57% "	"
Indeno (1,2,3-cd) pyrene	"	0.959	0.0100	0.0100	"	"	0.0167	"	37.7%	(0-135)	0.255% "	"
Naphthalene	"	1.99	0.0200	0.0200	"	"	ND	"	79.5%	(30-126)	9.65% "	"
Phenanthrene	"	2.40	0.0200	0.0200	"	"	0.0567	"	93.7%	(34-126)	0.456% "	"
Pyrene	"	1.43	0.0200	0.0200	"	"	0.0590	"	54.8%	(14-168)	3.18% "	"
Surrogate(s): Fluoren	e-d10	Recovery:	89.0%	Limit	ts: 25-125%	"						02/18/09 14:56
Pyrene-	d10		65.2%		23-150%	"						"
Benzo (a) pyrene-d12		92.1%		10-125%	"						"
Pyrene Surrogate(s): Fluoren Pyrene-	e-d10 d10	1.43 Recovery:	0.0200 89.0% 65.2%	0.0200	ts: 25-125% 23-150%	"		"		, ,		02/18/09 14:56

TestAmerica Portland

Anthracene

Chrysene

Fluoranthene

Benzo (a) anthracene

Benzo (b) fluoranthene

Benzo (k) fluoranthene

Dibenzo (a,h) anthracene

Benzo (ghi) perylene

Benzo (a) pyrene

Howard Holmes, Project Manager

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9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

THE LEADER IN ENVIRONMENTAL TESTING

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. 36238 Report Created: Project Number: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 12:43

Notes and Definitions

Report Specific Notes:

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

Reporting limit raised due to sample matrix effects. RL1

Laboratory Reporting Conventions:

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA _ Not Reported / Not Available

dry Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries). RPD

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits percent solids, where applicable.

Electronic

Signature

Dil

- Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244

11922 E. First Ave. Spokane, WA 99206-5302

9405 SW Nimbus Ave Beaverton, OR 97008 7145

509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210

425-420-9200 FAX 420-9210

907-563-9200 FAX 563-9210

2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119.

CHAIN OF CUSTODY REPORT Work Order #: (56)252 INVOICE TO: in Business Days * Charles Lytle Organic & Inorganic Analyses 30238 P.O. NUMBER: Portland Harbor PROJECT NAME: PRESERVATIVE PROJECT NUMBER: 5 HORMWOOTER SAMP REQUESTED ANALYSES OTHER SAMPLED BY: Turnaround Requests less than standard may incur Rush Charges CLIENT SAMPLE SAMPLING MATRIX LOCATION/ IDENTIFICATION DATE/TIME (W, S, O) CONT. COMMENTS WOID FO 095 155 2/8/09 1720 FO 095156 RECEIVED BY: 1500 (U.C.) PRINT NAME:

(*) PCBS All 209 Conjuncis - to Pace Analytical.

(*) PCBS All 209 Conjuncis - to Pace Analytical.

(*) Please use customized Wi list w low RLs. Thanks.

(Note: We will be sending more low-level PAH: Phtholates tomorrow (uic samples) if analysts want to wait to batch + analyze.

TestAmerica Sample Receipt Checklist

Received by: '(section A) Date: 2 1/6/1 Time: 7 3(Initials:	77	Logged-in by: Date: Z (0 9 Initials: S	, ESI client)	Client:	PSBOZ	and Kil	
A Custody Seals: (#	<u> </u>		В	<u>Sample Statu</u> (If N circled, se			
Peanu None (***ESI Clients Only: Temperature Blan	er(s) s) (#Other:) e c lce e Bags oam Cubbies ts (Other:)	NA (voas/soils/all unp.)	# For An C C C A W HI Volatile VOA TB 6 Metals H D	ntact? Containers Match COC? S Match COC? Salyses Requested: yanide Checked? correct Type & Preservation? dequate Volume? //thin Hold Time? F Dilution Required? es/ Oil Quality: s/ Syringes free of Headspace on COC? not provided	Y Y ce? Y Y Y eepable?	N N N N N N N N	NA NA NA NA NA NA
		Project	Managers:	<u></u>			
Comments:							

_____ (Initial/Date)

PM Reviewed:_



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

Report Prepared for:

Howard Holmes Test America 9405 SW Nimbus Avenue Beaverton OR 97008

> REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 1089254

Sample Receipt Date: 02/12/2009

Client Project #: PSB0252 Client Sub PO #: N/A

State Cert #: MN200001-005

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed and prepared by:

got C. Muye

Scott Unze, Project Manager (612) 607-6383

(612) 607-6444 (fax) scott.unze@pacelabs.com



Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

March 2, 2009



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on two samples submitted by a representative of IsleChem, LLC. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.5 parts per trillion and were adjusted for sample volume.

The isotopically-labeled PCB internal standards in the sample extracts were recovered at 58-150%. With one exception, the labeled internal standard recoveries obtained for this project were within the target ranges specified in the method. Since the quantification of the native PCB congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of PCB congeners at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the levels determined for the field samples.

Laboratory spike samples were also prepared with the sample batch using a reference water matrix that had been fortified with native standards. The results show that the spiked native compounds were recovered at 96-107%, with relative percent differences of 0.0-5.0%. These results indicate high degrees of accuracy and precision for these determinations.

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

SUBCONTRACT ORDER

TestAmerica Portland PSB0252

1089254

SENDING LABORATORY:

TestAmerica Portland 9405 SW Nimbus Ave. Beaverton, OR 97008 Phone: (503) 906-9200

Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone: (612) 607-1700

Fax: (612) 607-6444

Project Location: OR - OREGON

Receipt Temperature:

 $^{\circ}$ C

Ice: Y / N

needs Excel EDD

Analysis

Units

ug/l

Due

Expires

Comments

Sample ID: PSB0252-01

Water

Sampled: 02/08/09 17:20

1668 Coplanar PCBs - SUB

02/24/09

08/07/09 17:20

209 Congeners to Pace

Containers Supplied:

1L Amber - Unpres. (A)

Sample ID: PSB0252-02

Water

Sampled: 02/08/09 00:00

1668 Coplanar PCBs - SUB ug/l

02/24/09 08/07/09 00:00 ***209 Congeners***

Containers Supplied:

1L Amber - Unpres. (A)

Please provide pat report à Excel EDD
Thank you

Released Report No.....1089254 1 668 Aime

PALE

1=2.4°C

Date/Time

Received By

Sample Condition Upon Receipt

Pace Analytical

Client N	ame: [£9]	AMERICA	Project #	1089254
Courier: KD Fed Ex UPS USPS Tracking #: 979687120766 Custody Seal on Cooler/Box Present:	6		Option	iāl ļue Dafe:
70		Seals intact: 💆 yes	no lastely to	anne:
The same of the sa	ubble Bags 🔲 No	<u></u>	Temp Blank: Ye	s No X
AND THE PROPERTY OF THE PROPER	Type of ice:		Samples on ice, co	oling process has begun
Cooler Temperature 2 4 °C Temp should be above freezing to 6°C	Biological Ti	ssue is Frozen; Yes No Comments:	Date and Initia contents: 7	id of person examinate
Chain of Custody Present:	Mayes □No [The same of the sa		
Chain of Custody Filled Out:	X Yes □No □		The state of the s	والمراوية
Chain of Custody Relinquished:	Yes 🗆 No 🗀	**************************************	der gewannen der eine Lande en Stade en Stade der eine d	والمستعدد والأدا المستعدد والمرابعة والمستعدد والمستعد والمستعدد والمستعد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد وا
Sampler Name & Signature on COC:	□Yes MNo □	The section of the second section is a second section of the second section of the second section is a second section of the second section is a second section of the second section of the second section is a second section of the section of the second section of the section of the second section of the se	and and the second state of the property of the second second second second second second second second second	Complete the state of the state
Samples Arrived within Hold Time:	Kyes DNo D	STATE OF THE PARTY	The state of the s	ritys of the lateral systems and the death, deposits of the hope that the antiquestic lines.
Short Hold Time Analysis (<72hr):	□Yes □No 🔏	THE RESERVE THE PROPERTY AND ADDRESS OF THE PARTY OF THE		LANCE STREET, AND ASSESSED STR
Rush Turn Around Time Requested:	□Yes Mo □I	Secretary of the second second second second second	and the second s	all years in faryage from the good from the good for the
Sufficient Volume:	N	WA 8.	in the Anti-Anti-Anti-Anti-Anti-Anti-Anti-Anti-	Margan artis a supplementary of the supplementary o
Correct Containers Used:	U	VA 9	مث و المعادل المعادل المعادل و المعادل و المعادل المعادل المعادل المعادل المعادل و المعادل	و پر پر پر کرد کا در
-Pace Containers Used:	□Yes Kino □N			
Containers Intact:	WYes □No □N		and the same of the same and th	The transfer of the transfer o
Filtered volume received for Dissolved tests	The state of the s	A 11.	ر بر المراجع ا	
Sample Labels match COC: -Includes date/tirne/ID/Analysis Matrix: All containers needing acid/base preservation have been checked. Noncompliance are noted in 13. All containers needing preservation are found to be in	Yes Ono Anin			
compliance with EPA recommendation.	LlYes []No [MN/A	The state of the s	The state of the s	is the whole the state of the s
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes Ø No	Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:	□Yes □No AN/A	14.	Kara etta 1884 warren eta 1844 eta 1882 eta 1844 eta 184	
Headspace in VOA Vials (>6mm):	□Yes □No BNA	15.	T. Miller Pro-print for Mathematical Professor (Miller de service) en auropsis professor (April 2004) de Production (THE REAL PROPERTY AND THE PROPERTY OF THE PROP
Trip Blank Present:	□Yes □No ØN/A	16.	والمراقب والمواسطة والمراقب والمراقب المراقب والمراقب والمراقب والمراقب والمراقب والمراقب والمراقب والمراقب والمراقب	Transcript Exhault majorappe (European or completely an arrangement)
Trip Blank Custody Seals Present	□Yes □No ŒN/A			
Pace Trip Blank Lot # (if purchased):	Control of Control of the Control of			
Client Notification/ Resolution:		The state of the s	Field Data Required?	
Person Contacted:	Date/Ti		•	Y / N
Comments/ Resolution:		Considerate Company Collecting Services and Manager and Advanced Approximation of Approximation (Approximation Company)	and other walls	
Project Manager Review:	0		Date: 03/12	(09

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina Page 5 of 30 Certification Tepper North North Carolina Page 5 of 30

Appendix B

Sample Analysis Summary

Water



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Sample Analysis Results

Matrix

Client - Test America

Client's Sample ID PSB0252-01
Lab Sample ID 1089254001
Filename P90225A_07
Injected By SMT
Total Amount Extracted 968 mL
% Moisture NA

Dilution NA Dry Weight Extracted NA Collected 02/08/2009 **ICAL ID** P90225A02 Received 02/12/2009 CCal Filename(s) P90225A 01 Extracted 02/20/2009 Method Blank ID **BLANK-18971** Analyzed 02/25/2009 18:27

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.109	2.98	2.0	1.17	58
13C-4-MoCB	3	10.176	3.15	2.0	1.19	60
13C-2,2'-DiCB	3 4	10.488	1.59	2.0	1.33	67
13C-4,4'-DiCB	15	18.432	1.50	2.0	1.69	85
13C-2,2',6-TrCB	19	14.861	1.06	2.0	1.19	59
13C-3,4,4'-TrCB	37	26.758	1.01	2.0	1.61	81
13C-2,2',6,6'-TeCB	54	18.710	0.82	2.0	1.51	75
13C-3,4,4',5-TeCB	81	34.136	0.77	2.0	1.28	64
13C-3,3',4,4'-TeCB	77	34.740	0.77	2.0	1.33	67
13C-2,2',4,6,6'-PeCB	104	25.299	1.60	2.0	1.81	91
13C-2,3,3',4,4'-PeCB	105	38.378	1.54	2.0	1.37	68
13C-2,3,4,4',5-PeCB	114	37.725	1.54	2.0	1.32	66
13C-2,3',4,4',5-PeCB	118	37.188	1.52	2.0	1.41	71
13C-2,3',4,4',5'-PeCB	123	36.853	1.56	2.0	1.45	73
13C-3,3',4,4',5-PeCB	126	41.648	1.54	2.0	1.16	58
13C-2,2',4,4',6,6'-HxCB	155	31.621	1.33	2.0	2.24	112
13C-HxCB (156/157)	156/157	44.717	1.22	4.0	2.87	72
13C-2,3',4,4`,5,5'-HxĆB	167	43.560	1.22	2.0	1.48	74
13C-3,3',4,4',5,5'-HxCB	169	48.087	1.26	2.0	1.27	64
13C-2,2',3,4',5,6,6'-HpCB	188	37.674	1.04	2.0	3.01	150 P
13C-2,3,3',4,4',5,5'-HpCB	189	50.626	1.04	2.0	1.81	91
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.225	0.94	2.0	2.60	130
13C-2,3,3',4,4',5,5',6-OcCB	205	53.191	0.89	2.0	1.76	88
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.915	0.82	2.0	1.75	87
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.023	0.80	2.0	1.99	100
13CDeCB	209	56.488	0.71	2.0	1.70	85
Cleanup Standards						
13C-2,4,4'-TrCB	28	22.147	1.03	2.0	1.87	94
13C-2,3,3',5,5'-PeCB	111	34.824	1.57	2.0	1.74	87
13C-2,2',3,3',5,5',6-HpCB	178	40.877	1.07	2.0	1.96	98
·	_		-			
Recovery Standards	_					
13C-2,5-DiCB	9	13.304	1.54	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.277	0.78	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.906	1.60	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.407	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.717	0.88	2.0	NA	NA

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EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
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B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0252-01 1089254001 P90225A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.516
2				ND		0.516
3				ND		0.516
4				ND		0.516
5				ND		0.516
6				ND		0.516
7				ND		0.516
8				ND		0.516
9				ND		0.516
10				ND		0.516
11		17.689	1.47	2.23		0.620
12	12/13	17.009	1. 4 7	ND		0.516
13	12/13			ND		0.516
14	12/13			ND ND		0.516
15				ND ND		0.516
16				ND ND		0.516
17				ND ND		0.516
	40/20		4.00			0.516
18	18/30	17.270	1.06	0.803		0.516
19	00/00			ND		0.516
20	20/28	22.164	0.96	2.24		0.620
21	21/33	22.432	0.97	0.677		0.516
22		22.902	0.98	1.03		0.516
23				ND		0.516
24				ND		0.516
25				ND		0.516
26	26/29			ND		0.516
27				ND		0.516
28	20/28	22.164	0.96	(2.24)		0.620
29	26/29			ND		0.516
30	18/30	17.270	1.06	(0.803)		0.516
31		21.845	0.96	1.27		0.516
32				ND		0.516
33	21/33	22.432	0.97	(0.677)		0.516
34				ND		0.516
35				ND		0.516
36				ND		0.516
37		26.775	1.00	1.16		0.516
38				ND		0.516
39				ND		0.516
40	40/41/71	26.524	0.77	2.46		0.516
41	40/41/71	26.524	0.77	(2.46)		0.516
42		26.004	0.77	`1.0 4		0.516
43				ND		0.516
44	44/47/65	25.417	0.78	3.26		0.620
45	45/51	22.231	0.76	0.563		0.516
46	-:-			ND		0.516
47	44/47/65	25.417	0.78	(3.26)		0.620
48		25.165	0.77	0.665		0.516
70		20.100	0.11	0.000		0.010

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSB0252-01 Lab Sample ID 1089254001 Filename P90225A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	24.863	0.78	1.75		0.516
50	50/53			ND		0.516
51	45/51	22.231	0.76	(0.563)		0.516
52	40/01	24.310	0.78	3.63		0.516
53	50/53	24.010		ND		0.516
54	30/33			ND		0.516
55				ND		0.516
56		30.732	0.75	1.40		0.516
57				ND		0.516
58				ND		0.516
59	59/62/75			ND		0.516
60	33/02/13	30.967	0.77	0.758		0.516
61	61/70/74/76	29.693	0.75	5.12		0.516
62	59/62/75			ND		0.516
63	33/02/13			ND		0.516
64		26.809	0.77	1.63		0.516
65	44/47/65	25.417	0.78	(3.26)		0.620
66	44/47/00	30.028	0.74	2.41		0.516
67				ND		0.516
68				ND		0.516
69	49/69	24.863	0.78	(1.75)		0.516
70	61/70/74/76	29.693	0.75	(5.12)		0.516
71	40/41/71	26.524	0.77	(2.46)		0.516
72	40/41/71	20.324		(2.40) ND		0.516
73				ND ND		0.516
74 74	61/70/74/76	29.693	0.75	(5.12)		0.516
7 5	59/62/75	29.090	0.75	ND		0.516
76	61/70/74/76	29.693	0.75	(5.12)		0.516
77	01/10/1-1/10	34.757	0.72	0.563		0.516
78				ND		0.516
79				ND		0.516
80				ND		0.516
81				ND		0.516
82		34.304	1.63	1.12		0.516
83		32.392	1.46	0.545		0.516
84		29.827	1.54	1.94		0.516
85	85/116/117	33.801	1.56	1.20		0.620
86	86/87/97/108/119/125	33.113	1.59	5.65		1.03
87	86/87/97/108/119/125	33.113	1.59	(5.65)		1.03
88	88/91	29.609	1.67	0.999		0.516
89	00/91	23.003		ND		0.516
90	90/101/113	31.923	1.55	6.91		0.516
91	88/91	29.609	1.67	(0.999)		0.516
92	33/01	31.302	1.54	1.19		0.516
93	93/98/100/102	31.302		ND		0.775
94	33,33,100,102			ND		0.775
95		28.670	1.56	5.36		0.516
96		20.070		ND		0.516
50				ND		0.010

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! = Outside QC Limits
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSB0252-01 Lab Sample ID 1089254001 Filename P90225A_07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
97	86/87/97/108/119/125	33.113	1.59	(5.65)		1.03
98	93/98/100/102			NĎ		0.775
99		32.543	1.54	3.36		0.516
100	93/98/100/102			ND		0.775
101	90/101/113	31.923	1.55	(6.91)		0.516
102	93/98/100/102			` NĎ		0.775
103				ND		0.516
104				ND		0.516
105		38.412	1.52	3.22		0.516
106				ND		0.516
107	107/124			ND		0.516
108	86/87/97/108/119/125	33.113	1.59	(5.65)		1.03
109	00/01/31/100/113/123			ND		0.516
110	110/115	34.002	1.56	9.63		0.516
111	110/119	3 4 .002		ND		0.516
112				ND ND		0.516
113	90/101/113	31.923	1.55	(6.91)		0.516
114	90/101/113	31.923	1.55	(0.91) ND		0.516
115	110/115	34.002	1.56	(9.63)		0.516
116	85/116/117	33.801	1.56	(1.20)		0.620
	85/116/117	33.801				
117	85/116/117		1.56	(1.20)		0.620
118	00/07/07/400/440/405	37.221	1.51	6.61		0.516
119	86/87/97/108/119/125	33.113	1.59	(5.65)		1.03
120				ND		0.516
121				ND		0.516
122				ND		0.516
123	107/101			ND		0.516
124	107/124			ND (5.05)		0.516
125	86/87/97/108/119/125	33.113	1.59	(5.65)		1.03
126				ND		0.516
127				ND		0.516
128	128/166	41.699	1.22	1.86		1.03
129	129/138/163	40.441	1.23	11.0		0.516
130		39.753	1.19	0.667		0.516
131				ND		0.516
132		37.238	1.25	3.83		0.516
133				ND		0.516
134	134/143			ND		0.516
135	135/151	34.991	1.28	3.37		0.527
136		32.359	1.28	1.26		0.516
137		39.988	1.18	0.646		0.516
138	129/138/163	40.441	1.23	(11.0)		0.516
139	139/140			` NĎ		0.516
140	139/140			ND		0.516
141		39.351	1.24	1.86		0.516
142				ND		0.516
143	134/143			ND		0.516
144	-			ND		0.516

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Method 1668A Polychlorobiphenyl Sample Analysis Results

 Client Sample ID
 PSB0252-01

 Lab Sample ID
 1089254001

 Filename
 P90225A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.516
146		38.529	1.24	1.30		0.516
147	147/149	35.964	1.23	7.49		0.516
148				ND		0.516
149	147/149	35.964	1.23	(7.49)		0.516
150				NĎ		0.516
151	135/151	34.991	1.28	(3.37)		0.527
152				ND		0.516
153	153/168	39.167	1.24	7.17		0.620
154				ND		0.516
155				ND		0.516
156	156/157	44.734	1.23	1.37		1.03
157	156/157	44.734	1.23	(1.37)		1.03
158		40.843	1.23	1.07		0.516
159				ND		0.516
160				ND		0.516
161				ND		0.516
162				ND		0.516
163	129/138/163	40.441	1.23	(11.0)		0.516
164		40.122	1.22	Ò.64Ź		0.516
165				ND		0.516
166	128/166	41.699	1.22	(1.86)		1.03
167				` NĎ		0.516
168	153/168	39.167	1.24	(7.17)		0.620
169				` NĎ		0.516
170		47.400	1.03	1.98		0.516
171	171/173	43.778	1.00	0.630		0.516
172				ND		0.516
173	171/173	43.778	1.00	(0.630)		0.516
174		42.671	1.00	2.24		0.516
175				ND		0.516
176				ND		0.516
177		43.124	1.01	1.16		0.516
178				ND		0.516
179		38.026	1.04	1.00		0.516
180	180/193	46.159	1.03	4.40		0.516
181				ND		0.516
182				ND		0.516
183	183/185	42.470	1.03	1.34		0.516
184				ND		0.516
185	183/185	42.470	1.03	(1.34)		0.516
186				NĎ		0.516
187		41.833	1.05	2.90		0.516
188				ND		0.516
189				ND		0.516
190				ND		0.516
191				ND		0.516
192				ND		0.516

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Nn = Value obtained from additional analyses

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NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
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I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSB0252-01 Lab Sample ID 1089254001 Filename P90225A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.159	1.03	(4.40)		0.516
194		52.738	0.88	1.08		0.516
195				ND		0.516
196				ND		0.723
197	197/200			ND		2.58
198	198/199	48.121	0.89	1.41		0.516
199	198/199	48.121	0.89	(1.41)		0.516
200	197/200			` NĎ		2.58
201				ND		0.516
202				ND		0.516
203		48.993	0.92	0.828		0.516
204				ND		0.516
205				ND		0.516
206				ND		0.516
207				ND		0.516
208				ND		0.516
209				ND		0.516

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0252-01 1089254001 P90225A_07

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	2.23	
Total Trichloro Biphenyls	7.18	
Total Tetrachloro Biphenyls	25.2	
Total Pentachloro Biphenyls	47.7	
Total Hexachloro Biphenyls	43.6	
Total Heptachloro Biphenyls	15.7	
Total Octachloro Biphenyls	3.32	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	145	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID PSB0252-02 Lab Sample ID 1089254002 P90225A_08 Filename Injected By **SMT** Total Amount Extracted 963 mL

Water Matrix % Moisture NA Dilution NA Dry Weight Extracted NA Collected 02/08/2009

ICAL ID P90225A02 Received 02/12/2009 CCal Filename(s) P90225A 01 Extracted 02/20/2009 Method Blank ID **BLANK-18971** Analyzed 02/25/2009 19:28

PCR Isomer HIDAC Datio habb A a'nn na's Found % Recovery

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.109	2.97	2.0	1.22	61
13C-4-MoCB	3 4	10.165	2.75	2.0	1.29	64
13C-2,2'-DiCB	4	10.488	1.64	2.0	1.26	63
13C-4,4'-DiCB	15	18.420	1.53	2.0	1.52	76
13C-2,2',6-TrCB	19	14.754	1.06	2.0	1.34	67
13C-3,4,4'-TrCB	37	26.725	1.03	2.0	1.66	83
13C-2,2',6,6'-TeCB	54	18.693	0.85	2.0	1.29	65
13C-3,4,4',5-TeCB	81	34.086	0.78	2.0	1.54	77
13C-3,3',4,4'-TeCB	77	34.673	0.78	2.0	1.57	78
13C-2,2',4,6,6'-PeCB	104	25.283	1.62	2.0	1.49	75
13C-2,3,3',4,4'-PeCB	105	38.312	1.53	2.0	1.50	75
13C-2,3,4,4',5-PeCB	114	37.658	1.52	2.0	1.45	72
13C-2,3',4,4',5-PeCB	118	37.122	1.50	2.0	1.55	77
13C-2,3',4,4',5'-PeCB	123	36.786	1.52	2.0	1.58	79
13C-3,3',4,4',5-PeCB	126	41.565	1.48	2.0	1.28	64
13C-2,2',4,4',6,6'-HxCB	155	31.588	1.29	2.0	1.81	91
13C-HxCB (156/157)	156/157	44.617	1.22	4.0	2.84	71
13C-2,3',4,4',5,5'-HxĆB	167	43.460	1.23	2.0	1.50	75
13C-3,3',4,4',5,5'-HxCB	169	47.954	1.22	2.0	1.26	63
13C-2,2',3,4',5,6,6'-HpCB	188	37.608	1.07	2.0	2.74	137
13C-2,3,3',4,4',5,5'-HpCB	189	50.476	1.02	2.0	1.77	88
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.141	0.92	2.0	2.55	127
13C-2,3,3',4,4',5,5',6-OcCB	205	53.041	0.89	2.0	1.73	87
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.765	0.80	2.0	1.79	89
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.916	0.80	2.0	2.06	103
13CDeCB	209	56.338	0.70	2.0	1.82	91
0, 0, 1, 1						
Cleanup Standards	00	00.404	4.04	0.0	4.00	00
13C-2,4,4'-TrCB	28	22.131	1.04	2.0	1.86	93
13C-2,3,3',5,5'-PeCB	111	34.757	1.59	2.0	1.79	89
13C-2,2',3,3',5,5',6-HpCB	178	40.794	1.08	2.0	1.90	95
Dagovery Standards						
Recovery Standards 13C-2,5-DiCB	9	13.292	1.50	2.0	NA	NA
13C-2,3-DICB 13C-2,2',5,5'-TeCB	52	24.260	0.80	2.0	NA NA	NA NA
13C-2,2',4,5,5'-PeCB	101	31.856	1.59	2.0	NA NA	NA NA
	138	40.324	1.39	2.0	NA NA	NA NA
13C-2,2',3,4,4',5'-HxCB	194		0.89	2.0 2.0	NA NA	NA NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.566	0.09	2.0	INA	INA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0252-02 1089254002 P90225A_08

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.519
2				ND		0.519
3				ND		0.519
4				ND		0.519
5				ND		0.519
6				ND		0.519
7				ND		0.519
8				ND		0.519
9				ND		0.519
10				ND		0.519
11				ND		0.623
12	12/13			ND		0.519
13	12/13			ND		0.519
14	12/13			ND ND		0.519
15				ND ND		0.519
16				ND ND		0.519
17				ND ND		0.519
18	10/20			ND ND		0.519
	18/30					0.519
19	00/00			ND		0.519
20	20/28			ND		0.623
21	21/33			ND		0.519
22				ND		0.519
23				ND		0.519
24				ND		0.519
25				ND		0.519
26	26/29			ND		0.519
27				ND		0.519
28	20/28			ND		0.623
29	26/29			ND		0.519
30	18/30			ND		0.519
31		21.812	0.99	0.737		0.519
32				ND		0.519
33	21/33			ND		0.519
34				ND		0.519
35				ND		0.519
36				ND		0.519
37				ND		0.519
38				ND		0.519
39				ND		0.519
40	40/41/71	26.507	0.77	0.807		0.519
41	40/41/71	26.507	0.77	(0.807)		0.519
42				NĎ		0.519
43				ND		0.519
44	44/47/65	25.384	0.77	1.33		0.623
45	45/51			ND		0.519
46	-· - ·			ND		0.519
47	44/47/65	25.384	0.77	(1.33)		0.623
48				ND		0.519
.0				140		0.010

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSB0252-02 Lab Sample ID 1089254002 Filename P90225A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	24.830	0.78	0.822		0.519
50	50/53			ND		0.519
51	45/51			ND		0.519
52		24.277	0.78	1.49		0.519
53	50/53			ND		0.519
54				ND		0.519
55				ND		0.519
56		30.683	0.76	0.746		0.519
57				ND		0.519
58				ND		0.519
59	59/62/75			ND		0.519
60		30.934	0.75	0.588		0.519
61	61/70/74/76	29.660	0.76	2.72		0.519
62	59/62/75			ND		0.519
63				ND		0.519
64		26.776	0.77	0.746		0.519
65	44/47/65	25.384	0.77	(1.33)		0.623
66	11/11/00	29.995	0.75	1.07		0.519
67				ND		0.519
68				ND		0.519
69	49/69	24.830	0.78	(0.822)		0.519
70	61/70/74/76	29.660	0.76	(2.72)		0.519
70 71	40/41/71	26.507	0.76	(0.807)		0.519
71	40/41/71	26.507	0.77	(0.607) ND		0.519
73	C4/70/74/70			ND (2.72)		0.519
74 75	61/70/74/76	29.660	0.76	(2.72)		0.519
75	59/62/75			ND		0.519
76	61/70/74/76	29.660	0.76	(2.72)		0.519
77				NĎ		0.519
78				ND		0.519
79				ND		0.519
80				ND		0.519
81				ND		0.519
82		34.254	1.51	1.10		0.519
83				ND		0.519
84		29.794	1.58	0.547		0.519
85	85/116/117			ND		0.623
86	86/87/97/108/119/125	33.064	1.54	2.48		1.04
87	86/87/97/108/119/125	33.064	1.54	(2.48)		1.04
88	88/91			` NĎ		0.519
89				ND		0.519
90	90/101/113	31.873	1.55	1.73		0.519
91	88/91			ND		0.519
92	33,01			ND		0.519
93	93/98/100/102			ND		0.779
93 94	30/30/100/102			ND ND		0.779
9 4 95		28.637	1.57	0.932		0.519
96				ND		0.519

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
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P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSB0252-02 Lab Sample ID 1089254002 Filename P90225A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	33.064	1.54	(2.48)		1.04
98	93/98/100/102			NĎ		0.779
99		32.493	1.53	0.813		0.519
100	93/98/100/102			ND		0.779
101	90/101/113	31.873	1.55	(1.73)		0.519
102	93/98/100/102			` NĎ		0.779
103				ND		0.519
104				ND		0.519
105		38.346	1.51	0.667		0.519
106				ND		0.519
107	107/124			ND		0.519
108	86/87/97/108/119/125	33.064	1.54	(2.48)		1.04
109	00/01/01/100/110/120			ND		0.519
110	110/115	33.952	1.59	1.14		0.519
111	110/110			ND		0.519
112				ND		0.519
113	90/101/113	31.873	1.55	(1.73)		0.519
114	90/101/113			ND		0.519
115	110/115	33.952	1.59	(1.14)		0.519
116	85/116/117		1.59	ND		0.623
117	85/116/117			ND ND		0.623
117	65/116/117	37.155		0.957		0.623
119	86/87/97/108/119/125	33.064	1.46 1.54	(2.48)		1.04
120	00/07/97/100/119/125	33.004	1.54	(2.46) ND		0.519
-				ND ND		0.519
121				ND ND		
122						0.519
123	407/404			ND		0.519
124	107/124		 4	ND (2.40)		0.519
125	86/87/97/108/119/125	33.064	1.54	(2.48)		1.04
126				ND		0.519
127	100/100			ND		0.519
128	128/166			ND		1.04
129	129/138/163	40.358	1.23	0.859		0.519
130				ND		0.519
131				ND		0.519
132				ND		0.519
133				ND		0.519
134	134/143			ND		0.519
135	135/151			ND		0.529
136				ND		0.519
137				ND		0.519
138	129/138/163	40.358	1.23	(0.859)		0.519
139	139/140			ND		0.519
140	139/140			ND		0.519
141				ND		0.519
142				ND		0.519
143	134/143			ND		0.519
144				ND		0.519

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P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID PSB0252-02 Lab Sample ID 1089254002 Filename P90225A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.519
146				ND		0.519
147	147/149	35.897	1.18	0.549		0.519
148				ND		0.519
149	147/149	35.897	1.18	(0.549)		0.519
150				ND		0.519
151	135/151			ND		0.529
152				ND		0.519
153	153/168			ND		0.623
154				ND		0.519
155				ND		0.519
156	156/157			ND		1.04
157	156/157			ND		1.04
158				ND		0.519
159				ND		0.519
160				ND		0.519
161				ND		0.519
162				ND		0.519
163	129/138/163	40.358	1.23	(0.859)		0.519
164				` NĎ		0.519
165				ND		0.519
166	128/166			ND		1.04
167				ND		0.519
168	153/168			ND		0.623
169				ND		0.519
170				ND		0.519
171	171/173			ND		0.519
172				ND		0.519
173	171/173			ND		0.519
174				ND		0.519
175				ND		0.519
176				ND		0.519
177				ND		0.519
178				ND		0.519
179	100/100			ND		0.519
180	180/193			ND		0.519
181				ND		0.519
182	400/405			ND		0.519
183	183/185			ND ND		0.519
184	100/105			ND ND		0.519
185	183/185			ND ND		0.519 0.519
186						0.519
187				ND ND		0.519
188 189				ND ND		0.519 0.519
189				ND ND		0.519
191				ND ND		0.519
192				מא		0.519

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

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ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSB0252-02 Lab Sample ID 1089254002 Filename P90225A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		0.519
194				ND		0.519
195				ND		0.519
196				ND		0.727
197	197/200			ND		2.60
198	198/199			ND		0.519
199	198/199			ND		0.519
200	197/200			ND		2.60
201				ND		0.519
202				ND		0.519
203				ND		0.519
204				ND		0.519
205				ND		0.519
206				ND		0.519
207				ND		0.519
208				ND		0.519
209				ND		0.519

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

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P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0252-02 1089254002 P90225A_08

 Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	0.737	
Total Tetrachloro Biphenyls	10.3	
Total Pentachloro Biphenyls	10.4	
Total Hexachloro Biphenyls	1.41	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	22.8	

ND = Not Detected



Method 1668A Polychlorobiphenyl **Blank Analysis Results**

Lab Sample ID **BLANK-18971** P90224A_18 Filename Injected By SMT **Total Amount Extracted** 1030 mL **ICAL ID** P90224A14

Matrix Water Extracted Analyzed

02/20/2009 02/25/2009 04:57

CCal Filename(s)	P90224A_	13		Dilution	NA	
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	7.097	3.11	2.0	1.09	54
13C-4-MoCB	3	10.152	3.11	2.0	1.14	57
13C-2,2'-DiCB	4	10.464	1.61	2.0	1.10	55
13C-4,4'-DiCB	15	18.383	1.49	2.0	1.36	68
13C-2,2',6-TrCB	19	14.729	1.05	2.0	1.19	59
13C-3,4,4'-TrCB	37	26.685	1.05	2.0	1.62	81
13C-2,2',6,6'-TeCB	54	18.670	0.81	2.0	1.27	64
13C-3,4,4',5-TeCB	81	34.029	0.77	2.0	1.56	78
13C-3,3',4,4'-TeCB	77	34.633	0.77	2.0	1.61	80
13C-2,2',4,6,6'-PeCB	104	25.243	1.63	2.0	1.39	70
13C-2,3,3',4,4'-PeCB	105	38.272	1.51	2.0	1.58	79
13C-2,3,4,4',5-PeCB	114	37.601	1.50	2.0	1.51	76
13C-2,3',4,4',5-PeCB	118	37.081	1.52	2.0	1.61	80
13C-2,3',4,4',5'-PeCB	123	36.729	1.54	2.0	1.64	82
13C-3,3',4,4',5-PeCB	126	41.508	1.51	2.0	1.43	71
13C-2,2',4,4',6,6'-HxCB	155	31.548	1.29	2.0	1.54	77
13C-HxCB (156/157)	156/157	44.559	1.24	4.0	3.01	75
13C-2,3',4,4',5,5'-HxCB	167	43.419	1.21	2.0	1.56	78
13C-3,3',4,4',5,5'-HxCB	169	47.896	1.26	2.0	1.40	70
13C-2,2',3,4',5,6,6'-HpCB	188	37.567	1.06	2.0	1.91	95
13C-2,3,3',4,4',5,5'-HpCB	189	50.425	1.02	2.0	1.64	82
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.100	0.92	2.0	1.90	95
13C-2,3,3',4,4',5,5',6-OcCB	205	52.990	0.90	2.0	1.70	85
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.714	0.78	2.0	1.53	76
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.865	0.82	2.0	1.77	89
13CDeCB	209	56.287	0.70	2.0	1.65	83
Cleanup Standards						
13C-2,4,4'-TrCB	28	22.091	1.02	2.0	1.89	95
13C-2,3,3',5,5'-PeCB	111	34.700	1.58	2.0	1.79	90
13C-2,2',3,3',5,5',6-HpCB	178	40.753	1.08	2.0	1.86	93
Recovery Standards						
13C-2,5-DiCB	9	13.267	1.53	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.220	0.81	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.816	1.63	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.284	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.516	0.91	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18971 P90224A_18

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.486
2				ND		0.486
3				ND		0.486
4				ND		0.486
4 5 6				ND		0.486
6				ND		0.486
7				ND		0.486
8				ND		0.486
9				ND		0.486
10				ND		0.486
11				ND		0.584
12	12/13			ND		0.486
13	12/13			ND		0.486
14	,			ND		0.486
15				ND		0.486
16				ND		0.486
17				ND		0.486
18	18/30			ND		0.486
19	. 5/ 5 5			ND		0.486
20	20/28			ND		0.584
21	21/33			ND		0.486
22	,,			ND		0.486
23				ND		0.486
24				ND		0.486
25				ND		0.486
26	26/29			ND		0.486
27				ND		0.486
28	20/28			ND		0.584
29	26/29			ND		0.486
30	18/30			ND		0.486
31				ND		0.486
32				ND		0.486
33	21/33			ND		0.486
34				ND		0.486
35				ND		0.486
36				ND		0.486
37				ND		0.486
38				ND		0.486
39				ND		0.486
40	40/41/71			ND		0.486
41	40/41/71			ND		0.486
42				ND		0.486
43				ND		0.486
44	44/47/65			ND		0.584
45	45/51			ND		0.486

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18971 P90224A_18

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46				ND		0.486
47	44/47/65			ND		0.584
48	44/47/03			ND		0.486
49	49/69			ND		0.486
50	50/53			ND		0.486
51	45/51			ND		0.486
52	45/51			ND		0.486
53	50/53			ND		0.486
54	30/33			ND		0.486
55				ND		0.486
56				ND		0.486
57				ND		0.486
58				ND		0.486
59	59/62/75			ND		0.486
60	03/02/10			ND		0.486
61	61/70/74/76			ND		0.486
62	59/62/75			ND		0.486
63	03/02/10			ND		0.486
64				ND		0.486
65	44/47/65			ND		0.584
66	44/47/05			ND		0.486
67				ND		0.486
68				ND		0.486
69	49/69			ND		0.486
70	61/70/74/76			ND		0.486
71	40/41/71			ND		0.486
72	10/ 11// 1			ND		0.486
73				ND		0.486
74	61/70/74/76			ND		0.486
75	59/62/75			ND		0.486
76	61/70/74/76			ND		0.486
 77	0.17.07.17.0			ND		0.486
78				ND		0.486
79				ND		0.486
80				ND		0.486
81				ND		0.486
82				ND		0.486
83				ND		0.486
84				ND		0.486
85	85/116/117			ND		0.584
86	86/87/97/108/119/125			ND		0.973
87	86/87/97/108/119/125			ND		0.973
88	88/91			ND		0.486
89	33,01			ND		0.486
90	90/101/113			ND		0.486

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18971 P90224A_18

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
		17.1	itatio		iig/L	
91	88/91			ND		0.486
92				ND		0.486
93	93/98/100/102			ND		0.730
94				ND		0.486
95				ND		0.486
96				ND		0.486
97	86/87/97/108/119/125			ND		0.973
98	93/98/100/102			ND		0.730
99				ND		0.486
100	93/98/100/102			ND		0.730
101	90/101/113			ND		0.486
102	93/98/100/102			ND		0.730
103				ND		0.486
104				ND		0.486
105				ND		0.486
106				ND		0.486
107	107/124			ND		0.486
108	86/87/97/108/119/125			ND		0.973
109				ND		0.486
110	110/115			ND		0.486
111				ND		0.486
112				ND		0.486
113	90/101/113			ND		0.486
114				ND		0.486
115	110/115			ND		0.486
116	85/116/117			ND		0.584
117	85/116/117			ND		0.584
118				ND		0.486
119	86/87/97/108/119/125			ND		0.973
120				ND		0.486
121				ND		0.486
122				ND		0.486
123				ND		0.486
124	107/124			ND		0.486
125	86/87/97/108/119/125			ND		0.973
126				ND		0.486
127				ND		0.486
128	128/166			ND		0.973
129	129/138/163			ND		0.486
130	-			ND		0.486
131				ND		0.486
132				ND		0.486
133				ND		0.486
134	134/143			ND		0.486
135	135/151			ND		0.496

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

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B = Less than 10 times higher than method blank level

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ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18971 P90224A_18

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
136				ND		0.486
137				ND		0.486
138	129/138/163			ND		0.486
139	139/140			ND		0.486
140	139/140			ND		0.486
141				ND		0.486
142				ND		0.486
143	134/143			ND		0.486
144				ND		0.486
145				ND		0.486
146				ND		0.486
147	147/149			ND		0.486
148				ND		0.486
149	147/149			ND		0.486
150				ND		0.486
151	135/151			ND		0.496
152				ND		0.486
153	153/168			ND		0.584
154				ND		0.486
155				ND		0.486
156	156/157			ND		0.973
157	156/157			ND		0.973
158				ND		0.486
159				ND		0.486
160				ND		0.486
161				ND		0.486
162				ND		0.486
163	129/138/163			ND		0.486
164	120/100/100			ND		0.486
165				ND		0.486
166	128/166			ND		0.973
167	. = 5/ . 5 5			ND		0.486
168	153/168			ND		0.584
169	100, 100			ND		0.486
170				ND		0.486
171	171/173			ND		0.486
172	., ., ., .			ND		0.486
173	171/173			ND		0.486
174	17 17 17 0			ND		0.486
175				ND		0.486
176				ND		0.486
177				ND		0.486
178				ND		0.486
179				ND ND		0.486
180	180/193			ND ND		0.486
100	100/130			IND		0.400

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-18971 P90224A_18

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
181				ND		0.486
182				ND		0.486
183	183/185			ND		0.486
184				ND		0.486
185	183/185			ND		0.486
186				ND		0.486
187				ND		0.486
188				ND		0.486
189				ND		0.486
190				ND		0.486
191				ND		0.486
192				ND		0.486
193	180/193			ND		0.486
194				ND		0.486
195				ND		0.486
196				ND		0.681
197	197/200			ND		2.43
198	198/199			ND		0.486
199	198/199			ND		0.486
200	197/200			ND		2.43
201				ND		0.486
202				ND		0.486
203				ND		0.486
204				ND		0.486
205				ND		0.486
206				ND		0.486
207				ND		0.486
208				ND		0.486
209				ND		0.486

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

NA = Not Applicable NC = Not Calculated *! = See Discussion

ND = Not Detected

*! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename DFBLKHO BLANK-18971 P90224A_18

Congener Group	Concentration ng/L	
T		
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID LCS-18972 P90224A_15 1030 mL P90224A14 P90224A_13 BLANK-18971

Matrix Water Dilution NA

Extracted 02/20/2009 Analyzed 02/25/2009 01:52

Injected By SMT

	1	Native Analy	tes	Labeled Analytes			
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.02	102	2.0	1.14	57	
3	1.0	1.07	107	2.0	1.20	60	
4	1.0	1.06	106	2.0	1.29	64	
15	1.0	1.04	104	2.0	1.44	72	
19	1.0	1.03	103	2.0	1.39	70	
37	1.0	1.02	102	2.0	1.43	71	
54	1.0	1.03	103	2.0	1.27	63	
81	1.0	0.963	96	2.0	1.41	70	
77	1.0	1.01	101	2.0	1.46	73	
104	1.0	1.05	105	2.0	1.44	72	
105	1.0	0.990	99	2.0	1.43	72	
114	1.0	1.00	100	2.0	1.39	69	
118	1.0	1.04	104	2.0	1.49	75	
123	1.0	0.987	99	2.0	1.50	75	
126	1.0	0.975	98	2.0	1.31	65	
155	1.0	1.05	105	2.0	1.57	79	
156/157	2.0	2.02	101	4.0	2.81	70	
167	1.0	1.02	102	2.0	1.48	74	
169	1.0	1.00	100	2.0	1.34	67	
188	1.0	1.06	106	2.0	1.89	94	
189	1.0	0.993	99	2.0	1.56	78	
202	1.0	1.04	104	2.0	1.90	95	
205	1.0	1.03	103	2.0	1.66	83	
206	1.0	1.06	106	2.0	1.61	81	
208	1.0	1.01	101	2.0	1.80	90	
209	1.0	1.01	101	2.0	1.75	88	

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms I = Interference

Nn = Result obtained from alternate analysis



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename Total Amount Extracted ICAL ID

CCal Filename(s)
Method Blank ID

LCSD-18973 P90224A_16 1010 mL P90224A14 P90224A_13 BLANK-18971

Matrix Water Dilution NA

Extracted 02/20/2009 Analyzed 02/25/2009 02:54

Injected By SMT

	1	Native Analy	tes	Labeled Analytes			
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.02	102	2.0	1.27	64	
3	1.0	1.06	106	2.0	1.32	66	
4	1.0	1.06	106	2.0	1.42	71	
15	1.0	1.02	102	2.0	1.56	78	
19	1.0	1.03	103	2.0	1.53	76	
37	1.0	1.01	101	2.0	1.57	79	
54	1.0	1.04	104	2.0	1.41	71	
81	1.0	0.971	97	2.0	1.52	76	
77	1.0	1.00	100	2.0	1.58	79	
104	1.0	1.04	104	2.0	1.56	78	
105	1.0	1.01	101	2.0	1.54	77	
114	1.0	1.02	102	2.0	1.47	73	
118	1.0	1.04	104	2.0	1.57	79	
123	1.0	1.00	100	2.0	1.60	80	
126	1.0	0.956	96	2.0	1.38	69	
155	1.0	1.07	107	2.0	1.71	85	
156/157	2.0	1.95	97	4.0	2.98	75	
167	1.0	0.971	97	2.0	1.52	76	
169	1.0	1.00	100	2.0	1.40	70	
188	1.0	1.06	106	2.0	2.15	108	
189	1.0	0.980	98	2.0	1.69	84	
202	1.0	1.03	103	2.0	2.11	106	
205	1.0	1.02	102	2.0	1.81	90	
206	1.0	1.04	104	2.0	1.76	88	
208	1.0	1.01	101	2.0	1.97	99	
209	1.0	1.03	103	2.0	1.91	96	

P = Recovery outside of method 1668A control limits

Nn = Result obtained from alternate analysis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms I = Interference



Method 1668A Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

 Spike 1 ID
 LCS-18972
 Spike 2 ID
 LCSD-18973

 Spike 1 Filename
 P90224A_15
 Spike 2 Filename
 P90224A_16

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD	
2-MoCB	1	102	102	0.0	
4-MoCB	3	107	106	0.9	
2,2'-DiCB	4	106	106	0.0	
4,4'-DiCB	15	104	102	1.9	
2,2',6-TrCB	19	103	103	0.0	
3,4,4'-TrCB	37	102	101	1.0	
2,2',6,6'-TeCB	54	103	104	1.0	
3,3',4,4'-TeCB	77	101	100	1.0	
3,4,4',5-TeCB	81	96	97	1.0	
2,2',4,6,6'-PeCB	104	105	104	1.0	
2,3,3',4,4'-PeCB	105	99	101	2.0	
2,3,4,4',5-PeCB	114	100	102	2.0	
2,3',4,4',5-PeCB	118	104	104	0.0	
2,3',4,4',5'-PeCB	123	99	100	1.0	
3,3',4,4',5-PeCB	126	98	96	2.1	
2,2',4,4',6,6'-HxCB	155	105	107	1.9	
(156/157)	156/157	101	97	4.0	
2,3',4,4',5,5'-HxCB	167	102	97	5.0	
3,3',4,4',5,5'-HxCB	169	100	100	0.0	
2,2',3,4',5,6,6'-HpCB	188	106	106	0.0	
2,3,3',4,4',5,5'-HpCB	189	99	98	1.0	
2,2',3,3',5,5',6,6'-OcCB	202	104	103	1.0	
2,3,3',4,4',5,5',6-OcCB	205	103	102	1.0	
2,2',3,3',4,4',5,5',6-NoCB	206	106	104	1.9	
2,2',3,3',4,5,5',6,6'-NoCB	208	101	101	0.0	
Decachlorobiphenyl	209	101	103	2.0	

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value

Event 4: February 23, 2009



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.qsiwatersolutions.com

Laboratory Data QA/QC Review Albina Riverlots Source Control Investigation First Quarter 2009 Stormwater Sampling – Event 4

To: File

From: Erin Carroll, GSI

Date: April 3, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during a source control investigation sampling event conducted by the City of Portland (City) in the Albina Riverlots area on February 23, 2009. Six stormwater samples were collected from Outfall Basins 43, 44, and 44A and submitted for analyses. A field decontamination blank (FO095222) and field duplicate (FO095223) were also submitted for analysis.

The laboratory analyses for these source control program samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

- BES WPCL
 - o Total Metals EPA 200.8
 - o Total Mercury WPCL SOP M-10.02
 - o Total suspended solids (TSS) SM 2540D
- Test America (TA)
 - o Polycyclic Aromatic Hydrocarbons (PAHs) EPA 8270M-SIM
 - Phthalates EPA 8270M-SIM
- Columbia Analytical Services (CAS)
 - o Semivolatile Organic Compounds (SVOCs) EPA 8270C
 - o Organochlorine Pesticides EPA 8081
- Pace Analytical Services (Pace)
 - o Polychlorinated Biphenyls as Congeners (PCB Congeners) EPA 1668A

The WPCL summary report for all analyses associated with this stormwater sampling event and the subcontracted laboratory's data reports are attached. The WPCL summary report comments that, with some exceptions (included in the following sections below), all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The following QA/QC review is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within laboratory control limits
- Internal standard recoveries within laboratory control limits
- Matrix spike and matrix spike duplicate results within laboratory control limits
- Laboratory control sample and duplicate laboratory control sample (LCS/DLCS) recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the required method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analyses of PAHs, phthalates, pesticides, SVOCs, and PCB congeners. There are no reported detections of PAHs, pesticides, and PCB congeners in the associated method blanks.

Four SVOCs including phenol, diethyl phthalate, di-n-butyl phthalate, and butyl benzyl phthalate, were detected in the method blank for the EPA 8270C analysis and in the field samples (including the field decontamination blank) at estimated concentrations (greater than the method detection limit but less than the method reporting limit). The presence of these SVOCs in the samples at concentrations less than the MRL is considered to be a result of laboratory contamination; therefore, these data are shown as not detected at a concentration greater than the MRL.

Surrogate Recoveries

Surrogate recoveries were completed during the subcontracted laboratory analysis of PAHs, phthalates, pesticides, and SVOCs. All surrogate recoveries were within laboratory control limits.

Internal Standard Recoveries

Internal standard recoveries were processed during the laboratory analysis of PCB congeners. The labeled internal standard recoveries were within the laboratory control limits.

Laboratory Control/ Duplicate Laboratory Control Samples

Laboratory control/duplicate laboratory control samples (LCS/DLCS) were processed during the laboratory analysis of PAHs, phthalates, SVOCs and PCB congeners. The LCS/DLCS recoveries and relative percent differences were within the laboratory control limits.

Other

The laboratory reports for PAHs, phthalates, pesticides, and SVOCs indicate that the method reporting limits were elevated in a number of samples due to sample matrix effects and non-target background components.

Some organochlorine pesticide compounds are reported as estimated ("P") because the results from the primary and verification gas chromatography columns varied by more than 40 percent RPD.

A field decontamination blank was collected and analyzed for metals, PAHs, phthalates, pesticides, SVOC, and PCB congeners. Three SVOCs were detected in the field decontamination blank at estimated concentrations between the MDL and the MRL. Because two of the three detected compounds (diethyl phthalate and di-n-butyl phthalate) were also detected in the method bank at similar concentrations, these results are considered a result of laboratory contamination and are shown as not detected at a concentration greater than the MRL (as discussed above). The third SVOC, bis(2-ethylhexyl)phthalate, was not detected in the method blank and is flagged as an estimated value "J". Zinc also was detected in the field decontamination blank at a low concentration (0.65 ug/L). Zinc concentrations in the field samples were greater than 20 times the concentration detected in the field decontamination blank; therefore, no zinc data are qualified.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services

Date: 2/33/09

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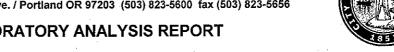
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7.3	37	9.1	. •				•	•	•			•	ഗ	1455	44A_SW1 3/03/09 1455	A_SW1 3		SW-44A-ABC311-MMYY	FO095221
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6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656





Sample Status: COMPLETE AND Sample ID: FO095220 14:28 Sample Collected: 02/23/09

VALIDATED Sample Received: 02/23/09

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 1 of 4

Address/Location: SW-44-ABC352-0209

AN02161 System ID: N HARDING & RIVER 44_SW1 EID File #: 1020.005 Sample Point Code:

PORTHASW LocCode: Sample Type: **GRAB** Collected By: MJS/JXB Sample Matrix: **STORMWTR**

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, the primary and verification results varied significantly.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD)	
CONDUCTIVITY (FIELD)	40	μ mhos/cm	1	SM 2510 B	02/23/09
pH (FIELD)	7.2	pH Units	0.1	SM 4500-H B	02/23/09
TEMPERATURE	9.1	Deg. C	0.1	SM 2550 B	02/23/09
GENERAL TOTAL OURDENDED OCUDA	000	II		CM OF 40 D	02/24/09
TOTAL SUSPENDED SOLIDS	202	mg/L	2	SM 2540 D	02/24/09
METALS	0.000		0.002	WPCLSOP M-10.02	02/27/00
MERCURY	0.026	μg/L	0.002		02/27/09
METALS BY ICP-MS (TOTAL) - 8		_			((
ARSENIC	2.19	μg/L	0.1	EPA 200.8	02/26/09
CADMIUM	0.60	μg/L	0.1	EPA 200.8	02/26/09
CHROMIUM	8.58	μ g/L	0.4	EPA 200.8	02/26/09
COPPER	24.3	μg/L	0.2	EPA 200.8	02/26/09
LEAD	29.7	μg/L	0.1	EPA 200.8	02/26/09
NICKEL	6.04	μg/L	0.2	EPA 200.8	02/26/09
SILVER	<0.10	μg/L	0.1	EPA 200.8	02/26/09
ZINC	178	μ g/L	0.5	EPA 200.8	02/26/09
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<2.5	ng/L	2.5	EPA 8081	02/26/09
4,4'-DDE	<4.1	ng/L	4.1	EPA 8081	02/26/09
4,4'-DDT	<65	ng/L	65	EPA 8081	02/26/09
Aldrin	<2.5	ng/L	2.5	EPA 8081	02/26/09
Alpha-BHC	<2.5	ng/L	2.5	EPA 8081	02/26/09
Alpha-Chlordane	<2.5	ng/L	2.5	EPA 8081	02/26/09
Beta-BHC	<2.5	ng/L	2.5	EPA 8081	02/26/09
Delta-BHC	<2.5	ng/L	. 2.5	EPA 8081	02/26/09
Dieldrin	<2.5	ng/L	2.5	EPA 8081	02/26/09
Endosulfan I	EST 23	ng/L	2.5	EPA 8081	02/26/09
Endosulfan II	<2.5	ng/L	2.5	EPA 8081	02/26/09
Endosulfan Sulfate	<2.5	ng/L	2.5	EPA 8081	02/26/09
Endrin	<2.5	ng/L	2.5	EPA 8081	02/26/09
Endrin Aldehyde	EST 14	ng/L	2.5	EPA 8081	02/26/09
Endrin Ketone	8.8	ng/L	2.5	EPA 8081	02/26/09

Report Date: 04/01/09 Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: FO095220 Sample Collected: 02/23/09 14:28 Sample Status: COMPLETE AND

Sample Received: 02/23/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 2 of 4

Address/Location: SW-44-ABC352-0209

N HARDING & RIVER System ID: AN02161
Sample Point Code: 44_SW1 EID File #: 1020.005

Sample Type: GRAB LocCode: PORTHASW

Sample Matrix: STORMWTR Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, the primary and verification results varied significantly.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Gamma-BHC(Lindane)	<2.5	ng/L	2.5	EPA 8081	02/26/09
Gamma-Chlordane	28	ng/L	2.5	EPA 8081	02/26/09
Heptachlor	<2.5	ng/L	2.5	EPA 8081	02/26/09
Heptachlor Epoxide	<6.1	ng/L	6.1	EPA 8081	02/26/09
Methoxychlor	<8.1	ng/L	8.1	EPA 8081	02/26/09
Toxaphene	<930	ng/L	930	EPA 8081	02/26/09
POLYCHLORINATED BIPHENYL CO	NGENERS -PACE				
Refer to Contract Report	Completed	ng/L	•	EPA 1668 MOD	02/25/09
POLYNUCLEAR AROMATICS & PH					
Acenaphthene	< 0.0577	μg/L	0.0577	EPA 8270M-SIM	02/25/09
Acenaphthylene	<0.0577	μg/L	0.0577	EPA 8270M-SIM	02/25/09
Anthracene	<0.0577	μg/L __	0.0577	EPA 8270M-SIM	02/25/09
Benzo(a)anthracene	0.0353	μg/L	0.0288	EPA 8270M-SIM	02/25/09
Benzo(a)pyrene	0.0423	μg/L	0.0288	EPA 8270M-SIM	02/25/09
Benzo(b)fluoranthene	0.0795	μg/L	0.0288	EPA 8270M-SIM	02/25/09
Benzo(ghi)perylene	0.0890	μ g/L	0.0577	EPA 8270M-SIM	02/25/09
Benzo(k)fluoranthene	0.0510	μg/L	0.0288	EPA 8270M-SIM	02/25/09
Bis(2-ethylhexyl) phthalate	3.15	μ g/L	1.92	EPA 8270M-SIM	02/25/09
Butyl benzyl phthalate	<1.92	μg/L	1.92	EPA 8270M-SIM	02/25/09
Chrysene	0.138	μg/L	0.0288	EPA 8270M-SIM	02/25/09
Dibenzo(a,h)anthracene	<0.0288	μg/L	0.0288	EPA 8270M-SIM	02/25/09
Diethyl phthalate	<1.92	μg/L	1.92	EPA 8270M-SIM	02/25/09
Dimethyl phthalate	<1.92	μg/L	1.92	EPA 8270M-SIM	02/25/09
Di-n-butyl phthalate	<1.92	μg/L	1.92	EPA 8270M-SIM	02/25/09
Di-n-octyl phthalate	<1.92	μg/L	1.92	EPA 8270M-SIM	02/25/09
Fluoranthene	0.204	μg/L	0.0577	EPA 8270M-SIM	02/25/09
Fluorene	<0.0577	μg/L	0.0577	EPA 8270M-SIM	02/25/09
Indeno(1,2,3-cd)pyrene	0.0433	μg/L	0.0288	EPA 8270M-SIM	02/25/09
Naphthalene	0.0638	μg/L	0.0577	EPA 8270M-SIM	02/25/09
Phenanthrene	0.143	μg/L	0.0577	EPA 8270M-SIM	02/25/09
Pyrene	0.113	μg/L	0.0577	EPA 8270M-SIM	02/25/09
SEMI-VOLATILE ORGANICS - CAS					· · · · · · · · · · · · · · · · · · ·
1,2,4-Trichlorobenzene	<1.1	µg/L	1.1	EPA 8270	03/02/09
1,2-Dichlorobenzene	<1.1	μg/L	1.1	EPA 8270	03/02/09

Report Date: 04/01/09 Validated By:

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LABORATORY ANALYSIS REPORT

Sample ID: FO095220 Sample Collected: 02/23/09 14:28 Sample Status: COMPLETE AND

Sample Received: 02/23/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 3 of 4

Address/Location: SW-44-ABC352-0209

N HARDING & RIVER

Sample Point Code: 44_SW1

System ID: AN02161

EID File #: 1020.005

Sample Type:GRABLocCode:PORTHASWSample Matrix:STORMWTRCollected By:MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, the primary and verification results varied significantly.

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,3-Dichlorobenzene	<1.1	μg/L	1.1	EPA 8270	03/02/09
1,4-Dichlorobenzene	<1.1	μg/L	1.1	EPA 8270	03/02/09
2,4,5-Trichlorophenol	<2.6	μg/L	2.6	EPA 8270	03/02/09
2,4,6-Trichlorophenol	<2.6	μg/L	2.6	EPA 8270	03/02/09
2,4-Dichlorophenol	<2.6	μg/L	2.6	EPA 8270	03/02/09
2,4-Dimethylphenol	<21	μg/L	21	EPA 8270	03/02/09
2,4-Dinitrophenol	<21	μg/L	21	EPA 8270	03/02/09
2,4-Dinitrotoluene	<1.1	μg/L	1.1	EPA 8270	03/02/09
2,6-Dinitrotoluene	<1.1	μ g/L	. 1.1	EPA 8270	03/02/09
2-Chloronaphthalene	<1.1	μg/L	1.1	EPA 8270	03/02/09
2-Chlorophenol	<2.6	μg/L	2.6	EPA 8270	03/02/09
2-Methylnaphthalene	<1.1	μg/L	1.1	EPA 8270	03/02/09
2-Methylphenol	<2.6	μ g/L	2.6	EPA 8270	03/02/09
2-Nitroaniline	<1.1	μ g/L	1.1	EPA 8270	03/02/09
2-Nitrophenol	<2.6	μ g/L	2.6	EPA 8270	03/02/09
3,3'-Dichlorobenzidine	<11	μg/L	11	EPA 8270	03/02/09
3-Nitroaniline	<5.2	μg/L	5.2	EPA 8270	03/02/09
4,6-Dinitro-2-methylphenol	<11	μg/L	11	EPA 8270	03/02/09
4-Bromophenylphenyl ether	<1.1	μg/L	1.1	EPA 8270	03/02/09
4-Chloro-3-methylphenol	<2.6	μg/L	2.6	EPA 8270	03/02/09
4-Chloroaniline	<1.1	μ g/L:	1.1	EPA 8270	03/02/09
4-Chlorophenylphenyl ether	<1.1	μ g/L	1.1	EPA 8270	03/02/09
4-Methylphenol	<2.6	μ g/L	2.6	EPA 8270	03/02/09
4-Nitroaniline	<5.2	μg/L	5.2	EPA 8270	03/02/09
4-Nitrophenol	<11	μ g/L	11 -	EPA 8270	03/02/09
Acenaphthene	<1.1	μ g/L	1,1	EPA 8270	03/02/09
Acenaphthylene	<1.1	μ g/L	1.1	EPA 8270	03/02/09
Anthracene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Benzo(a)anthracene	<1.1	μ g/L	1.1	EPA 8270	03/02/09
Benzo(a)pyrene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Benzo(b)fluoranthene	<1.1	μ g/L	1.1	EPA 8270	03/02/09
Benzo(g,h,i)perylene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Benzo(k)fluoranthene	<1.1	μg/L	1.1	EPA.8270	03/02/09
Benzoic acid	<26	μg/L	26	EPA 8270	03/02/09
Benzyl alcohol	<2.6	μg/L	2.6	EPA 8270	03/02/09
Bis(2-chloroethoxy) methane	<1.1	μ g/L	1.1	EPA 8270	03/02/09

Report Date: 04/01/09





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LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample ID: FO095220 14:28 Sample Collected: 02/23/09

VALIDATED Sample Received: 02/23/09

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 4 of 4

Address/Location: SW-44-ABC352-0209

AN02161 System ID: N HARDING & RIVER EID File #: 1020.005 44_SW1 Sample Point Code:

Sample Type: GRAB LocCode: **PORTHASW** Sample Matrix: **STORMWTR** Collected By: MJS/JXB

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration,

method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as

applicable. For pesticide results flagged as estimates, the primary and verification results varied significantly.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Bis(2-chloroethyl) ether	<1.1	μg/L	1.1	EPA 8270	03/02/09
Bis(2-chloroisopropyl) ether	<1.1	μg/L	1.1	EPA 8270	03/02/09
Bis(2-ethylhexyl) phthalate	<5.2	μg/L	5.2	EPA 8270	03/02/09
Butyl benzyl phthalate	<1.1	μg/L	1.1	EPA 8270	03/02/09
Chrysene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Dibenzo(a,h)anthracene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Dibenzofuran	<1.1	μg/L	1.1	EPA 8270	03/02/09
Diethyl phthalate	<1.1	μg/L	1.1	EPA 8270	03/02/09
Dimethyl phthalate	<1.1	μg/L	1.1	EPA 8270	03/02/09
Di-n-butyl phthalate	<1.1	μg/L	1.1	EPA 8270	03/02/09
Di-n-octyl phthalate	<1.1	μg/L	1.1	EPA 8270	03/02/09
Fluoranthene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Fluorene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Hexachlorobenzene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Hexachlorobutadiene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Hexachlorocyclopentadiene	<5.2	μg/L	5.2	EPA 8270	03/02/09
Hexachloroethane	<1.1	μg/L	1.1	EPA 8270	03/02/09
Indeno(1,2,3-cd)pyrene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Isophorone	<1.1	μg/L	1.1	EPA 8270	03/02/09
Naphthalene	<1.1	μg/L	, 1.1	EPA 8270	03/02/09
Nitrobenzene	<1.1	μg/L	1.1	EPA 8270	03/02/09
N-Nitrosodi-n-propylamine	<1.1	μg/L	1.1	EPA 8270	03/02/09
N-Nitrosodiphenylamine	<1.1	μg/L	1.1	EPA 8270	03/02/09
Pentachlorophenol	<5.2	μg/L	5.2	EPA 8270	03/02/09
Phenanthrene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Phenol	<2.6	μg/L	2.6	EPA 8270	03/02/09
Pyrene	<1.1	μg/L	1.1	EPA 8270	03/02/09

End of Report for Sample ID: FO095220

Report Date: 04/01/09 Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: FO095222

Sample Collected: 02/23/09 Sample Received: 02/23/09 15:30

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AN02163

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type: Sample Matrix: **GRAB STORMWTR** LocCode: Collected By: MJS/JXB

PORTHASW

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL	•			·	
TOTAL SUSPENDED SOLIDS	<2	mg/L	2	SM 2540 D	02/24/09
METALS					
MERCURY	<0.0020	μg/L	0.002	WPCLSOP M-10.0	2 02/27/09
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	<0.10	μg/L	0.1	EPA 200.8	02/26/09
CADMIUM	< 0.10	μg/L	0.1	EPA 200.8	02/26/09
CHROMIUM	< 0.40	μg/L	0.4	EPA 200.8	02/26/09
COPPER	<0.20	μg/L	0.2	EPA 200.8	02/26/09
LEAD	<0.10	μg/L	0.1	EPA 200.8	02/26/09
NICKEL	<0.20	μg/L	0.2	EPA 200.8	02/26/09
SILVER	<0.10	μg/L	0.1	EPA 200.8	02/26/09
ZINC	0.65	μg/L	0.5	EPA 200.8	02/26/09
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<0.52	ng/L	0.52	EPA 8081	02/26/09
4,4'-DDE	< 0.52	ng/L	0.52	EPA 8081	02/26/09
4,4'-DDT	<0.52	ng/L	0.52	EPA 8081	02/26/09
Aldrin	<0.52	ng/L	0.52	EPA 8081	02/26/09
Alpha-BHC	<0.52	ng/L	0.52	EPA 8081	02/26/09
Alpha-Chlordane	<0.52	ng/L	0.52	EPA 8081	02/26/09
Beta-BHC	<0.52	ng/L	0.52	EPA 8081	02/26/09
Delta-BHC	<0.52	ng/L	0.52	EPA 8081	02/26/09
Dieldrin	<0.52	ng/L	0.52	EPA 8081	02/26/09
Endosulfan I	<0.52	ng/L	0.52	EPA 8081	02/26/09
Endosulfan II	<0.52	ng/L	0.52	EPA 8081	02/26/09
Endosulfan Sulfate	< 0.52	ng/L	0.52	EPA 8081	02/26/09
Endrin	<0.52	ng/L	0.52	EPA 8081	02/26/09
Endrin Aldehyde	<0.52	ng/L	0.52	EPA 8081	02/26/09
Endrin Ketone	<0.52	ng/L	0.52	EPA 8081	02/26/09
Gamma-BHC(Lindane)	< 0.52	ng/L	0.52	EPA 8081	02/26/09
Gamma-Chlordane	< 0.52	ng/L	0.52	EPA 8081	02/26/09
Heptachlor	<0.52	ng/L	0.52	EPA 8081	02/26/09
Heptachlor Epoxide	<0.52	ng/L	0.52	EPA 8081	02/26/09

Report Date: 04/01/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095222

Sample Collected: 02/23/09 Sample Received: 02/23/09 15:30

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 2 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AN02163

Sample Point Code: Sample Type:

FDBLANK GRAB

EID File #: LocCode:

1020.005 **PORTHASW**

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Methoxychlor	<0.52	ng/L	0.52	EPA 8081	02/26/09
Toxaphene	<26	ng/L	26	EPA 8081	02/26/09
POLYCHLORINATED BIPHENYL CON	GENERS -PACE				
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	02/25/09
POLYNUCLEAR AROMATICS & PHTH.	ALATES - TA				
Acenaphthene	< 0.0190	μg/L	0.019	EPA 8270M-SIM	02/25/09
Acenaphthylene	< 0.0190	μg/L	0.019	EPA 8270M-SIM	02/25/09
Anthracene	< 0.0190	μ g/L	0.019	EPA 8270M-SIM	02/25/09
Benzo(a)anthracene	< 0.00952	μg/L	0.00952	EPA 8270M-SIM	02/25/09
Benzo(a)pyrene	< 0.00952	μg/L	0.00952	EPA 8270M-SIM	02/25/09
Benzo(b)fluoranthene	< 0.00952	μ g/L	0.00952	EPA 8270M-SIM	02/25/09
Benzo(ghi)perylene	< 0.0190	μ g/L .	0.019	EPA 8270M-SIM	02/25/09
Benzo(k)fluoranthene	< 0.00952	μg/L	0.00952	EPA 8270M-SIM	02/25/09
Bis(2-ethylhexyl) phthalate	< 0.952	μg/L	0.952	EPA 8270M-SIM	02/25/09
Butyl benzyl phthalate	< 0.952	μg/L	0.952	EPA 8270M-SIM	02/25/09
Chrysene	< 0.00952	μg/L	0.00952	EPA 8270M-SIM	02/25/09
Dibenzo(a,h)anthracene	< 0.00952	μg/L	0.00952	EPA 8270M-SIM	02/25/09
Diethyl phthalate	< 0.952	μg/L	0.952	EPA 8270M-SIM	02/25/09
Dimethyl phthalate	< 0.952	μg/L	0.952	EPA 8270M-SIM	02/25/09
Di-n-butyl phthalate	< 0.952	μg/L	0.952	EPA 8270M-SIM	02/25/09
Di-n-octyl phthalate	< 0.952	μg/L	0.952	EPA 8270M-SIM	02/25/09
Fluoranthene	< 0.0190	μg/L	0.019	EPA 8270M-SIM	02/25/09
Fluorene	< 0.0190	μg/L	0.019	EPA 8270M-SIM	02/25/09
Indeno(1,2,3-cd)pyrene	< 0.00952	μg/L	0.00952	EPA 8270M-SIM	02/25/09
Naphthalene	< 0.0190	μg/L	0.019	EPA 8270M-SIM	02/25/09
Phenanthrene	<0.0190	μg/L	0.019	EPA 8270M-SIM	02/25/09
Pyrene	<0.0190	μg/L	0.019	EPA 8270M-SIM	02/25/09
SEMI-VOLATILE ORGANICS - CAS					4
1,2,4-Trichlorobenzene	<0.22	μg/L	0.22	EPA 8270	03/02/09
1,2-Dichlorobenzene	<0.22	μg/L	0.22	EPA 8270	03/02/09
1,3-Dichlorobenzene	<0.22	μg/L	0.22	EPA 8270	03/02/09
1,4-Dichlorobenzene	<0.22	μg/L	0.22	EPA 8270	03/02/09
2,4,5-Trichlorophenol	<0.54	μg/L	0.54	EPA 8270	03/02/09
2,4,6-Trichlorophenol	<0.54	μg/L	0.54	EPA 8270	03/02/09

Report Date: 04/01/09





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LABORATORY ANALYSIS REPORT

Sample ID: **FO095222**

Sample Collected: 02/23/09

15:30 Sample Received: 02/23/09

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 3 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AN02163

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
2,4-Dichlorophenol	<0.54	μg/L	0.54	EPA 8270	03/02/09
2,4-Dimethylphenol	<4.3	μg/L	4.3	EPA 8270	03/02/09
2,4-Dinitrophenol	<4.3	μg/L	4.3	EPA 8270	03/02/09
2,4-Dinitrotoluene	<0.22	μg/L	0.22	EPA 8270	03/02/09
2,6-Dinitrotoluene	<0.22	μ g/L	0.22	EPA 8270	03/02/09
2-Chloronaphthalene	<0.22	μ g/L	0.22	EPA 8270	03/02/09
2-Chlorophenol	<0.54	$\mu \mathrm{g}/\mathrm{L}$	0.54	EPA 8270	03/02/09
2-Methylnaphthalene	<0.22	μ g/L	0.22	EPA 8270	03/02/09
2-Methylphenol	<0.54	μg/L	0.54	EPA 8270	03/02/09
2-Nitroaniline	<0.22	μg/L	0.22	EPA 8270	03/02/09
2-Nitrophenol	<0.54	μ g/L	0.54	EPA 8270	03/02/09
3,3'-Dichlorobenzidine	<2.2	μg/L	2.2	EPA 8270	03/02/09
3-Nitroaniline	<1.1	μ̈g/L	1.1	EPA 8270	03/02/09
4,6-Dinitro-2-methylphenol	<2.2	μg/L	2.2	EPA 8270	03/02/09
4-Bromophenylphenyl ether	<0.22	μg/L	0.22	EPA 8270	03/02/09
4-Chloro-3-methylphenol	<0.54	μ g/L	0.54	EPA 8270	03/02/09
4-Chloroaniline	<0.22	μ g/L	0.22	EPA 8270	03/02/09
4-Chlorophenylphenyl ether	<0.22	μ g/L	0.22	EPA 8270	03/02/09
4-Methylphenol	<0.54	μ g/L	0.54	EPA 8270	03/02/09
4-Nitroaniline	<1.1	μ g/L	1.1	EPA 8270	03/02/09
4-Nitrophenol	<2.2	μg/L	2.2	EPA 8270	03/02/09
Acenaphthene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Acenaphthylene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Anthracene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Benzo(a)anthracene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Benzo(a)pyrene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Benzo(b)fluoranthene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Benzo(g,h,i)perylene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Benzo(k)fluoranthene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Benzoic acid	<5.4	μ g/L	5.4	EPA 8270	03/02/09
Benzyl alcohol	<0.54	μg/L	0.54	EPA 8270	03/02/09
Bis(2-chloroethoxy) methane	<0.22	μg/L	0.22	EPA 8270	03/02/09
Bis(2-chloroethyl) ether	<0.22	μ g/L	0.22	EPA 8270	03/02/09
Bis(2-chloroisopropyl) ether	<0.22	μ g/L	0.22	EPA 8270	03/02/09
Bis(2-ethylhexyl) phthalate	<1.1	μg/L	1.1	EPA 8270	03/02/09
Butyl benzyl phthalate	<0.22	μg/L	0.22	EPA 8270	03/02/09

Report Date: 04/01/09



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095222

Sample Collected: 02/23/09 Sample Received: 02/23/09 15:30

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 4 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AN02163

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Chrysene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Dibenzo(a,h)anthracene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Dibenzofuran	<0.22	μg/L	0.22	EPA 8270	03/02/09
Diethyl phthalate	<0.22	μg/L	0.22	EPA 8270	03/02/09
Dimethyl phthalate	<0.22	μg/L	0.22	EPA 8270	03/02/09
Di-n-butyl phthalate	<0.22	μg/L	0.22	EPA 8270	03/02/09
Di-n-octyl phthalate	<0.22	μg/L	0.22	EPA 8270	03/02/09
Fluoranthene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Fluorene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Hexachlorobenzene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Hexachlorobutadiene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Hexachlorocyclopentadiene	<1.1	μg/L	1.1	EPA 8270	03/02/09
Hexachloroethane	<0.22	μg/L	0.22	EPA 8270	03/02/09
Indeno(1,2,3-cd)pyrene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Isophorone	<0.22	μg/L	0.22	EPA 8270	03/02/09
Naphthalene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Nitrobenzene	<0.22	μg/L	0.22	EPA 8270	03/02/09
N-Nitrosodi-n-propylamine	<0.22	μg/L	0.22	EPA 8270	03/02/09
N-Nitrosodiphenylamine	<0.22	μg/L	0.22	EPA 8270	03/02/09
Pentachlorophenol	<1.1	μg/L	1.1	EPA 8270	03/02/09
Phenanthrene	<0.22	μg/L	0.22	EPA 8270	03/02/09
Phenol	<0.54	μg/L	0.54	EPA 8270	03/02/09
Pyrene	<0.22	μg/L	0.22	EPA 8270	03/02/09

End of Report for Sample ID: FO095222

Report Date: 04/01/09



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095223

Sample Collected: 02/23/09 Sample Received: 02/23/09 00:00

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

FIELD DUPLICATE

System ID:

AN02164

Sample Point Code:

DUP

EID File #:

1020.005

Sample Type:

GRAB

LocCode: Collected By: MJS/JXB

PORTHASW

Sample Matrix:

STORMWTR

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL TOTAL SUSPENDED SOLIDS	199	mg/L	. 2	SM 2540 D	02/24/09
OUTSIDE ANALYSIS					
POLYCHLORINATED BIPHENYL CONG Refer to Contract Report	ENERS -PACE Completed	ng/L		EPA 1668 MOD	02/25/09

End of Report for Sample ID: FO095223

Report Date: 03/20/09



March 19, 2009

Analytical Report for Service Request No: K0901535

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on February 24, 2009. For your reference, these analyses have been assigned our service request number K0901535.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/lb

Page 1 of <u>45</u>

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	•
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	







Client:

City of Portland

Service Request No.:

K0901535

Project:

Portland Harbor

Date Received:

02/24/2009

Sample Matrix:

Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Seven water samples were received for analysis at Columbia Analytical Services on 02/24/2009. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A ULL

Second Source Exceptions:

The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the Initial Calibration Verification (ICV) criteria are met for both columns, the higher of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Methoxychlor. The ICV results are reported from the acceptable column. The data quality is not affected. No further corrective action was necessary.

Continuing Calibration Verification (CCV) Exceptions:

The primary evaluation criterion was exceeded for the following analytes in CCV 0303F023, 0303F034, 0304F006 and 0304F019: Toxaphene; 0304F007 and 0304F020: Hexachlorobutadiene. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the average percent recovery of all analytes in the verification standard. The standard meets the alternative evaluation criteria.

Sample Confirmation Notes:

The confirmation comparison criteria of 40% difference for at least one analyte was exceeded in a few samples. The higher of the two values is reported because no evidence of a peak anomaly was observed.

The JP qualifier indicates that the confirmation comparison criteria are not applicable because at least one of the values is below the Method Reporting Limit (MRL).

Elevated Method Reporting Limits:

The reporting limit is elevated for all analytes in a few samples. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. A semiquantitative screen was performed prior to final analysis. The results of the screening indicated the need to perform a dilution. The results are flagged to indicate the matrix interference.

No other anomalies associ	ated with the analysis of these samp	oles were observed.
	80	03/20/09
Approved by		Date

Semivolatile Organic Compounds by EPA Method 8270C LL

Elevated Method Reporting Limits:

The reporting limits are elevated for all samples. The sample extracts were diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extracts were highly colored and viscous, which indicated the need to perform dilutions prior to injection into the instrument. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilutions. Semi-quantitative screens were performed prior to final analysis. The results of the screening indicated the need to perform dilutions.

No other anomalies associated with the analysis of these samples were observed.

		02/20/09
Approved by	A	<u>Date</u>

Analytical Results

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535 Date Collected: 02/23/2009 **Date Received:** 02/24/2009

Organochlorine Pesticides

Sample Name:

F0095220

Lab Code:

K0901535-005

Units: ng/L Basis: NA

Level: Low

Extraction Method:	EPA 3535
Analysis Method:	8081A

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	2.5	1,1	5	02/26/09	03/04/09	KWG0901589	Vicionic Control of Co
beta-BHC	ND Ui	2.5	2.4	5	02/26/09	03/04/09	KWG0901589	
gamma-BHC (Lindane)	ND U	2.5	2.4	5	02/26/09	03/04/09	KWG0901589	
delta-BHC	ND U	2.5	0.70	5	02/26/09	03/04/09	KWG0901589	
Heptachlor	ND U	2.5	0.90	5	02/26/09	03/04/09	KWG0901589	
Aldrin	ND Ui	2.5	2.5	5	02/26/09	03/04/09	KWG0901589	
Heptachlor Epoxide	ND Ui	6.1	6.1	5	02/26/09	03/04/09	KWG0901589	
gamma-Chlordane†	28 D	2.5	1.6	5	02/26/09	03/04/09	KWG0901589	
Endosulfan I	23 PD	2.5	1.3	5	02/26/09	03/04/09	KWG0901589	
alpha-Chlordane	ND U	2.5	1.4	5	02/26/09	03/04/09	KWG0901589	
Dieldrin	ND U	2.5	1.9	5	02/26/09	03/04/09	KWG0901589	
4,4'-DDE	ND Ui	4.1	4.1	5	02/26/09	03/04/09	KWG0901589	
Endrin	ND U	2.5	2.5	5	02/26/09	03/04/09	KWG0901589	
Endosulfan II	ND Ui	2.5	2.5	5	02/26/09	03/04/09	KWG0901589	
4,4'-DDD	ND Ui	2.5	2.5	5	02/26/09	03/04/09	KWG0901589	
Endrin Aldehyde	14 PD	2.5	1.1	5	02/26/09	03/04/09	KWG0901589	
Endosulfan Sulfate	ND U	2.5	1.4	5	02/26/09	03/04/09	KWG0901589	
4,4'-DDT	ND Ui	65	65	5	02/26/09	03/04/09	KWG0901589	
Endrin Ketone	8.8 D	2.5	1.6	5	02/26/09	03/04/09	KWG0901589	1899444444444
Methoxychlor	ND Ui	8.1	8.1	5	02/26/09	03/04/09	KWG0901589	
Toxaphene	ND Ui	930	930	5	02/26/09	03/04/09	KWG0901589	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	81	10-121	03/04/09	Acceptable
Decachlorobiphenyl	111	17-150	03/04/09	Acceptable

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

Printed: 03/11/2009 18:10:59

Merged

Form 1A - Organic 11

Page

1 of 1

SuperSet Reference: RR99390

Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Water

Service Request: K0901535 Date Collected: 02/23/2009

Date Received: 02/24/2009

Organochlorine Pesticides

Sample Name:

F0095222

Lab Code:

K0901535-007

Extraction Method:

EPA 3535

Analysis Method:

8081A

Units: ng/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	0.52	0.22	1	02/26/09	03/04/09	KWG0901589	
beta-BHC	ND U	0.52	0.43	1	02/26/09	03/04/09	KWG0901589	
gamma-BHC (Lindane)	ND U	0.52	0.49	1	02/26/09	03/04/09	KWG0901589	
delta-BHC	ND U	0.52	0.15	1	02/26/09	03/04/09	KWG0901589	
Heptachlor	ND U	0.52	0.19	1	02/26/09	03/04/09	KWG0901589	
Aldrin	ND U	0.52	0.12	1	02/26/09	03/04/09	KWG0901589	
Heptachlor Epoxide	ND U	0.52	0.22	1	02/26/09	03/04/09	KWG0901589	
gamma-Chlordane†	ND U	0.52	0.32	1	02/26/09	03/04/09	KWG0901589	
Endosulfan I	ND U	0.52	0.26	1	02/26/09	03/04/09	KWG0901589	
alpha-Chlordane	ND U	0.52	0.28	1	02/26/09	03/04/09	KWG0901589	
Dieldrin	ND U	0.52	0.38	1	02/26/09	03/04/09	KWG0901589	
4,4'-DDE	ND Ui	0.52	0.46	1	02/26/09	03/04/09	KWG0901589	
Endrin	ND U	0.52	0.51	1	02/26/09	03/04/09	KWG0901589	
Endosulfan II	ND U	0.52	0.36	1	02/26/09	03/04/09	KWG0901589	
4,4'-DDD	ND U	0.52	0.22	1	02/26/09	03/04/09	KWG0901589	
Endrin Aldehyde	ND U	0.52	0.22	1	02/26/09	03/04/09	KWG0901589	
Endosulfan Sulfate	ND U	0.52	0.29	1	02/26/09	03/04/09	KWG0901589	
4,4'-DDT	ND Ui	0.52	0.52	1	02/26/09	03/04/09	KWG0901589	
Endrin Ketone	ND U	0.52	0.33	1	02/26/09	03/04/09	KWG0901589	
Methoxychlor	ND U	0.52	0.29	1	02/26/09	03/04/09	KWG0901589	
Toxaphene	ND U	26	9.3	1	02/26/09	03/04/09	KWG0901589	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	66	10-121	03/04/09	Acceptable Acceptable
Decachlorobiphenyl	96	17-150	03/04/09	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

Printed: 03/11/2009 18:11:03 $u:\Stealth\Crystal.rpt\Form\Im.rpt$

Merged

Form 1A - Organic

SuperSet Reference: RR99390 1 of 1

Page

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Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Water

Service Request: K0901535

Date Collected: NA Date Received: NA

Organochlorine Pesticides

Sample Name:

Method Blank

Lab Code:

KWG0901589-5

Extraction Method:

EPA 3535

Units: ng/L Basis: NA

Level: Low

Analysis	Method:	8081A
Analyte	Name	

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	0.49	0.21	1	02/26/09	02/28/09	KWG0901589	(Table 1)
beta-BHC	ND U	0.49	0.41	1	02/26/09	02/28/09	KWG0901589	
gamma-BHC (Lindane)	ND U	0.49	0.47	1	02/26/09	02/28/09	KWG0901589	
delta-BHC	ND U	0.49	0.14	1	02/26/09	02/28/09	KWG0901589	
Heptachlor	ND U	0.49	0.18	1	02/26/09	02/28/09	KWG0901589	
Aldrin	ND U	0.49	0.11	1	02/26/09	02/28/09	KWG0901589	
Heptachlor Epoxide	ND U	0.49	0.21	1	02/26/09	02/28/09	KWG0901589	
gamma-Chlordane†	ND U	0.49	0.31	1	02/26/09	02/28/09	KWG0901589	
Endosulfan I	ND U	0.49	0.25	1	02/26/09	02/28/09	KWG0901589	
alpha-Chlordane	ND U	0.49	0.27	1	02/26/09	02/28/09	KWG0901589	
Dieldrin	ND U	0.49	0.37	1	02/26/09	02/28/09	KWG0901589	
4,4'-DDE	0.24 J	0.49	0.19	1	02/26/09	02/28/09	KWG0901589	
Endrin	ND U	0.49	0.49	1	02/26/09	02/28/09	KWG0901589	
Endosulfan II	ND U	0.49	0.35	1	02/26/09	02/28/09	KWG0901589	
4,4'-DDD	ND U	0.49	0.21	1	02/26/09	02/28/09	KWG0901589	
Endrin Aldehyde	ND U	0.49	0.21	1	02/26/09	02/28/09	KWG0901589	
Endosulfan Sulfate	ND U	0.49	0.28	1	02/26/09	02/28/09	KWG0901589	
4,4'-DDT	ND U	0.49	0.17	1	02/26/09	02/28/09	KWG0901589	
Endrin Ketone	ND U	0.49	0.32	1	02/26/09	02/28/09	KWG0901589	
Methoxychlor	ND U	0.49	0.28	1	02/26/09	02/28/09	KWG0901589	
Toxaphene	ND U	25	9.0	1	02/26/09	02/28/09	KWG0901589	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	50	10-121	02/28/09	Acceptable
Decachlorobiphenyl	78	17-150	02/28/09	Acceptable

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic

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RR99390 SuperSet Reference:

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor

Sample Matrix:

Water

Service Request: K0901535

Surrogate Recovery Summary **Organochlorine Pesticides**

41

76

Extraction Method:

EPA 3535

Units: PERCENT

Level: Low

Analysis Method:

Duplicate Lab Control Sample

8081A

Sample Name Lab Code Sur1 Sur2 92 D 111 D F0095216 K0901535-001 92 D 146 D F0095217 K0901535-002 66 D 95 D F0095218 K0901535-003 F0095219 K0901535-004 98 D 129 D 81 D 111 D F0095220 K0901535-005 F0095221 K0901535-006 119 D 109 D 96 F0095222 K0901535-007 66 50 78 Method Blank KWG0901589-5 72 Lab Control Sample 44 KWG0901589-1

KWG0901589-2

Surrogate Recovery Control Limits (%)

Sur1 = Tetrachloro-m-xylene 10-121 Sur2 = Decachlorobiphenyl 17-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

SuperSet Reference: RR99390 Page

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QA/QC Report

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535 Date Extracted: 02/26/2009

Date Analyzed: 02/28/2009

Lab Control Spike/Duplicate Lab Control Spike Summary **Organochlorine Pesticides**

Extraction Method: EPA 3535

Analysis Method:

8081A

Units: ng/L

Basis: NA Level: Low

Extraction Lot: KWG0901589

Lab Control Sample KWG0901589-1

Duplicate Lab Control Sample KWG0901589-2

		Control Spik			e Lab Control		%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
alpha-BHC	8.48	10.0	85	9.10	10.0	91	43-127	7	30
beta-BHC	9.93	10.0	99	10.9	10.0	109	41-129	9	30
gamma-BHC (Lindane)	9.07	10.0	91	9.81	10.0	98	42-128	8	30
delta-BHC	9.08	10.0	91	10.3	10.0	103	47-141	12	30
Heptachlor	8.92	10.0	89	9.35	10.0	94	34-126	5	30
Aldrin	6.84	10.0	68	7.31	10.0	73	10-125	7	30
Heptachlor Epoxide	8.41	10.0	84	9.11	10.0	91	45-124	8	30
gamma-Chlordane	9.12	10.0	91	10.1	10.0	101	48-119	10	30
Endosulfan I	8.50	10.0	85	8.88	10.0	89	30-115	4	30
alpha-Chlordane	9.22	10.0	92	10.1	10.0	101	48-119	9	30
Dieldrin	9.23	10.0	92	10.2	10.0	102	50-120	10	30
4,4'-DDE	9.53	10.0	95	10.5	10.0	105	36-137	9	30
Endrin	9.90	10.0	99	11.3	10.0	113	53-132	13	30
Endosulfan II	8.86	10.0	89	9.73	10.0	97	32-123	9	30
4,4'-DDD	9.19	10.0	92	10.2	10.0	102	38-140	11	30
Endrin Aldehyde	6.74	10.0	67	7.86	10.0	79	30-114	15	30
Endosulfan Sulfate	8.87	10.0	89	9.83	10.0	98	46-120	10	30
4,4'-DDT	11.1	10.0	111	12.5	10.0	125	45-146	12	30
Endrin Ketone	8.76	10.0	88	9.91	10.0	99	45-127	12	30
Methoxychlor	11.5	10.0	115	12.9	10.0	129	48-140	11	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Analytical Results

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535

Date Collected: 02/23/2009 **Date Received:** 02/24/2009

Level: Low

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095220

Lab Code:

K0901535-005

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Dilution Date Date Extraction **Analyte Name** Result O MRL MDL Factor Extracted Analyzed Lot Note Bis(2-chloroethyl) Ether ND U 5 KWG0901700 1.1 0.19 03/02/09 03/11/09 KWG0901700 5 Phenol ND U 2.6 0.33 03/02/09 03/11/09 2-Chlorophenol ND U 2.6 0.28 5 03/02/09 03/11/09 KWG0901700 5 1.3-Dichlorobenzene ND U 1.1 0.11 03/02/09 03/11/09 KWG0901700 5 KWG0901700 1.4-Dichlorobenzene ND U 0.15 03/02/09 03/11/09 1.1 1.2-Dichlorobenzene ND U 1.1 0.12 5 03/02/09 03/11/09 KWG0901700 5 Benzyl Alcohol 2.6 KWG0901700 ND U 0.38 03/02/09 03/11/09 Bis(2-chloroisopropyl) Ether 5 KWG0901700 ND II 1.1 0.14 03/02/09 03/11/09 5 2-Methylphenol ND U 2.6 0.57 KWG0901700 03/02/09 03/11/09 5 KWG0901700 Hexachloroethane ND U 03/02/09 03/11/09 1.1 0.13 N-Nitrosodi-n-propylamine ND U 1.1 0.20 5 03/02/09 03/11/09 KWG0901700 4-Methylphenol† ND U 2.6 0.62 5 03/02/09 03/11/09 KWG0901700 Nitrobenzene ND U 0.15 5 03/02/09 03/11/09 KWG0901700 1.1 5 Isophorone ND U 0.083 03/02/09 03/11/09 KWG0901700 1.1 2-Nitrophenol 5 KWG0901700 ND U 2.6 0.33 03/02/09 03/11/09 5 2.4-Dimethylphenol ND U 12 KWG0901700 21 03/02/09 03/11/09 Bis(2-chloroethoxy)methane ND U 5 KWG0901700 1.1 0.13 03/02/09 03/11/09 5 2,4-Dichlorophenol ND U 2.6 0.25 03/02/09 03/11/09 KWG0901700 5 ND U 26 5.7 03/02/09 03/11/09 KWG0901700 Benzoic Acid 1,2,4-Trichlorobenzene ND U 1.1 0.083 5 03/02/09 03/11/09 KWG0901700 Naphthalene 5 KWG0901700 ND U 1.1 0.12 03/02/09 03/11/09 4-Chloroaniline ND U 1.1 0.13 5 03/02/09 03/11/09 KWG0901700 5 Hexachlorobutadiene ND U 1.1 0.14 03/02/09 03/11/09 KWG0901700 4-Chloro-3-methylphenol ND U 0.20 5 KWG0901700 2.6 03/02/09 03/11/09 5 2-Methylnaphthalene ND U 1.1 0.14 03/02/09 03/11/09 KWG0901700 Hexachlorocyclopentadiene 5 ND U 5.2 0.98 03/11/09 KWG0901700 03/02/09 5 2,4,6-Trichlorophenol ND U 2.6 0.30 03/02/09 03/11/09 KWG0901700 2,4,5-Trichlorophenol 5 ND U 2,6 0.16 03/02/09 03/11/09 KWG0901700 2-Chloronaphthalene ND U 1.1 0.22 5 03/02/09 03/11/09 KWG0901700 2-Nitroaniline 5 ND U 1.1 0.13 03/02/09 03/11/09 KWG0901700 Acenaphthylene 1.1 0.078 5 KWG0901700 ND U 03/11/09 03/02/09 Dimethyl Phthalate ND U 5 KWG0901700 1.1 0.11 03/02/09 03/11/09 2.6-Dinitrotoluene 5 ND U 1.1 0.18 KWG0901700 03/02/09 03/11/09

Comments:	

RR99678

Analytical Results

Client: Project:

Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535

Date Collected: 02/23/2009 **Date Received:** 02/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: F0095220

Extraction Method:

K0901535-005

Analysis Method:

EPA 3520C 8270C Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND U	1.1	0.14	5	03/02/09	03/11/09	KWG0901700	
3-Nitroaniline	ND U	5.2	0.15	5	03/02/09	03/11/09	KWG0901700	
2,4-Dinitrophenol	ND U	21	0.88	5	03/02/09	03/11/09	KWG0901700	
Dibenzofuran	ND U	1.1	0.093	5	03/02/09	03/11/09	KWG0901700	
4-Nitrophenol	ND U	11	1.5	5	03/02/09	03/11/09	KWG0901700	
2,4-Dinitrotoluene	ND U	1.1	0.093	5	03/02/09	03/11/09	KWG0901700	
Fluorene	ND U	1.1	0.14	5	03/02/09	03/11/09	KWG0901700	
4-Chlorophenyl Phenyl Ether	ND U	1.1	0.14	5	03/02/09	03/11/09	KWG0901700	
Diethyl Phthalate	ND U	1.1	0.062	5	03/02/09	03/11/09	KWG0901700	
4-Nitroaniline	ND U	5.2	0.098	5	03/02/09	03/11/09	KWG0901700	
2-Methyl-4,6-dinitrophenol	ND U	11	0.13	5	03/02/09	03/11/09	KWG0901700	
N-Nitrosodiphenylamine	ND U	1.1	0.25	5	03/02/09	03/11/09	KWG0901700	
4-Bromophenyl Phenyl Ether	ND U	1.1	0.14	5	03/02/09	03/11/09	KWG0901700	
Hexachlorobenzene	ND U	1.1	0.12	5	03/02/09	03/11/09	KWG0901700	
Pentachlorophenol	ND U	5.2	1.8	5	03/02/09	03/11/09	KWG0901700	
Phenanthrene	0.20 JD	1.1	0.12	5	03/02/09	03/11/09	KWG0901700	
Anthracene	ND U	1.1	0.13	5	03/02/09	03/11/09	KWG0901700	
Di-n-butyl Phthalate	0.17 JD	1.1	0.12	5	03/02/09	03/11/09	KWG0901700	
Fluoranthene	0.29 JD	1.1	0.11	5	03/02/09	03/11/09	KWG0901700	
Pyrene	0.28 JD	1.1	0.098	5	03/02/09	03/11/09	KWG0901700	
Butyl Benzyl Phthalate	ND U	1.1	0.093	5	03/02/09	03/11/09	KWG0901700	
3,3'-Dichlorobenzidine	ND U	11	2.3	5	03/02/09	03/11/09	KWG0901700	
Benz(a)anthracene	ND U	1.1	0.093	5	03/02/09	03/11/09	KWG0901700	
Chrysene	ND U	1.1	0.15	5	03/02/09	03/11/09	KWG0901700	
Bis(2-ethylhexyl) Phthalate	2.8 JD	5.2	0.68	5	03/02/09	03/11/09	KWG0901700	
Di-n-octyl Phthalate	ND U	1.1	0.093	5	03/02/09	03/11/09	KWG0901700	
Benzo(b)fluoranthene	ND U	1.1	0.088	5	03/02/09	03/11/09	KWG0901700	
Benzo(k)fluoranthene	ND U	1.1	0.13	5	03/02/09	03/11/09	KWG0901700	
Benzo(a)pyrene	ND U	1.1	0.16	5	03/02/09	03/11/09	KWG0901700	
Indeno(1,2,3-cd)pyrene	ND U	1.1	0.11	5	03/02/09	03/11/09	KWG0901700	
Dibenz(a,h)anthracene	ND U	1.1	0.088	5	03/02/09	03/11/09	KWG0901700	
Benzo(g,h,i)perylene	ND U	1.1	0.098	5	03/02/09	03/11/09	KWG0901700	

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Form 1A - Organic

SuperSet Reference: RR99678

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Analytical Results

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535 Date Collected: 02/23/2009

Date Received: 02/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

F0095220

K0901535-005

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	62	21-119	03/11/09	Acceptable
Phenol-d6	63	31-121	03/11/09	Acceptable
Nitrobenzene-d5	58	29-121	03/11/09	Acceptable
2-Fluorobiphenyl	60	25-109	03/11/09	Acceptable
2,4,6-Tribromophenol	70	30-131	03/11/09	Acceptable
Terphenyl-d14	83	20-140	03/11/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference:

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Analytical Results

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535

Date Collected: 02/23/2009 **Date Received:** 02/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

F0095222

K0901535-007

Extraction Method:

EPA 3520C

Units: ug/L Basis: NA

Level: Low

8270C Analysis Method:

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	0.22	0.038	1	03/02/09	03/11/09	KWG0901700	
Phenol	ND U	0.54	0.068	1	03/02/09	03/11/09	KWG0901700	
2-Chlorophenol	ND U	0.54	0.058	1	03/02/09	03/11/09	KWG0901700	
1,3-Dichlorobenzene	ND U	0.22	0.023	1	03/02/09	03/11/09	KWG0901700	
1,4-Dichlorobenzene	ND U	0.22	0.031	1	03/02/09	03/11/09	KWG0901700	
1,2-Dichlorobenzene	ND U	0.22	0.024	1	03/02/09	03/11/09	KWG0901700	
Benzyl Alcohol	ND U	0.54	0.078	1	03/02/09	03/11/09	KWG0901700	
Bis(2-chloroisopropyl) Ether	ND U	0.22	0.028	1	03/02/09	03/11/09	KWG0901700	
2-Methylphenol	ND U	0.54	0.12	1	03/02/09	03/11/09	KWG0901700	
Hexachloroethane	ND U	0.22	0.026	1	03/02/09	03/11/09	KWG0901700	
N-Nitrosodi-n-propylamine	ND U	0.22	0.040	1	03/02/09	03/11/09	KWG0901700	
4-Methylphenol†	ND U	0.54	0.13	1	03/02/09	03/11/09	KWG0901700	
Nitrobenzene	ND U	0.22	0.030	1	03/02/09	03/11/09	KWG0901700	
Isophorone	ND U	0.22	0.018	1	03/02/09	03/11/09	KWG0901700	
2-Nitrophenol	ND U	0.54	0.068	1	03/02/09	03/11/09	KWG0901700	
2,4-Dimethylphenol	ND U	4.3	2.4	1	03/02/09	03/11/09	KWG0901700	
Bis(2-chloroethoxy)methane	ND U	0.22	0.026	1	03/02/09	03/11/09	KWG0901700	
2,4-Dichlorophenol	ND U	0.54	0.050	1	03/02/09	03/11/09	KWG0901700	
Benzoic Acid	ND U	5.4	1.2	1	03/02/09	03/11/09	KWG0901700	
1,2,4-Trichlorobenzene	ND U	0.22	0.018	1	03/02/09	03/11/09	KWG0901700	
Naphthalene	ND U	0.22	0.024	1	03/02/09	03/11/09	KWG0901700	
4-Chloroaniline	ND U	0.22	0.027	1	03/02/09	03/11/09	KWG0901700	
Hexachlorobutadiene	ND U	0.22	0.029	1	03/02/09	03/11/09	KWG0901700	
4-Chloro-3-methylphenol	ND U	0.54	0.040	1	03/02/09	03/11/09	KWG0901700	
2-Methylnaphthalene	ND U	0.22	0.028	1	03/02/09	03/11/09	KWG0901700	
Hexachlorocyclopentadiene	ND U	1.1	0.21	1	03/02/09	03/11/09	KWG0901700	
2,4,6-Trichlorophenol	ND U	0.54	0.062	1	03/02/09	03/11/09	KWG0901700	
2,4,5-Trichlorophenol	ND U	0.54	0.033	1	03/02/09	03/11/09	KWG0901700	
2-Chloronaphthalene	ND U	0.22	0.044	1	03/02/09	03/11/09	KWG0901700	
2-Nitroaniline	ND U	0.22	0.026	1	03/02/09	03/11/09	KWG0901700	
Acenaphthylene	ND U	0.22	0.016	1	03/02/09	03/11/09	KWG0901700	
Dimethyl Phthalate	ND U	0.22	0.023	1	03/02/09	03/11/09	KWG0901700	
2,6-Dinitrotoluene	ND U	0.22	0.036	1	03/02/09	03/11/09	KWG0901700	

Comments:

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Analytical Results

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535

Date Collected: 02/23/2009 **Date Received:** 02/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: F0095222 K0901535-007

Extraction Method: Analysis Method:

EPA 3520C 8270C Units: ug/L Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	Ū	0.22	0.028	1	03/02/09	03/11/09	KWG0901700	tion is a linear to the second
3-Nitroaniline	ND	U	1.1	0.031	1	03/02/09	03/11/09	KWG0901700	
2,4-Dinitrophenol	ND	U	4.3	0.19	1	03/02/09	03/11/09	KWG0901700	
Dibenzofuran	ND	U	0.22	0.020	1	03/02/09	03/11/09	KWG0901700	
4-Nitrophenol	ND	U	2.2	0.30	1	03/02/09	03/11/09	KWG0901700	
2,4-Dinitrotoluene	ND	U	0.22	0.020	1	03/02/09	03/11/09	KWG0901700	
Fluorene	ND		0.22	0.029	1	03/02/09	03/11/09	KWG0901700	
4-Chlorophenyl Phenyl Ether	ND	U	0.22	0.029	1	03/02/09	03/11/09	KWG0901700	
Diethyl Phthalate	0.038	J	0.22	0.013	1	03/02/09	03/11/09	KWG0901700	
4-Nitroaniline	ND	U	1.1	0.021	1	03/02/09	03/11/09	KWG0901700	
2-Methyl-4,6-dinitrophenol	ND	U	2.2	0.027	1	03/02/09	03/11/09	KWG0901700	
N-Nitrosodiphenylamine	ND	U	0.22	0.052	1	03/02/09	03/11/09	KWG0901700	
4-Bromophenyl Phenyl Ether	ND	U	0.22	0.028	1	03/02/09	03/11/09	KWG0901700	
Hexachlorobenzene	ND	U	0.22	0.024	1	03/02/09	03/11/09	KWG0901700	
Pentachlorophenol	ND	U	1.1	0.37	1	03/02/09	03/11/09	KWG0901700	
Phenanthrene	ND	U	0.22	0.024	1	03/02/09	03/11/09	KWG0901700	
Anthracene	ND	U	0.22	0.026	1	03/02/09	03/11/09	KWG0901700	
Di-n-butyl Phthalate	0.039	J	0.22	0.025	1	03/02/09	03/11/09	KWG0901700	
Fluoranthene	ND	U	0.22	0.022	1	03/02/09	03/11/09	KWG0901700	
Pyrene	ND	U	0.22	0.021	1	03/02/09	03/11/09	KWG0901700	
Butyl Benzyl Phthalate	ND	U	0.22	0.020	1	03/02/09	03/11/09	KWG0901700	
3,3'-Dichlorobenzidine			2.2	0.46	1	03/02/09	03/11/09	KWG0901700	
Benz(a)anthracene		U	0.22	0.020	1	03/02/09	03/11/09	KWG0901700	
Chrysene	ND	U	0.22	0.030	1	03/02/09	03/11/09	KWG0901700	
Bis(2-ethylhexyl) Phthalate	0.15		1.1	0.14	1	03/02/09	03/11/09	KWG0901700	
Di-n-octyl Phthalate	ND		0.22	0.020	1	03/02/09	03/11/09	KWG0901700	
Benzo(b)fluoranthene	ND	U	0.22	0.019	1	03/02/09	03/11/09	KWG0901700	
Benzo(k)fluoranthene	ND		0.22	0.026	1	03/02/09	03/11/09	KWG0901700	
Benzo(a)pyrene	ND	U	0.22	0.033	1	03/02/09	03/11/09	KWG0901700	
Indeno(1,2,3-cd)pyrene	ND	U	0.22	0.023	1	03/02/09	03/11/09	KWG0901700	
Dibenz(a,h)anthracene	ND	U	0.22	0.019	1	03/02/09	03/11/09	KWG0901700	
Benzo(g,h,i)perylene	ND	U	0.22	0.021	1	03/02/09	03/11/09	KWG0901700	

RR99678

Analytical Results

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535

Date Collected: 02/23/2009 **Date Received:** 02/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: F0095222

K0901535-007

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	61	21-119	03/11/09	Acceptable
Phenol-d6	63	31-121	03/11/09	Acceptable
Nitrobenzene-d5	65	29-121	03/11/09	Acceptable
2-Fluorobiphenyl	60	25-109	03/11/09	Acceptable
2,4,6-Tribromophenol	51	30-131	03/11/09	Acceptable
Terphenyl-d14	85	20-140	03/11/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 37

SuperSet Reference: RR99678

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Analytical Results

Client: Portland, City of Project: Portland Harbor

8270C

Water Sample Matrix:

Analysis Method:

Service Request: K0901535

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank Units: ug/L Lab Code: KWG0901700-3 Basis: NA **Extraction Method:** EPA 3520C Level: Low

Dilution Date Date Extraction **Analyte Name** Result O MRL MDL Factor Extracted Analyzed Lot Note ND II KWG0901700 Bis(2-chloroethyl) Ether 0.19 0.035 page 03/02/09 03/10/09 Phenol 0.10 J 0.48 0.063 1 03/02/09 03/10/09 KWG0901700 2-Chlorophenol ND U 0.48 0.054 powers. 03/10/09 KWG0901700 03/02/09 1.3-Dichlorobenzene ND U -KWG0901700 0.19 0.021 03/02/09 03/10/09 1.4-Dichlorobenzene ND U 0.19 0.029 1 03/02/09 03/10/09 KWG0901700 1.2-Dichlorobenzene KWG0901700 ND U 0.19 0.022 1 03/02/09 03/10/09 KWG0901700 Benzyl Alcohol ND U 0.48 0.073 1 03/02/09 03/10/09 Bis(2-chloroisopropyl) Ether ND U 0.19 0.026 03/10/09 KWG0901700 1 03/02/09 2-Methylphenol ND U 0.48 0.11 1 03/02/09 03/10/09 KWG0901700 Hexachloroethane ND U 0.19 0.024 1 03/02/09 03/10/09 KWG0901700 N-Nitrosodi-n-propylamine ND U 0.19 0.037 03/02/09 03/10/09 KWG0901700 KWG0901700 4-Methylphenol† ND U 0.480.12 -03/02/09 03/10/09 Nitrobenzene ND U 0.19 0.028 1 03/02/09 03/10/09 KWG0901700 Isophorone ND U 0.19 0.016 1 03/02/09 03/10/09 KWG0901700 2-Nitrophenol 0.063 1 03/02/09 03/10/09 KWG0901700 ND U 0.48 2,4-Dimethylphenol ND II 3.8 2.2 1 03/02/09 03/10/09 KWG0901700 Bis(2-chloroethoxy)methane ND U 0.19 0.024 1 03/02/09 03/10/09 KWG0901700 2.4-Dichlorophenol ND U 0.48 0.047 1 03/02/09 03/10/09 KWG0901700 Benzoic Acid ND U 4.8 1.1 1 03/02/09 03/10/09 KWG0901700 1,2,4-Trichlorobenzene KWG0901700 ND U 0.19 0.016 1 03/02/09 03/10/09 Naphthalene ND U 0.19 0.022 1 03/02/09 03/10/09 KWG0901700 1 4-Chloroaniline ND U 0.19 KWG0901700 0.025 03/02/09 03/10/09 Hexachlorobutadiene ND U 0.19 0.027 1 03/02/09 03/10/09 KWG0901700 4-Chloro-3-methylphenol ND U 0.480.037 1 03/02/09 03/10/09 KWG0901700 2-Methylnaphthalene KWG0901700 ND U 0.19 0.026 1 03/02/09 03/10/09 Hexachlorocyclopentadiene ND U 0.95 0.19 1 03/02/09 03/10/09 KWG0901700 2,4,6-Trichlorophenol ND U 0.48 0.058 1 KWG0901700 03/02/09 03/10/09 2,4,5-Trichlorophenol ND U 0.48 0.031 1 03/02/09 KWG0901700 03/10/09 2-Chloronaphthalene ND U 0.19 KWG0901700 0.0411 03/02/09 03/10/09 2-Nitroaniline ND U 0.19 0.024 1 03/02/09 KWG0901700 03/10/09 Acenaphthylene ND U 1 KWG0901700 0.19 0.015 03/02/09 03/10/09 Dimethyl Phthalate ND U 0.19 0.021 1 03/02/09 03/10/09 KWG0901700 2.6-Dinitrotoluene ND U 0.19 0.033 1 03/02/09 03/10/09 KWG0901700

Comments:	

Analytical Results

Client: Portland, City of Portland Harbor

8270C

Sample Matrix: Water

Analysis Method:

Service Request: K0901535

Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:Method BlankUnits:ug/LLab Code:KWG0901700-3Basis:NAExtraction Method:EPA 3520CLevel:Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND	U	0.19	0.026	1	03/02/09	03/10/09	KWG0901700	CONTROL CONTRO
3-Nitroaniline	ND	U	0.95	0.029	1	03/02/09	03/10/09	KWG0901700	
2,4-Dinitrophenol	ND	U	3.8	0.17	1	03/02/09	03/10/09	KWG0901700	
Dibenzofuran	ND	U	0.19	0.018	1	03/02/09	03/10/09	KWG0901700	
4-Nitrophenol	ND	U	1.9	0.28	1	03/02/09	03/10/09	KWG0901700	
2,4-Dinitrotoluene	ND	U	0.19	0.018	1	03/02/09	03/10/09	KWG0901700	
Fluorene	ND	U	0.19	0.027	1	03/02/09	03/10/09	KWG0901700	
4-Chlorophenyl Phenyl Ether	ND	U	0.19	0.027	1	03/02/09	03/10/09	KWG0901700	
Diethyl Phthalate	0.019	J	0.19	0.012	1	03/02/09	03/10/09	KWG0901700	
4-Nitroaniline	ND		0.95	0.019	1	03/02/09	03/10/09	KWG0901700	
2-Methyl-4,6-dinitrophenol	ND	U	1.9	0.025	1	03/02/09	03/10/09	KWG0901700	
N-Nitrosodiphenylamine	ND	U	0.19	0.048	1	03/02/09	03/10/09	KWG0901700	
4-Bromophenyl Phenyl Ether	ND		0.19	0.026	1	03/02/09	03/10/09	KWG0901700	
Hexachlorobenzene	ND		0.19	0.022	1	03/02/09	03/10/09	KWG0901700	
Pentachlorophenol	ND	U	0.95	0.34	1	03/02/09	03/10/09	KWG0901700	
Phenanthrene	ND		0.19	0.022	1	03/02/09	03/10/09	KWG0901700	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Anthracene	ND		0.19	0.024	1	03/02/09	03/10/09	KWG0901700	
Di-n-butyl Phthalate	0.066	J	0.19	0.023	1	03/02/09	03/10/09	KWG0901700	
Fluoranthene	ND		0.19	0.020	1	03/02/09	03/10/09	KWG0901700	
Pyrene	ND	U	0.19	0.019	1	03/02/09	03/10/09	KWG0901700	
Butyl Benzyl Phthalate	0.040	J	0.19	0.018	1	03/02/09	03/10/09	KWG0901700	
3,3'-Dichlorobenzidine	ND	U	1.9	0.43	1	03/02/09	03/10/09	KWG0901700	
Benz(a)anthracene	ND	U	0.19	0.018	1	03/02/09	03/10/09	KWG0901700	
Chrysene	ND	U	0.19	0.028	1	03/02/09	03/10/09	KWG0901700	
Bis(2-ethylhexyl) Phthalate	ND	U	0.95	0.13	1	03/02/09	03/10/09	KWG0901700	
Di-n-octyl Phthalate	ND	U	0.19	0.018	1	03/02/09	03/10/09	KWG0901700	
Benzo(b)fluoranthene	ND	U	0.19	0.017	1	03/02/09	03/10/09	KWG0901700	
Benzo(k)fluoranthene	ND	U	0.19	0.024	1	03/02/09	03/10/09	KWG0901700	
Benzo(a)pyrene	ND	U	0.19	0.031	1	03/02/09	03/10/09	KWG0901700	
Indeno(1,2,3-cd)pyrene	ND	U	0.19	0.021	1	03/02/09	03/10/09	KWG0901700	
Dibenz(a,h)anthracene	ND	U	0.19	0.017	1	03/02/09	03/10/09	KWG0901700	
Benzo(g,h,i)perylene	ND	U	0.19	0.019	1	03/02/09	03/10/09	KWG0901700	

Comments:	

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Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Water

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Service Request: K0901535

Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: Method Blank KWG0901700-3 Units: ug/L

Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	76	21-119	03/10/09	Acceptable
Phenol-d6	78	31-121	03/10/09	Acceptable
Nitrobenzene-d5	79	29-121	03/10/09	Acceptable
2-Fluorobiphenyl	70	25-109	03/10/09	Acceptable
2,4,6-Tribromophenol	60	30-131	03/10/09	Acceptable
Terphenyl-d14	94	20-140	03/10/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference:

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ference: RR99678

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor

Sample Matrix:

Water

Service Request: K0901535

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

8270C

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
F0095216	K0901535-001	56 D	62 D	57 D	61 D	69 D	81 D
F0095217	K0901535-002	64 D	68 D	62 D	72 D	71 D	88 D
F0095218	K0901535-003	66 D	68 D	67 D	58 D	73 D	43 D
F0095219	K0901535-004	65 D	70 D	66 D	71 D	85 D	90 D
F0095220	K0901535-005	62 D	63 D	58 D	60 D	70 D	83 D
F0095221	K0901535-006	68 D	76 D	76 D	77 D	87 D	87 D
F0095222	K0901535-007	61	63	65	60	51	85
Method Blank	KWG0901700-3	76	78	79	70	60	94
Lab Control Sample	KWG0901700-1	78	77	75	65	71	85
Duplicate Lab Control Sample	KWG0901700-2	72	73	71	61	67	82

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	21-119	Sur5 = 2,4,6-Tribromophenol	30-131
Sur2 = Phenol-d6	31-121	Sur6 = Terphenyl-d14	20-140
Sur3 = Nitrobenzene-d5	29-121	- '	
Sur4 = 2-Fluorobiphenyl	25-109		

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

Page 1 of 1

SuperSet Reference:

QA/QC Report

Client: Portland, City of Portland Harbor Project:

Water Sample Matrix:

Service Request: K0901535 Date Extracted: 03/02/2009

Date Analyzed: 03/10/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C Analysis Method: 8270C

Units: ug/L Basis: NA

Level: Low

Extraction Lot: KWG0901700

	KW	Control Samp VG0901700-1 Control Spik		KW	Lab Control : /G0901700-2 • Lab Control		%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Bis(2-chloroethyl) Ether	4.11	5.00	82	3.68	5.00	74	39-115	11	30
Phenol	4.13	5.00	83	3.79	5.00	76	39-117	9	30
2-Chlorophenol	4.26	5.00	85	3.74	5.00	75	40-113	13	30
1,3-Dichlorobenzene	2.35	5.00	47	2.18	5.00	44	18-71	7	30
1,4-Dichlorobenzene	2.32	5.00	46	2.14	5.00	43	19-73	8	30
1,2-Dichlorobenzene	2.71	5.00	54	2.36	5.00	47	22-78	14	30
Benzyl Alcohol	4.29	5.00	86	3.90	5.00	78	37-119	10	30
Bis(2-chloroisopropyl) Ether	4.17	5.00	83	3.80	5.00	76	35-113	9	30
2-Methylphenol	3.54	5.00	71	3.27	5.00	65	26-113	8	30
Hexachloroethane	1.88	5.00	38	1.65	5.00	33	11-62	13	30
N-Nitrosodi-n-propylamine	3.91	5.00	78	3.53	5.00	71	32-117	10	30
4-Methylphenol	3.85	5.00	77	3.53	5.00	71	25-118	9	30
Nitrobenzene	3.91	5.00	78	3.60	5.00	72	37-116	8	30
Isophorone	3.56	5.00	71	3.25	5.00	65	39-112	9	30
2-Nitrophenol	3.79	5,00	76	3.30	5.00	66	42-116	14	30
2,4-Dimethylphenol	2.29	5.00	46	1.99	5.00	40	10-113	14	30
Bis(2-chloroethoxy)methane	3,68	5.00	74	3.31	5.00	66	40-113	11	30
2,4-Dichlorophenol	3.69	5.00	74	3.17	5.00	63	39-115	15	30
Benzoic Acid	3.64	15.0	24	3.17	15.0	21	10-102	14	30
1,2,4-Trichlorobenzene	2.37	5.00	47	2.17	5.00	43	21-78	9	30
Naphthalene	3.23	5.00	65	2.93	5.00	59	33-98	10	30
4-Chloroaniline	2.78	5.00	56	2.69	5.00	54	10-119	3	30
Hexachlorobutadiene	1.67	5.00	33	1.43	5.00	29	10-61	15	30
4-Chloro-3-methylphenol	3.67	5.00	73	3.39	5.00	68	37-119	8	30
2-Methylnaphthalene	2.94	5.00	59	2.78	5.00	56	32-95	6	30
Hexachlorocyclopentadiene	0.755	5.00	15	0.721	5.00	14	10-39	5	30
2,4,6-Trichlorophenol	3.75	5.00	75	3.30	5.00	66	40-117	13	30
2,4,5-Trichlorophenol	3.86	5.00	77	3.42	5.00	68	44-116	12	30
2-Chloronaphthalene	3.05	5.00	61	2,86	5.00	57	21-115	7	30
2-Nitroaniline	3.78	5.00	76	3,49	5.00	70	43-124	8	30
Acenaphthylene	3.55	5.00	71	3.48	5.00	70	41-114	2	30
Dimethyl Phthalate	3.81	5.00	76	3.53	5.00	71	47-117	8	30
2,6-Dinitrotoluene	4.06	5.00	81	3.70	5.00	74	45-120	9	30
Acenaphthene	3.48	5.00	70	3.33	5.00	67	38-106	4	30
3-Nitroaniline	3.89	5.00	78	3.43	5,00	69	31-125	13	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Page SuperSet Reference: RR99678

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QA/QC Report

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Water

Service Request: K0901535

Date Extracted: 03/02/2009 Date Analyzed: 03/10/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA Level: Low

Extraction Lot: KWG0901700

							EXHACHOH	LUU: IX	W G0301700
	KW	Control Samp VG0901700-1 Control Spik		KV	Lab Control (VG0901700-2 e Lab Control		%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
2,4-Dinitrophenol	1.90	5.00	38	1.74	5.00	35	10-121	9	30
Dibenzofuran	3.53	5.00	71	3.35	5.00	67	40-107	5	30
4-Nitrophenol	3.84	5.00	77	3.28	5.00	66	43-133	16	30
2,4-Dinitrotoluene	3.83	5.00	77	3.63	5.00	73	47-125	6	30
Fluorene	3.59	5.00	72	3.43	5.00	69	40-112	5	30
4-Chlorophenyl Phenyl Ether	3.32	5.00	66	3.12	5.00	62	39-108	6	30
Diethyl Phthalate	4.01	5.00	80	3.59	5.00	72	47-120	11	30
4-Nitroaniline	4.26	5.00	85	3.73	5.00	75	36-128	13	30
2-Methyl-4,6-dinitrophenol	3.31	5.00	66	3.04	5.00	61	19-127	8	30
N-Nitrosodiphenylamine	3.83	5.00	77	3.39	5.00	68	36-114	12	30
4-Bromophenyl Phenyl Ether	3.46	5.00	69	3.21	5.00	64	43-110	7	30
Hexachlorobenzene	3.55	5.00	71	3.26	5.00	65	42-107	8	30
Pentachlorophenol	3.31	5.00	66	3.12	5.00	62	28-114	6	30
Phenanthrene	3.87	5.00	77	3.55	5.00	71	43-110	9	30
Anthracene	3.50	5.00	70	3.32	5.00	66	40-110	5	30
Di-n-butyl Phthalate	3.90	5.00	78	3.64	5.00	73	45-135	7	30
Fluoranthene	3.80	5.00	76	3.60	5.00	72	42-119	5	30
Pyrene	3.89	5.00	78	3.73	5.00	75	43-118	4	30
Butyl Benzyl Phthalate	3.95	5.00	79	3.75	5.00	75	48-124	5	30
3,3'-Dichlorobenzidine	3.56	5.00	71	3.18	5.00	64	15-108	11	30
Benz(a)anthracene	3.74	5.00	75	3.51	5.00	70	45-112	6	30
Chrysene	3.98	5.00	80	3.80	5.00	76	47-112	5	30
Bis(2-ethylhexyl) Phthalate	3.84	5.00	77	3.77	5.00	75	32-149	2	30
Di-n-octyl Phthalate	3.83	5.00	77	3.63	5.00	73	49-127	5	30
Benzo(b)fluoranthene	3.77	5.00	75	3.62	5.00	72	45-115	4	30
Benzo(k)fluoranthene	3.91	5.00	78	3.68	5.00	74	46-115	6	30
Benzo(a)pyrene	3.23	5.00	65	3.11	5.00	62	40-117	4	30
Indeno(1,2,3-cd)pyrene	3.81	5.00	76	3.64	5.00	73	44-119	5	30
Dibenz(a,h)anthracene	3.80	5.00	76	3.44	5.00	69	45-118	10	30
Benzo(g,h,i)perylene	3.84	5.00	77	3.65	5.00	73	45-116	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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RR99678

CHAIN OF CUSTODY

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000 #	SR#: NONOIDS

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Minied Williams	Signature RE	24 hr. 48 hr. 5 Day Standard (10-15 working days) Provide FAX Results Requested Report Date		NFORMATION			£	<u>ر</u> این	£	2	٤	£	£,	I.D. MATRIX		AND THE PROPERTY OF THE PROPER			
	RECEIVED BY:	Phama	Dissolved Metals: A) A *INDICATE STATE	Circle which metals are to be analyzed: Total Metals: Al As Sb Ba Be										NUMB Semivo 625 Volatification 624 Hydroc Gas Control New	olatile 8 e Org 826 carbo	POrga 270 [anics	anics by 8270	GCMS	The state of the s
Printed Name	Signature	TIONS/COMMENTS:	Ba Be B Ca Cd	be analyzed: Sb Ba Be B Ca Cd Co		Annual Control of the	X							Oil & 0 166 PCB's	Greas 54 HI	Screet RI	nt (FIO) sen PH 14		XO.
Firm	RELINQUISHED BY: Date/Time	Jel 8270	Cr Cu Fe Pb Mg	Cr Cu Fe Pb Ma N										Cyanic PH, C	belo	al or E DW) He	Dissolve	0	STA D
Printed Name	RECEIVED	analysis	Mo Ni K Ag Na	Mn Mo Ni K Ag Na Se										PH, Cl NO3. NH3-N DOC	BOL COL (circ)	CI, S(), TS(S), TS(S), TS(S)	04, PO 5, TOS (tal-P, TH 02+NO ₃ 0X 1650	The strict of th	
Firm	UED BY: 2 24100 Date-June	Darko.	TI Sn V Zn	Sr Tl Sn V Zn Ha		остана в подпата								REMARKS					

Cooler Receipt and Preservation Form

PC PUD

Client / Project: City of Portlan	1	one iceei	n and i ics			t K09 015	35		and the desired and the second and t
Received: 22409 Op	ened: ~	0-24-09	Ву	: NL)				
- •	Mail Cool NA	Fed Ex Jer Box Y Y 1	Envelo,	<i>ne</i> es, how m	Other nany and	d where?ey signed and		Hand Del	livered N
5. Temperature of cooler(s) upon recontent to the recontent of the reconte	Numbers Baggies out (ink, ition (un e analysis with cus ers and v	Bubble Wr signed, etc.) broken)? / s, preservatio stody papers?	? indicate in the on, etc.)? Indicate in the eived for the t	table belo he table b ests indi	ow. pelow cated?		NO.	NA Y NA Y NA Y NA Y NA Y NA Y) N) N) N
 13. Were the pH-preserved bottles teste 14. Were VOA vials and 1631 Mercury 15. Are CWA Microbiology samples 16. Was C12/Res negative? 	bottles r	eceived with	out headspace	? Indica	te in the	table below.	on?	NA Y NA Y NA Y	N N N
Sample ID on Bottle	Samp	le ID on COC		Sample	ID on B	ottle	Sar	mple ID on COC	
Sample ID All Samples	Bottle Count	Bottle Type	Out of Head- Temp space	Broken	pH	Reagent	Volume	Reagent Lot Number	Initials
*Does not include all pH preserved sample alique Additional Notes, Discrepancies, &	is received Resolut	. See sample re	eceiving SOP (SM	0-GĘN).	Show	helped.	125/00 18	Ź, H	



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

March 17, 2009

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 02/24/09 14:55. The following list is a summary of the Work Orders contained in this report, generated on 03/17/09 21:08.

If you have any questions concerning this report, please feel free to contact me.

Work Order	<u>Project</u>	<u>ProjectNumber</u>
PSB0692	Portland Harbor	36238

TestAmerica Portland





THE LEADER IN ENVIRONMENTAL TESTING

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

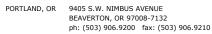
6543 N. Burlington Ave. 36238 Report Created: Project Number: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 21:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO095216	PSB0692-01	Water	02/23/09 14:42	02/24/09 14:55
FO095217	PSB0692-02	Water	02/23/09 14:10	02/24/09 14:55
FO095218	PSB0692-03	Water	02/23/09 15:18	02/24/09 14:55
FO095219	PSB0692-04	Water	02/23/09 13:58	02/24/09 14:55
FO095220	PSB0692-05	Water	02/23/09 14:28	02/24/09 14:55
FO095221	PSB0692-06	Water	02/23/09 14:55	02/24/09 14:55
FO095222	PSB0692-07	Water	02/23/09 15:30	02/24/09 14:55
FO095223	PSB0692-08	Water	02/23/09 00:00	02/24/09 14:55

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 21:08

Polynuclear Aromatic Compounds per EPA 8270M-SIM

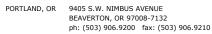
TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSB0692-05 (FO095220)			W	ater		Samp	R			
Bis(2-ethylhexyl)phthalate	EPA 8270m	3.15	1.01	1.92	ug/l	2x	9020785	02/25/09 13:00	03/14/09 02:41	
Butyl benzyl phthalate	"	ND	1.01	1.92	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	1.01	1.92	"	"	"	"	"	
Di-n-octyl phthalate	"	1.30	1.01	1.92	"	"	"	"	"	J
Diethyl phthalate	"	ND	1.01	1.92	"	"	"	"	"	
Dimethyl phthalate	"	ND	1.01	1.92	"	"	"	"	"	
Acenaphthene	"	ND	0.0577	0.0577	"	3x	"	"	03/07/09 01:00	RL1
Acenaphthylene	"	ND	0.0577	0.0577	"	"	"	"	"	RL1
Anthracene	"	ND	0.0577	0.0577	"	"	"	"	"	RL1
Benzo (a) anthracene	"	0.0353	0.0288	0.0288	"	"	"	"	"	
Benzo (a) pyrene	"	0.0423	0.0288	0.0288	"	"	"	"	"	
Benzo (b) fluoranthene	"	0.0795	0.0288	0.0288	"	"	"	"	"	
Benzo (ghi) perylene	"	0.0890	0.0577	0.0577	"	"	"	"	"	
Benzo (k) fluoranthene	"	0.0510	0.0288	0.0288	"	"	"	"	"	
Chrysene	"	0.138	0.0288	0.0288	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	0.0288	0.0288	"	"	"	"	"	RL1
Fluoranthene	"	0.204	0.0577	0.0577	"	"	"	"	"	
Fluorene	"	ND	0.0577	0.0577	"	"	"	"	"	RL1
ndeno (1,2,3-cd) pyrene	"	0.0433	0.0288	0.0288	"	"	"	"	"	
Naphthalene	"	0.0638	0.0577	0.0577	"	"	"	"	"	
Phenanthrene	"	0.143	0.0577	0.0577		"	"	"	"	
Pyrene	"	0.113	0.0577	0.0577	"	"	"	"	"	
Surrogate(s): Fluorene-d10				92.2%		25 - 125 %	"			"
Pyrene-d10				60.4%		23 - 150 %	"			"
Benzo (a) pyre	ne-d12			89.8%		10 - 125 %	"			"

PSB0692-06 (FO095221)		Wa	ater		Sam	pled: 02/23/	RL	.3			
Bis(2-ethylhexyl)phthalate	EPA 8270m	4.38	1.02	1.94	ug/l	2x	9020785	02/25/09 13:00	03/14/09 03:18		_
Butyl benzyl phthalate	"	ND	1.02	1.94	"	"	"	"	"		
Di-n-butyl phthalate	"	ND	1.02	1.94	"	"	"	"	"		
Di-n-octyl phthalate	"	ND	1.94	1.94	"	"	"	"	"		
Diethyl phthalate	"	ND	1.02	1.94	"	"	"	"	"		
Dimethyl phthalate	"	ND	1.02	1.94	"	"	"	"	"		
Acenaphthene	"	ND	0.0777	0.0777	"	4x	"	"	03/09/09 20:17	RL1	
Acenaphthylene	"	ND	0.0777	0.0777	"	"	"	"	"	RL1	
Anthracene	"	ND	0.0777	0.0777	"	"	"	"	"	RL1	

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory

Project Name: **Portland Harbor**

6543 N. Burlington Ave. Portland, OR 97203

Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 03/17/09 21:08

Polynuclear Aromatic Compounds per EPA 8270M-SIM

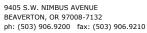
TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSB0692-06 (FO095221)			W	ater		Samp	led: 02/23/	09 14:55			RL
Benzo (a) anthracene	EPA 8270m	0.0553	0.0388	0.0388	ug/l	4x	9020785	02/25/09 13:00	03/09/09 20:17		_
Benzo (a) pyrene	"	0.0556	0.0388	0.0388	"	"	"	"	"		
Benzo (b) fluoranthene	"	0.0790	0.0388	0.0388	"	"	"	"	"		
Benzo (ghi) perylene	"	0.0878	0.0777	0.0777	"	"	"	"	"		
Benzo (k) fluoranthene	"	0.0572	0.0388	0.0388	"	"	"	"	"		
Chrysene	"	0.158	0.0388	0.0388	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND	0.0388	0.0388	"	"	"	"	"	RL1	
Fluoranthene	"	0.233	0.0777	0.0777	"	"	"	"	"		
Fluorene	"	ND	0.0777	0.0777	"	"	"	"	"	RL1	
Indeno (1,2,3-cd) pyrene	"	0.0458	0.0388	0.0388	"	"	"	"	"		
Naphthalene	"	0.358	0.0777	0.0777	"	"	"	"	"		
Phenanthrene	"	0.169	0.0777	0.0777	"	"	"	"	"		
Pyrene	"	0.160	0.0777	0.0777	"	"	"	"	"		
Surrogate(s): Fluorene-d. Pyrene-d10 Benzo (a) p	ı			71.2% 46.3% 64.6%		25 - 125 % 23 - 150 % 10 - 125 %	"			" " "	
PSB0692-07 (FO095222)	ı		W	ater		Samp	led: 02/23/	09 15:30			
	EPA 8270m	ND	0.501	0.952	ug/l	Samp	led: 02/23/ 9020785	09 15:30	03/04/09 19:49		
PSB0692-07 (FO095222)		ND ND			ug/l				03/04/09 19:49		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate	EPA 8270m		0.501	0.952		1x	9020785	02/25/09 13:00			
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate	EPA 8270m	ND	0.501 0.501	0.952 0.952		1x	9020785	02/25/09 13:00			
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate	EPA 8270m	ND ND	0.501 0.501 0.501	0.952 0.952 0.952		1x	9020785	02/25/09 13:00			
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate	EPA 8270m	ND ND ND	0.501 0.501 0.501 0.501	0.952 0.952 0.952 0.952		1x	9020785	02/25/09 13:00			
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate	EPA 8270m	ND ND ND	0.501 0.501 0.501 0.501 0.501	0.952 0.952 0.952 0.952 0.952		1x	9020785	02/25/09 13:00	" "		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate	EPA 8270m	ND ND ND ND	0.501 0.501 0.501 0.501 0.501 0.501	0.952 0.952 0.952 0.952 0.952 0.952		1x	9020785	02/25/09 13:00			
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Dimethyl phthalate Acenaphthene	EPA 8270m	ND ND ND ND ND	0.501 0.501 0.501 0.501 0.501 0.501 0.0190	0.952 0.952 0.952 0.952 0.952 0.952 0.952		1x	9020785	02/25/09 13:00	" " " " 03/06/09 22:44		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Dimethyl phthalate Dimethyl phthalate Acenaphthene Acenaphthylene	EPA 8270m	ND ND ND ND ND ND ND ND	0.501 0.501 0.501 0.501 0.501 0.501 0.0190	0.952 0.952 0.952 0.952 0.952 0.952 0.952 0.0190		1x	9020785	02/25/09 13:00	03/06/09 22:44		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthylene Anthracene	EPA 8270m	ND ND ND ND ND ND ND ND ND	0.501 0.501 0.501 0.501 0.501 0.501 0.0190 0.0190	0.952 0.952 0.952 0.952 0.952 0.952 0.952 0.0190 0.0190		1x	9020785	02/25/09 13:00	03/06/09 22:44		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene	EPA 8270m	ND	0.501 0.501 0.501 0.501 0.501 0.501 0.0190 0.0190 0.0190 0.00952	0.952 0.952 0.952 0.952 0.952 0.952 0.0190 0.0190 0.00952		1x	9020785	02/25/09 13:00	03/06/09 22:44		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene	EPA 8270m	ND	0.501 0.501 0.501 0.501 0.501 0.501 0.0190 0.0190 0.0190 0.00952 0.00952	0.952 0.952 0.952 0.952 0.952 0.952 0.0190 0.0190 0.0190 0.00952		1x	9020785	02/25/09 13:00	03/06/09 22:44		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene	EPA 8270m	ND N	0.501 0.501 0.501 0.501 0.501 0.501 0.0190 0.0190 0.0190 0.00952 0.00952	0.952 0.952 0.952 0.952 0.952 0.952 0.0190 0.0190 0.0190 0.00952 0.00952		1x	9020785	02/25/09 13:00	03/06/09 22:44		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Dimethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (b) fluoranthene Benzo (ghi) perylene	EPA 8270m	ND N	0.501 0.501 0.501 0.501 0.501 0.501 0.0190 0.0190 0.0190 0.00952 0.00952 0.00952	0.952 0.952 0.952 0.952 0.952 0.952 0.0190 0.0190 0.0190 0.00952 0.00952 0.00952		1x	9020785	02/25/09 13:00	03/06/09 22:44		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthene Anthracene Benzo (a) anthracene Benzo (b) fluoranthene Benzo (ghi) perylene Benzo (k) fluoranthene	EPA 8270m	ND N	0.501 0.501 0.501 0.501 0.501 0.0190 0.0190 0.0190 0.00952 0.00952 0.00952 0.00952	0.952 0.952 0.952 0.952 0.952 0.952 0.0190 0.0190 0.0190 0.00952 0.00952 0.00952		1x	9020785	02/25/09 13:00	03/06/09 22:44		
PSB0692-07 (FO095222) Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Dimethyl phthalate Dimethyl phthalate Acenaphthene Acenaphthene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene Benzo (ghi) perylene Benzo (k) fluoranthene Chrysene	EPA 8270m	ND N	0.501 0.501 0.501 0.501 0.501 0.0190 0.0190 0.0190 0.00952 0.00952 0.00952 0.00952 0.00952	0.952 0.952 0.952 0.952 0.952 0.952 0.0190 0.0190 0.00952 0.00952 0.00952 0.00952 0.00952		1x	9020785	02/25/09 13:00	03/06/09 22:44		

TestAmerica Portland

Howard Holmes, Project Manager







City of Portland Water Pollution Laboratory

Portland Harbor Project Name:

6543 N. Burlington Ave. Portland, OR 97203

Project Number: Project Manager: Jennifer Shackelford

36238

Report Created: 03/17/09 21:08

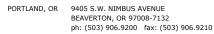
Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte]	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSB0692-07 ((FO095222)			W	ater		Samp	led: 02/23/	09 15:30		
Indeno (1,2,3-cd) py	rene E	EPA 8270m	ND	0.00952	0.00952	ug/l	1x	9020785	02/25/09 13:00	03/06/09 22:44	
Naphthalene		"	ND	0.0190	0.0190	"	"	"	"	"	
Phenanthrene		"	ND	0.0190	0.0190	"	"	"	"	"	
Pyrene		"	ND	0.0190	0.0190	"	"	"	"	"	
Surrogate(s):	Fluorene-d10				76.8%		25 - 125 %	"			"
	Pyrene-d10				70.9%		23 - 150 %	"			"
	Benzo (a) pyrene-d12	2			95.7%		10 - 125 %	"			"

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

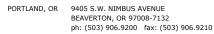
6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 21:08

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 9020785	Water P	reparation	Method: 3	520B Liq-I	Liq									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)) Analyzed	Note
Blank (9020785-BLK1)								Extr	acted:	02/25/09 13	:00			
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	0.526	1.00	ug/l	1x							03/03/09 11:07	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"							"	
Diethyl phthalate	"	ND	0.526	1.00	"	"							"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"							"	
Acenaphthene	"	ND	0.0200	0.0200	"	"							03/02/09 14:41	
Acenaphthylene	"	ND	0.0200	0.0200	"	"							"	
Anthracene	"	ND	0.0200	0.0200	"	"							"	
Benzo (a) anthracene	"	ND	0.0100	0.0100	"	"							"	
Benzo (a) pyrene	"	ND	0.0100	0.0100	"								"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	"								"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	"	"							"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	"	"							"	
Chrysene	"	ND	0.0100	0.0100	"	"							"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"								"	
Fluoranthene	"	ND	0.0200	0.0200	"	,,							"	
Fluorene	"	ND	0.0200	0.0200	"	,,							"	
Indeno (1,2,3-cd) pyrene	"	ND	0.0100	0.0100	"	"							"	
Naphthalene	"	ND	0.0200	0.0200	"	"							"	
Phenanthrene	"	ND	0.0200	0.0200	"	"								
Pyrene	"	ND	0.0200	0.0200	"								"	
Surrogate(s): Fluorene-d10		Recovery:	114%	Lin	nits: 25-125%	ó "							03/02/09 14:41	
Pyrene-d10			115%		23-150%	6 "							"	
Benzo (a) pyrene-d12			114%		10-125%	6 "							"	
LCS (9020785-BS1)								Extr	acted:	02/25/09 13	:00			
Bis(2-ethylhexyl)phthalate	EPA 8270m	4.31	0.526	1.00	ug/l	1x		4.00	108%	(20-150)			03/03/09 11:44	
Butyl benzyl phthalate	"	4.09	0.526	1.00	"	"		"	102%	"			"	
Di-n-butyl phthalate	"	5.21	0.526	1.00	"			"	130%	,,			"	
Di-n-octyl phthalate	"	2.78	0.526	1.00	"			"	69.5%	"			"	
Diethyl phthalate	"	4.23	0.526	1.00	"	,,		"	106%	,,			"	
Dimethyl phthalate	"	3.74	0.526	1.00	"	"		"	93.4%				"	
Acenaphthene	"	2.64	0.0200	0.0200	"	"		2.50	105%	(35-120)			03/02/09 15:15	
Acenaphthylene	"	2.49	0.0200	0.0200	"	"		"	99.8%	(34-116)			"	
Anthracene	"	2.62	0.0200	0.0200	"			,,	105%	(24-119)			"	
Benzo (a) anthracene	"	2.85	0.0100	0.0100	"			,,	114%	(36-128)			"	
Benzo (a) pyrene	,,	2.82	0.0100	0.0100	"			,,	113%	(17-128)			"	
	,,				,,			,,					,,	
Benzo (b) fluoranthene		2.88	0.0100	0.0100					115%	(37-131)				

TestAmerica Portland





City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 21:08

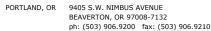
Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 9020785	Water P	reparation	Method:	3520B Liq-	Liq									
Analyte	Method	Result	MDL [*]	* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limit	s) Analyzed	Notes
LCS (9020785-BS1)								Ext	acted:	02/25/09 13	3:00			
Benzo (ghi) perylene	EPA 8270m	2.50	0.0200	0.0200	ug/l	1x		2.50	99.8%	(26-126)			03/02/09 15:15	
Benzo (k) fluoranthene	"	2.59	0.0100	0.0100	"	"		"	104%	(18-145)			"	
Chrysene	"	3.14	0.0100	0.0100	"	"		"	126%	(16-137)			"	
Dibenzo (a,h) anthracene	"	2.76	0.0100	0.0100	"	"		"	110%	(20-141)			"	
Fluoranthene	"	2.86	0.0200	0.0200	"	"		"	115%	(31-125)			"	
Fluorene	"	2.64	0.0200	0.0200	"	"		"	106%	(27-124)			"	
Indeno (1,2,3-cd) pyrene	"	2.71	0.0100	0.0100	"	"		"	108%	(30-135)			"	
Naphthalene	"	2.82	0.0200	0.0200	"	"		"	113%	(30-113)			"	
Phenanthrene	"	2.65	0.0200	0.0200	"	"		"	106%	(34-126)			"	
Pyrene	"	2.62	0.0200	0.0200	"	"		"	105%	(21-141)			"	
Surrogate(s): Fluorene-d10		Recovery:	116%	Lin	nits: 25-125	% "							03/02/09 15:15	
Pyrene-d10		Í	115%		23-150	0% "							"	
Benzo (a) pyrene-d12			117%		10-125	ī% "							"	
Matrix Spike (9020785-MS1)				QC Source:	PSB0693-	11		Ext	racted:	02/25/09 13	6:00			
Bis(2-ethylhexyl)phthalate	EPA 8270m	6.44	2.58	4.90	ug/l	5x	2.77	3.92	93.7%	(10-150)			03/03/09 12:21	
Butyl benzyl phthalate	"	4.81	2.58	4.90	"		0.709	"	105%	"			"	J
Di-n-butyl phthalate	"	4.57	2.58	4.90	"	"	ND	"	116%				"	J
Di-n-octyl phthalate	"	4.54	2.58	4.90	"		ND	"	116%				"	J
Diethyl phthalate	"	3.72	2.58	4.90	"	"	ND	"	94.7%				"	J
Dimethyl phthalate	"	3.05	2.58	4.90	"	"	ND	"	77.9%	"			"	J
Acenaphthene	"	1.54	0.0980	0.0980	"	"	ND	2.45	62.6%	(35-120)			03/02/09 17:52	
Acenaphthylene	"	1.56	0.0980	0.0980	"	"	ND	"	63.5%	(34-116)			"	
Anthracene	"	1.13	0.0980	0.0980	"	"	0.0318	"	44.7%	(24-119)			"	
Benzo (a) anthracene	"	0.740	0.0490	0.0490	"	"	0.0417	"	28.5%	(22-129)			"	
Benzo (a) pyrene	"	0.569	0.0490	0.0490	"	"	0.0350	"	21.8%	(4-112)			"	
Benzo (b) fluoranthene	"	0.691	0.0490	0.0490	"	"	0.0609	"	25.7%	(0-136)			"	
Benzo (ghi) perylene	"	0.464	0.0980	0.0980	"	"	0.0569	"	16.6%	(0-126)			"	
Benzo (k) fluoranthene	"	0.549	0.0490	0.0490	"	"	0.0419	"	20.7%	(0-145)			"	
Chrysene	"	0.869	0.0490	0.0490	"	"	0.110	"	31.0%	(7-137)			"	
Dibenzo (a,h) anthracene	"	0.464	0.0490	0.0490	"	"	0.0105	"	18.5%	(0-141)			"	
Fluoranthene	"	1.36	0.0980	0.0980	"	"	0.366	"	40.4%	(30-125)			"	
Fluorene	"	1.52	0.0980	0.0980	"	"	0.0252	"	61.0%	(27-124)			"	
Indeno (1,2,3-cd) pyrene	"	0.460	0.0490	0.0490	"	"	0.0304	"	17.5%	(0-135)			"	
Naphthalene	"	1.91	0.0980	0.0980	"	"	0.105	"	73.7%	(30-126)			"	
Phenanthrene	"	1.62	0.0980	0.0980	"	"	0.237	"	56.5%	(34-126)			"	
Pyrene	"	0.742	0.0980	0.0980	"	"	0.143	"	24.4%	(14-168)			"	
Surrogate(s): Fluorene-d10 Pyrene-d10		Recovery:	71.0% 38.9%	Lin	nits: 25-125					<u> </u>			03/02/09 17:52	

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 21:08

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results TestAmerica Portland 3520B Liq-Liq QC Batch: 9020785 Water Preparation Method: Source Spike Analyte Method Result MDL* MRL Units Dil (Limits) Analyzed (Limits) Notes REC Matrix Spike (9020785-MS1) QC Source: PSB0693-11 Extracted: 02/25/09 13:00 Recovery: 57.2% Limits: 10-125% 03/02/09 17:52 Surrogate(s): Benzo (a) pyrene-d12 Matrix Spike Dup (9020785-MSD1) QC Source: PSB0693-11 Extracted: 02/25/09 13:00 Bis(2-ethylhexyl)phthalate EPA 8270m 6.84 2.58 4 90 5x 2.77 3 92 104% (10-150)10.3% (50) 03/03/09 12:57 ug/l Butyl benzyl phthalate 4.98 2.58 4.90 0.709 109% 4.16% Di-n-butyl phthalate 4.93 2.58 4.90 ND 126% 7.61% Di-n-octyl phthalate 4 68 2.58 4 90 ND 119% 3.07% Diethyl phthalate 4.07 2.58 4.90 ND 104% 9.17% 3.29 2.58 4.90 ND 83.9% 7.41% Dimethyl phthalate 0.0980 0.0980 ND 03/02/09 18:26 Acenaphthene 1.69 2.45 69.0% (35-120)9.60% (45) Acenaphthylene 1 71 0.0980 0.0980 ND 69 9% (34-116)9 62% 0.0980 Anthracene 1.33 0.0980 0.0318 52.8% (24-119)16.6% 0.882 0.0490 0.0490 0.0417 Benzo (a) anthracene 34.3% (22-129)18.5% 0.700 0.0490 0.0490 0.0350 27.1% (4-112)21.8% Benzo (a) pyrene Benzo (b) fluoranthene 0.740 0.0490 0.0490 0.0609 27.7% (0-136)7.45% Benzo (ghi) perylene 0.576 0.0980 0.0980 0.0569 21.2% (0-126)24.2% Benzo (k) fluoranthene 0.653 0.0490 0.0490 0.0419 25.0% (0-145)18.7% Chrysene 1.02 0.0490 0.0490 0.110 37.0% (7-137)17.6% Dibenzo (a,h) anthracene 0.581 0.0490 0.0490 0.0105 23.3% (0-141)22.9% Fluoranthene 1.27 0.0980 0.0980 0.366 36.9% (30-125)8.92% 1 70 0.0980 0.0980 0.0252 68 4% (27-124)11.4% Fluorene Indeno (1,2,3-cd) pyrene 0.585 0.0490 0.0490 0.0304 22.6% (0-135)25 2% Naphthalene 2.02 0.0980 0.0980 0.105 77.9% (30-126) Phenanthrene 1.83 0.0980 0.0980 0.237 64.9% (34-126) 13.9% 0.890 0.0980 0.0980 0 143 30.5% (14-168)22.0% Pyrene 03/02/09 18:26 Surrogate(s): Fluorene-d10 Recovery: 78.1% Limits: 25-125% 46.4% 23-150% Pyrene-d10

10-125%

TestAmerica Portland

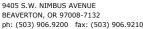
Howard Holmes, Project Manager

Benzo (a) pyrene-d12

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

74.0%







City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

36238 Report Created: 6543 N. Burlington Ave. Project Number: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/17/09 21:08

Notes and Definitions

Report Specific Notes:

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

RL1 Reporting limit raised due to sample matrix effects.

RL3 Reporting limit raised due to high concentrations of non-target analytes.

Laboratory Reporting Conventions:

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits

percent solids, where applicable.

Electronic Signature

Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy.

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244

11922 E. First Ave, Spokane, WA 99206-5302 9405 SW Nimbus Ave.Beaverton, OR 97008-7145

2000 W International Airport Rd Ste A10, Anchorage, AK 99502 1119

509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210

425-420-9200 FAX 420-9210

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CLIENT: CLAY CF	Fortand		INVOICE TO:	· · · · · · · · · · · · · · · · · · ·		TURNAROUND REQUEST		
REPORT TO:	, , ,	1 1	Cia	iles Lyt		in Business Days *		
REPORT TO: ADDRESS: JX 1111	ter Thaikil	to a	- LV 100	IUS LYT		Organic & Inorganic Analyses 7 5 4 3 2 1 <1		
PHONE:	FAX:		P.O. NUMBER:	36238		Petroleum Hydrocarbon Analyses		
PROJECT NAME: POLY	ROJECT NAME: POLHAND Haibw (*) Y			PRESERVATIVE		5 4 3 2 1 <1		
		2 3	R	EQUESTED ANALYSES		OTHER Specify:		
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CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	25.25 Z					TA WO ID	
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2FO 095217	1410	XX				W 2		
FU 095218	1578	XX				W 2		
4F0 095219	1358	XX				W 2		
FO 095220	1428	XX				W 2 (*X)		
FO 095221	1455	XX				W 2		
, FO 095222	1530	X X				W 2		
*F0095223	<u> </u>	X				W 18 Km		
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10							_/	
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RELEASED BY: SULFER PRINT NAME:	FIRM: 7	AR	DATE: 2/50 TIME: 1446	RECEIVED BY: PRINT NAME:	Dellica Mo	DATE: 2/2	9/0	
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Cr	raiked "PCI	5 ON C	430	·				

Received by: Umpacked by: Loggod-in-by: Client: SBOU972	TestAmerica Sample Receipt Checklist									
Date 2/24/09 Initials	Received by:	Unpacked by:	Logged-in by:	Work Order No. 15B0692						
Digi #1 Digi #2 Digi #2 Digi #2 Digi #4 Digi	Date: 2/24/09	Date: 2/24/09	100/14	Project: Portland Hand	01					
Signature: Y N Dated:	***ESI Clients (see Section C	13,1,2.3,48		Digi #1 Win Digi #2Otho	ice Melted n 4 Hours					
None Received front: Selected None Sel	A Custody Seals: (#)								
Container Type:	_	Rece	/-							
None			Senvoy UPS	IDs Match COC?	none given					
	None (#	Other:)	Client	Cyanide Checked? Y N	(NA)					
None	Gel Ice		DHL	Adequate Volume?						
Bubble BagsOther: TB on COC? not provided Y N NA NAStyrofoam CubbiesBeanutsNone (_Other:)			GS/TA							
HNO3 Preserved? Y N NA NA NA NA Dissolved Metals Filtered? Y N NA N	Bubble Bag	-)					
Temperature Blank:°C not provided Digi: # 1 #2	Peanuts			HNO3 Preserved? Y N	\ /					
All preserved bottles checked Y N NA (voas/soils/all unp.) FED EX Goldstreak UPS DHL Other: All preserved accordingly? Y N (see NOD) NA (voas/soils/all unp.) Project Managers:	***ESI Clients Only:			FED EX/ UPS: Was the tracking paper keepable? YES	NO					
	All preserved bottle	es checked Y N	NA (voas/soils/all unp.)		er:					
Commenter	Comments:	12-23-	Project	l Managers:						

(Initial/Date)

PM Reviewed:_



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

Report Prepared for:

Howard Holmes Test America 9405 SW Nimbus Avenue Beaverton OR 97008

> REPORT OF LABORATORY **ANALYSIS FOR PCBs**

Report Information:

Pace Project #: 1090080

Sample Receipt Date: 02/26/2009

Client Project #: PSB0692

Client Sub PO #: N/A

State Cert #: MN200001-005

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed and prepared by:

got C. Muye

Scott Unze, Project Manager (612) 607-6383

(612) 607-6444 (fax) scott.unze@pacelabs.com



Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

March 13, 2009



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on eight samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.5 parts-per-trillion and were adjusted for sample volume.

The isotopically-labeled PCB internal standards in the sample extracts were recovered at 34-131%. All of the labeled internal standard recoveries obtained for this project were within the target ranges specified in the method. Since the quantification of the native PCB congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of PCB congeners at the reporting limits. This indicates that the analytical process did not introduce significant levels of PCB congeners to the sample extracts.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native compounds in the lab spikes were recovered at 98-113% with relative percent differences of 0.0-8.5%. These results indicate high degrees of accuracy and precision for these determinations. Matrix spikes were not prepared with the sample set.

REPORT OF LABORATORY ANALYSIS

Appendix A

Sample Management



SUBCONTRACT ORDER

TestAmerica Portland PSB0692

10900g0

SENDING LABORATORY:

TestAmerica Portland 9405 SW Nimbus Ave. Beaverton, OR 97008

Phone: (503) 906-9200 Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone: (612) 607-1700

Fax: (612) 607-6444

Project Location: OR - OREGON

Receipt Temperature: 4 2 °C

needs Excel EDD **Analysis** Comments Units Due Expires Sample ID: PSB0692-01 Water Sampled: 02/23/09 14:42 08/22/09 14:42 ***209 Congeners*** to Pace 1668 Coplanar PCBs - SUB ug/l 03/17/09 Containers Supplied: 095216 FO 1L Amber - Unpres. (A) Sample ID: PSB0692-02 Water Sampled: 02/23/09 14:10 ***209 Congeners*** to Pace 03/17/09 08/22/09 14:10 1668 Coplanar PCBs - SUB ug/l Containers Supplied: FO 095217 1L Amber - Unpres. (A) Sample ID: PSB0692-03 Water Sampled: 02/23/09 15:18 ***209 Congeners*** to Pace 03/17/09 1668 Coplanar PCBs - SUB 08/22/09 15:18 Containers Supplied: 095218 FO

1L Amber - Unpres. (A)			*****	, , , , , ,
Sample ID: PSB0692-04	Water		Sampled: 02/23/0	9 13:58
1668 Coplanar PCBs - SUB	ug/l	03/17/09	08/22/09 13:58	***209 Congeners*** to Pace
Containers Supplied:				To 00 5310

1L Amber - Unpres. (A)

Water Sampled: 02/23/09 14:28

03/17/09 08/22/09 14:28 ***209 Congeners*** to Pace 1668 Coplanar PCBs - SUB ug/l

Containers Supplied:

Sample ID: PSB0692-05

1L Amber - Unpres. (A)

095220 Fo

Fo

Sample ID: PSB0692-06 Water Sampled: 02/23/09 14:55 03/17/09 08/22/09 14:55

1668 Coplanar PCBs - SUB ug/l

209 Congeners to Pace

095219

Containers Supplied: 095221 FO 1L Amber - Unpres. (A)

Received By

Date/Time

PACÉ Referenced By

Date/TimePage 4Pof973 of 2

Released Report No.....1090080_1668 Aime

SUBCONTRACT ORDER

TestAmerica Portland PSB0692

080090

Analysis	Units	Due	Expires	Comments
Sample ID: PSB0692-07	Water		Sampled: 02/23/09 15:30	
1668 Coplanar PCBs - SUB	ug/l	03/17/09	08/22/09 15:30	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				Fo 095222
Sample ID: PSB0692-08	Water		Sampled: 02/23/09 00:00	
1668 Coplanar PCBs - SUB	ug/l	03/17/09	08/22/09 00:00	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				Fo 095223

Pace Analytical

ran Semple Condition Upon Receipt

Client Na	ame: [EST	A-nekich	_ Project # _	1090080
Courier: SEed Ex UPS USPS Tracking #: 9796 8712 136	Client Comme	rcial Pace Other	©ptic	inal. Bue Date:
	· · · · · · · · · · · · · · · · · · ·	Seals intact:		Name:
Packing Material: Bubble Wrap 🗡 Bu	ibble Bags 🔲 Noi		- Characteristic Char	A.
Thermometer Used 80344048, 179425		Wet Blue None	Temp Blank: Yo	
Cooler Temperature 4.2°C Temp should be above freezing to 6°C		Saue is Frozen: Yes No Comments:	Date and Initiation contents: Z	poling process has begun
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Chain of Custody Relinquished:	Àyes □No □	AND DESCRIPTION OF THE PROPERTY OF THE PROPERT	The State of the S	THE REAL PROPERTY AND ADDRESS OF THE PROPERTY
Sampler Name & Signature on COC:	□Yes 🔼No 🗀		nder der der der der gestände gefügte auf der er er er de habit der	al-december of the second of t
Samples Arrived within Hold Time:	Øyes □No □I	CONTRACTOR OF THE PARTY OF THE	WWW. Color of the	THE STATE STATE STATES AND ASSESSED STATES AND ASSESSED ASSESSED ASSESSED.
Short Hold Time Analysis (<72hr):	□Yes □No 🕰		COOPERS TO A PROPERTY OF A STREET AND A STREET AND A STREET AND A STREET AND ASSESSMENT ASSESSMENT AND ASSESSMENT ASSESS	AND THE PARTY SECTION
Rush Turn Around Time Requested:	□Yes MNo □N	**************************************	(Filedonal aspect, a popular in process to open a second place of the second	HER MAN NOTICE ELEMENTS THE PROPERTY OF MELLINE AND
Sufficient Volume:	^_	WA 8.	Wikiterscheidigen til de köpten i von (All ppentier von Allige af von Anne	talliga ya geresinin di Papusa sakin sesiantiga di padakan kamada sejinga kapasa sakin kalanda dan gerana da s
Correct Containers Used:		/A 9.	Antoniosista (1998) albinio de 193 prima per esta de 1940 par en 1	Colleged and regulate the desired by a letter procedure, and the procedure and the college and
-Pace Containers Used:	□Yes (DK io □N	[
Containers Intact:	Yes DNo DNA	A 10.	PTV-2003年1964年1月1日第二日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日	FECTION OF THE BUILDING PARTY PARTY OF THE PARTY PARTY PARTY.
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Sample Labels match COC:	Yes DNo DNA	4 12.	TARTISE CONTRACTOR CALLEGY ON THE CONTRACTOR OF AT ANALYSIS OF THE CONTRACTOR OF THE	k stadional stadion of the state of the stat
-Includes date/time/ID/Analysis Matrix:	4			
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	□Yes □No AIN/A	113.	PM-772500000000000000000000000000000000000	يستري شدوي يا جريا يا من المنافق الله المنافق
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No ANA			
Exceptions: VOA, Coliform, TOC, Oil and Grease, Wi-DRO (water)	□Yes (ANo	Initial when completed	Lot # of added preservative	الله و النامة عند الاستراع <u>المحمد المحاولة المرا</u> قع المحاولة المحاولة المحاولة المحاولة المحاولة المحاولة المحاولة
Samples checked for dechlorination:	□Yes □No KIN/A	The state of the s	Paradalemana administration described in the administration of the second described in the second desc	
Headspace in VOA Vials (>6mm):	□Yes □No Æ IN/A	THE RESIDENCE OF THE PARTY OF T	ALT THE PARTY OF T	manyappyer manjapunkapanka an primanana maha (pumun a sumberiumbhy
Trip Blank Present:	□Yes □No ÆN/A	CANADAM TO STREET OF THE STREET OF THE STREET OF PRINCIPAL STREET, NAME AND ADDRESS OF THE STR	And the second s	A Control of the State of the S
Trip Blank Custody Seals Present	□Yes □No MANA			
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:				
Person Contacted:	Date/Tir		Field Data Required?	Υ / Ν
Comments/ Resolution:		TITO,	are a consequent	
		1		
Project Manager Review:	(W		Date: 02/	27/09

Appendix B

Sample Analysis Summary



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Water

Client's Sample ID PSB0692-05;FO 095220 Lab Sample ID 1090080005

Filename P90312B_09

Injected By BAL
Total Amount Extracted 1030 mL
% Moisture NA

 % Moisture
 NA
 Dilution
 NA

 Dry Weight Extracted
 NA
 Collected
 02/23/2009

 ICAL ID
 P90312B01
 Received
 02/26/2009

 CCal Filename(s)
 P90312B_02
 Extracted
 02/27/2009

 Method Blank ID
 BLANK-19082
 Analyzed
 03/13/2009 08:26

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.623	3.04	2.0	1.23	61
13C-4-MoCB	3	9.510	2.93	2.0	1.34	67
13C-2,2'-DiCB	4	9.822	1.61	2.0	1.49	75
13C-4,4'-DiCB	15	17.633	1.51	2.0	1.55	77
13C-2,2',6-TrCB	19	14.027	1.08	2.0	1.52	76
13C-3,4,4'-TrCB	37	25.920	1.00	2.0	1.58	79
13C-2,2',6,6'-TeCB	54	17.939	0.79	2.0	1.47	73
13C-3,4,4',5-TeCB	81	33.281	0.75	2.0	1.60	80
13C-3,3',4,4'-TeCB	77	33.868	0.79	2.0	1.67	84
13C-2,2',4,6,6'-PeCB	104	24.495	1.64	2.0	1.74	87
13C-2,3,3',4,4'-PeCB	105	37.524	1.49	2.0	1.56	78
13C-2,3,4,4',5-PeCB	114	36.853	1.48	2.0	1.44	72
13C-2,3',4,4',5-PeCB	118	36.333	1.57	2.0	1.60	80
13C-2,3',4,4',5'-PeCB	123	35.981	1.51	2.0	1.52	76
13C-3,3',4,4',5-PeCB	126	40.743	1.48	2.0	1.44	72
13C-2,2',4,4',6,6'-HxCB	155	30.800	1.28	2.0	1.91	96
13C-HxCB (156/157)	156/157	43.828	1.19	4.0	3.01	75
13C-2,3',4,4`,5,5'-HxĆB	167	42.671	1.26	2.0	1.55	77
13C-3,3',4,4',5,5'-HxCB	169	47.164	1.21	2.0	1.46	73
13C-2,2',3,4',5,6,6'-HpCB	188	36.836	1.05	2.0	2.53	126
13C-2,3,3',4,4',5,5'-HpCB	189	49.713	1.01	2.0	1.92	96
13C-2,2',3,3',5,5',6,6'-OcCB	202	42.369	0.91	2.0	2.34	117
13C-2,3,3',4,4',5,5',6-OcCB	205	52.277	0.91	2.0	1.62	81
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.001	0.83	2.0	1.55	78
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.152	0.80	2.0	1.79	90
13CDeCB	209	55.575	0.66	2.0	1.54	77
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.326	1.03	2.0	1.74	87
13C-2,3,3',5,5'-PeCB	111	33.969	1.53	2.0	1.70	85
13C-2,2',3,3',5,5',6-HpCB	178	40.022	1.05	2.0	1.90	95
Recovery Standards						
13C-2,5-DiCB	9	12.565	1.55	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.472	0.80	2.0	ŇA	NA
13C-2,2',4,5,5'-PeCB	101	31.068	1.58	2.0	ŇA	NA
13C-2,2',3,4,4',5'-HxCB	138	39.536	1.28	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	51.803	0.88	2.0	NA	NA
		01.000	0.00	2.0		

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference ng's = Nanograms

REPORT OF LABORATORY ANALYSIS



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-05;FO 095220 1090080005 P90312B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.243
2				ND		0.243
3				ND		0.243
4		9.846	1.48	0.413		0.243
5				ND		0.243
6		13.128	1.44	0.363		0.243
7				ND		0.243
8		13.691	1.35	0.752		0.243
9				ND		0.243
10				ND		0.243
11		16.914	1.44	1.74		1.46
12	12/13	17.249	1.44	0.542		0.486
13	12/13	17.249	1.44	(0.542)		0.486
14	12, 10			ND		0.243
15		17.657	1.43	5.26		0.243
16		17.549	1.04	5.80		0.243
17		17.010	1.03	5.14		0.243
18	18/30	16.495	1.04	9.37		0.486
19	10/30	14.051	1.10	0.882		0.243
20	20/28	21.360	0.99	35.6		0.486
21	21/33	21.611	1.00	9.13		0.486
22	21/33			9.13 17.3		0.466
23		22.081	1.01 			
23				ND		0.243
24				ND		0.243
25	00/00	20.639	0.99	1.97		0.243
26	26/29	20.370	0.98	4.53		0.486
27	00/00	17.285	1.02	0.989		0.243
28	20/28	21.360	0.99	(35.6)		0.486
29	26/29	20.370	0.98	(4.53)		0.486
30	18/30	16.495	1.04	(9.37)		0.486
31		21.024	0.98	20.7		0.243
32		18.241	0.99	5.61		0.243
33	21/33	21.611	1.00	(9.13)		0.486
34				ND		0.243
35		25.501	1.07	0.906		0.243
36				ND		0.243
37		25.937	0.99	19.0		0.243
38				ND		0.243
39		24.361	1.00	0.351		0.243
40	40/41/71	25.719	0.77	35.9		1.46
41	40/41/71	25.719	0.77	(35.9)		1.46
42		25.183	0.77	`14.6		0.486
43		23.741	0.70	1.69		0.486
44	44/47/65	24.596	0.77	42.1		1.46
45	45/51	21.410	0.77	7.42		0.971
46		21.762	0.79	2.71		0.486
47	44/47/65	24.596	0.77	(42.1)		1.46
48		24.344	0.76	`10.3		0.486

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REPORT OF LABORATORY ANALYSIS



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-05;FO 095220 1090080005 P90312B_09

ILIDAC	Co alutiono	DT.	Detie	Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69	24.042	0.77	25.4		0.971
50	50/53	20.639	0.77	4.62		0.971
51	45/51	21.410	0.77	(7.42)		0.971
52		23.489	0.78	` 47.8		0.486
53	50/53	20.639	0.77	(4.62)		0.971
54				` NĎ		0.486
55				ND		0.486
56		29.894	0.75	21.7		0.486
57				ND		0.486
58				ND		0.486
59	59/62/75	24.965	0.77	4.88		1.46
60	00,0=,.0	30.112	0.75	11.6		0.486
61	61/70/74/76	28.855	0.75	85.2		1.94
62	59/62/75	24.965	0.77	(4.88)		1.46
63	00/02/70	28.486	0.71	1.65		0.486
64		25.987	0.77	24.3		0.486
65	44/47/65	24.596	0.77	(42.1)		1.46
66	11/1/00	29.190	0.76	42.8		0.486
67		28.201	0.75	1.72		0.486
68				ND		0.486
69	49/69	24.042	0.77	(25.4)		0.971
70	61/70/74/76	28.855	0.75	(85.2)		1.94
70 71	40/41/71	25.719	0.73	(35.9)		1.46
71	40/41/71	25.719	0.77	(33.9) ND		0.486
73				ND ND		0.486
73 74	61/70/74/76	28.855	0.75	(85.2)		1.94
74 75	59/62/75	24.965	0.73	(4.88)		1.46
75 76	61/70/74/76	28.855	0.77	(85.2)		1.94
76 77	61/70/74/76					
7 <i>1</i> 78		33.885	0.78	6.49		0.486
76 79		32.980	0.75	0.846		0.486
		32.225	0.80	1.11		0.486
80 81				ND ND		0.486
						0.486
82		33.449	1.61	11.2		0.486
83		31.554	1.60	4.55		0.486
84	05/440/447	29.006	1.56	22.1		0.486
85	85/116/117	32.963	1.56	16.6		1.46
86	86/87/97/108/119/125	32.275	1.55	62.7		2.91
87	86/87/97/108/119/125	32.275	1.55	(62.7)		2.91
88	88/91	28.788	1.59	12.7		0.971
89	00/404/440	29.509	1.68	1.06		0.486
90	90/101/113	31.102	1.55	88.0		1.46
91	88/91	28.788	1.59	(12.7)		0.971
92	00/00/400/400	30.464	1.59	15.4		0.486
93	93/98/100/102	28.234	1.54	3.45		1.94
94				ND		0.486
95		27.849	1.56	63.5		0.486
96		24.898	1.52	0.553		0.486

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NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSB0692-05;FO 095220 Lab Sample ID 1090080005 Filename P90312B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	32.275	1.55	(62.7)		2.91
98	93/98/100/102	28.234	1.54	(3.45)		1.94
99	39/30/100/102	31.705	1.57	35.7		0.486
100	93/98/100/102	28.234	1.54	(3.45)		1.94
101	90/101/113	31.102	1.55	(88.0)		1.46
102	93/98/100/102	28.234	1.54	(3.45)		1.94
102	93/96/100/102	20.234	1.54	(3.43) ND		0.486
103				ND ND		0.486
104		37.540	1.52	43.7		0.486
106		37.540 	1.52	43.7 ND		
100	107/104		 1.47	3.99		0.486
107	107/124	35.646				0.971
108	86/87/97/108/119/125	32.275	1.55	(62.7)		2.91
109	440/445	35.897	1.45	5.48		0.486
110	110/115	33.164	1.55	115		0.971
111		34.170	1.63	1.71		0.486
112	00/404/440			ND (22.2)		0.486
113	90/101/113	31.102	1.55	(88.0)		1.46
114		36.886	1.36	2.10		0.486
115	110/115	33.164	1.55	(115)		0.971
116	85/116/117	32.963	1.56	(16.6)		1.46
117	85/116/117	32.963	1.56	(16.6)		1.46
118		36.350	1.51	94.3		0.486
119	86/87/97/108/119/125	32.275	1.55	(62.7)		2.91
120				ND		0.486
121				ND		0.486
122		36.685	1.46	1.42		0.486
123		36.014	1.47	1.62		0.486
124	107/124	35.646	1.47	(3.99)		0.971
125	86/87/97/108/119/125	32.275	1.55	(62.7)		2.91
126		40.810	1.53	2.91		0.486
127		39.133	1.52	0.511		0.486
128	128/166	40.827	1.22	22.4		0.971
129	129/138/163	39.569	1.23	137		1.46
130		38.898	1.19	7.81		0.486
131		35.931	1.22	1.62		0.486
132		36.400	1.23	44.8		0.486
133		37.004	1.27	1.12		0.486
134	134/143	35.310	1.24	5.32		0.971
135	135/151	34.153	1.28	27.3		0.971
136		31.521	1.27	11.3		0.486
137		39.133	1.24	7.28		0.486
138	129/138/163	39.569	1.23	(137)		1.46
139	139/140	35.746	1.27	1.98		0.971
140	139/140	35.746	1.27	(1.98)		0.971
141		38.496	1.25	20.5		0.486
142				ND		0.486
143	134/143	35.310	1.24	(5.32)		0.971
144	13 ., 1 10	34.740	1.22	4.02		0.486
177		54.740	1.44	7.02		0.400

Conc = Concentration

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NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-05;FO 095220 1090080005 P90312B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.486
146		37.674	1.24	12.8		0.486
147	147/149	35.126	1.22	76.6		0.971
148				ND		0.486
149	147/149	35.126	1.22	(76.6)		0.971
150				NĎ		0.486
151	135/151	34.153	1.28	(27.3)		0.971
152				ND		0.486
153	153/168	38.312	1.23	88.9		0.971
154		34.438	1.30	0.649		0.486
155				ND		0.486
156	156/157	43.828	1.21	17.6		0.971
157	156/157	43.828	1.21	(17.6)		0.971
158		39.972	1.23	13.0		0.486
159				ND		0.486
160				ND		0.486
161				ND		0.486
162		42.218	1.24	1.01		0.486
163	129/138/163	39.569	1.23	(137)		1.46
164		39.251	1.23	8.03		0.486
165				ND		0.486
166	128/166	40.827	1.22	(22.4)		0.971
167	/ /	42.704	1.19	5.55		0.486
168	153/168	38.312	1.23	(88.9)		0.971
169				NĎ		0.486
170		46.510	1.03	26.6		0.486
171	171/173	42.906	1.03	8.32		0.971
172	474470	44.616	1.03	4.68		0.486
173	171/173	42.906	1.03	(8.32)		0.971
174		41.816	1.03	29.1		0.486
175		40.693	1.09	1.04		0.486
176		38.094	1.07	2.96		0.486
177		42.252	1.03	15.7		0.486
178		40.039	1.04	4.55		0.486
179	400/400	37.171	1.04	9.00		0.486
180	180/193	45.270	1.05	59.0		0.971
181 182				ND ND		0.486
	402/405		4.00			0.486
183	183/185	41.615 	1.02	18.0		0.971
184	102/105			ND (18.0)		0.486
185 186	183/185	41.615	1.02	(18.0) ND		0.971 0.486
		40.978	1.05	28.1		
187 188		40.978	1.05	28.1 ND		0.486 0.486
188		49.734	0.97	טא 1.12		0.486 0.486
190		49.734 47.064	1.03	5.28		0.486
190		47.064 45.622	1.03	1.10		0.486
191		45.622	1.03	ND		0.486
152				ND		0.400

Conc = Concentration

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ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-05;FO 095220 1090080005 P90312B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	45.270	1.05	(59.0)		0.971
194		51.825	0.89	`11.6		0.728
195		49.411	0.84	4.74		0.728
196		47.902	0.90	5.93		0.728
197	197/200	44.314	0.92	1.86		1.46
198	198/199	47.248	0.90	12.4		1.46
199	198/199	47.248	0.90	(12.4)		1.46
200	197/200	44.314	0.92	(1.86)		1.46
201		43.325	0.86	`1.3 8		0.728
202		42.386	0.84	1.65		0.728
203		48.103	0.91	6.77		0.728
204				ND		0.728
205				ND		0.728
206		54.023	0.82	2.76		0.728
207				ND		0.728
208				ND		0.728
209				ND		0.728

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

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P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-05;FO 095220 1090080005 P90312B_09

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	9.07	
Total Trichloro Biphenyls	137	
Total Tetrachloro Biphenyls	395	
Total Pentachloro Biphenyls	610	
Total Hexachloro Biphenyls	517	
Total Heptachloro Biphenyls	215	
Total Octachloro Biphenyls	46.3	
Total Nonachloro Biphenyls	2.76	
Decachloro Biphenyls	ND	
Total PCBs	1930	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID PSB0692-07;FO 095222

Lab Sample ID 1090080007 Filename P90312B_11

Injected By BAL 987 mL Total Amount Extracted

Matrix Water % Moisture NA Dilution NA Dry Weight Extracted NA Collected 02/23/2009

ICAL ID P90312B01 Received 02/26/2009 CCal Filename(s) P90312B 02 Extracted 02/27/2009

Method Blank ID BLANK-19082 Analyzed 03/13/2009 10:29

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.647	2.83	2.0	1.24	62
13C-4-MoCB	3	9.534	2.69	2.0	1.25	63
13C-2,2'-DiCB	4	9.846	1.64	2.0	1.47	74
13C-4,4'-DiCB	15	17.669	1.53	2.0	0.945	47
13C-2,2',6-TrCB	19	14.051	1.04	2.0	1.42	71
13C-3,4,4'-TrCB	37	25.954	1.04	2.0	1.30	65
13C-2,2',6,6'-TeCB	54	17.957	0.76	2.0	1.10	55
13C-3,4,4',5-TeCB	81	33.298	0.78	2.0	1.39	70
13C-3,3',4,4'-TeCB	77	33.885	0.74	2.0	1.54	77
13C-2,2',4,6,6'-PeCB	104	24.512	1.57	2.0	1.27	64
13C-2,3,3',4,4'-PeCB	105	37.524	1.56	2.0	1.36	68
13C-2,3,4,4',5-PeCB	114	36.870	1.49	2.0	1.24	62
13C-2,3',4,4',5-PeCB	118	36.333	1.55	2.0	1.35	67
13C-2,3',4,4',5'-PeCB	123	35.998	1.52	2.0	1.35	67
13C-3,3',4,4',5-PeCB	126	40.743	1.50	2.0	1.28	64
13C-2,2',4,4',6,6'-HxCB	155	30.817	1.30	2.0	1.74	87
13C-HxCB (156/157)	156/157	43.811	1.25	4.0	2.92	73
13C-2,3',4,4',5,5'-HxCB	167	42.671	1.20	2.0	1.51	75
13C-3,3',4,4',5,5'-HxCB	169	47.148	1.27	2.0	1.43	71
13C-2,2',3,4',5,6,6'-HpCB	188	36.836	1.06	2.0	2.27	114
13C-2,3,3',4,4',5,5'-HpCB	189	49.670	1.04	2.0	1.75	87
13C-2,2',3,3',5,5',6,6'-OcCB	202	42.352	0.91	2.0	2.04	102
13C-2,3,3',4,4',5,5',6-OcCB	205	52.256	0.89	2.0	1.54	77
13C-2,2',3,3',4,4',5,5',6-NoCB	206	53.980	0.81	2.0	1.49	74
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.131	0.80	2.0	1.68	84
13CDeCB	209	55.554	0.73	2.0	1.47	74
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.360	0.97	2.0	1.33	66
13C-2,3,3',5,5'-PeCB	111	33.986	1.63	2.0	1.54	77
13C-2,2',3,3',5,5',6-HpCB	178	40.022	1.06	2.0	1.86	93
Recovery Standards						
13C-2,5-DiCB	9	12.601	1.53	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.490	0.83	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.085	1.64	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	39.536	1.22	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	51.782	0.88	2.0	NA	NA
, ,-,-, , ,-,-	-	-	-	-		

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-07;FO 095222 1090080007 P90312B_11

NPAC Co-elutions					Concentration	EMPC	EML
2	IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
2	1				ND		0.253
3	2				ND		0.253
4	3						0.253
5							
6					ND		
8	6						0.253
8	7						0.253
9							
10	a						0.253
11	10						0.253
12							1.52
13		12/12					
14	12	12/13					0.507
15		12/13					
16							0.253
17	15						0.253
18 18/30	16						0.253
19		10/00					0.253
20 20/28	18	18/30					0.507
21 21/33 ND 0.507 22 ND 0.253 23 ND 0.253 24 ND 0.253 25 ND 0.507 26 26/29 ND 0.507 27 ND 0.507 28 20/28 ND 0.507 29 26/29 ND 0.507 29 26/29 ND 0.507 30 18/30 ND 0.507 31 ND 0.507 31 ND 0.253 32 ND 0.253 33 21/33 ND							
22	20	20/28					
23 24		21/33					
24 ND 0.253 25 ND 0.253 26 26/29 ND 0.507 27 ND 0.507 28 20/28 ND 0.507 29 26/29 ND 0.507 30 18/30 ND 0.507 31 ND 0.507 31 ND 0.253 32 ND 0.253 33 21/33 ND 0.253 34 ND 0.253 36 ND 0.253 37 ND 0.253 38 ND	22						
25							0.253
26 26/29 ND 0.507 27 ND 0.253 28 20/28 ND 0.507 29 26/29 ND 0.507 30 18/30 ND 0.507 31 ND 0.253 32 ND 0.253 32 ND 0.253 34 ND 0.253 35 ND 0.253 36 ND 0.253 37 ND 0.253 39 ND 0.253 40 40/41/71 ND 1.52 41 40/41/71 <	24						
27	25						0.253
27	26	26/29			ND		0.507
28 20/28 ND 0.507 29 26/29 ND 0.507 30 18/30 ND 0.507 31 ND 0.253 32 ND 0.253 33 21/33 ND 0.507 34 ND 0.253 35 ND 0.253 36 ND 0.253 38 ND 0.253 39 ND 0.253 39 ND 0.253 40 40/41/71 ND 1.52 41 40/41/71 ND 0.507 43 <	27				ND		0.253
29 26/29 ND 0.507 30 18/30 ND 0.507 31 ND 0.253 32 ND 0.253 33 21/33 ND 0.507 34 ND 0.253 35 ND 0.253 36 ND 0.253 37 ND 0.253 38 ND 0.253 39 ND 0.253 40 40/41/71 ND 0.253 41 40/41/71 ND 0.507 43 ND 0.507 44 44/47/65	28	20/28			ND		0.507
30 18/30 ND 0.507 31 ND 0.253 32 ND 0.253 33 21/33 ND 0.507 34 ND 0.253 35 ND 0.253 36 ND 0.253 37 ND 0.253 38 ND 0.253 39 ND 0.253 40 40/41/71 ND 0.253 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65	29				ND		
31 ND 0.253 32 ND 0.253 33 21/33 ND 0.507 34 ND 0.253 35 ND 0.253 36 ND 0.253 37 ND 0.253 38 ND 0.253 39 ND 0.253 40 40/41/71 ND 1.52 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 1.52 45 45/51 ND 1.52 45 45/51	30	18/30					0.507
32	31				ND		0.253
33 21/33 ND 0.507 34 ND 0.253 35 ND 0.253 36 ND 0.253 37 ND 0.253 38 ND 0.253 39 ND 0.253 40 40/41/71 ND 0.253 41 40/41/71 ND 0.507 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 0.507 47 44/47/65 ND 0.507 47 <t< td=""><td>32</td><td></td><td></td><td></td><td></td><td></td><td>0.253</td></t<>	32						0.253
34 ND 0.253 35 ND 0.253 36 ND 0.253 37 ND 0.253 38 ND 0.253 39 ND 0.253 40 40/41/71 ND 0.253 41 40/41/71 ND 1.52 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 0.507 47 44/47/65 ND 0.507 47 <		21/33					
35 ND 0.253 36 ND 0.253 37 ND 0.253 38 ND 0.253 39 ND 0.253 40 40/41/71 ND 1.52 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52	34	21/00					
36 ND 0.253 37 ND 0.253 38 ND 0.253 39 ND 0.253 40 40/41/71 ND 1.52 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52	35						
37 ND 0.253 38 ND 0.253 39 ND 0.253 40 40/41/71 ND 1.52 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52	36						0.253
38 ND 0.253 39 ND 0.253 40 40/41/71 ND 1.52 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52	37						
39 ND 0.253 40 40/41/71 ND 1.52 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 1.52 47 44/47/65 ND 1.52	20						0.233
40 40/41/71 ND 1.52 41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52	30						0.255
41 40/41/71 ND 1.52 42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52	39	40/44/74					
42 ND 0.507 43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52							1.52
43 ND 0.507 44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52		40/41/71					
44 44/47/65 ND 1.52 45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52							
45 45/51 ND 1.01 46 ND 0.507 47 44/47/65 ND 1.52		4.4/47/05					0.507
46 ND 0.507 47 44/47/65 ND 1.52							
47 44/47/65 ND 1.52		45/51			ND		1.01
47 44/47/65 ND 1.52 48 ND 0.507							0.507
48 ND 0.507		44/47/65					1.52
	48				ND		0.507

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
P = Recovery outside of Method 1668A control limits

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ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-07;FO 095222 1090080007 P90312B_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
			Ratio			
49	49/69			ND		1.01
50	50/53			ND		1.01
51	45/51			ND		1.01
52				ND		0.507
53	50/53			ND		1.01
54				ND		0.507
55				ND		0.507
56				ND		0.507
57				ND		0.507
58				ND		0.507
59	59/62/75			ND		1.52
60				ND		0.507
61	61/70/74/76			ND		2.03
62	59/62/75			ND		1.52
63				ND		0.507
64				ND		0.507
65	44/47/65			ND		1.52
66	, , 55			ND		0.507
67				ND		0.507
68				ND		0.507
69	49/69			ND		1.01
70	61/70/74/76			ND		2.03
71	40/41/71			ND		1.52
72	40/41/11			ND		0.507
73				ND		0.507
73 74	61/70/74/76			ND		2.03
7 4 75	59/62/75			ND		1.52
75 76	61/70/74/76			ND ND		2.03
70 77	01/10/14/10			ND ND		0.507
77 78				ND ND		0.507
76 79				ND ND		0.507
79 80						
				ND		0.507
81				ND ND		0.507
82				ND		0.507
83				ND		0.507
84	05/440/447			ND		0.507
85	85/116/117			ND		1.52
86	86/87/97/108/119/125			ND		3.04
87	86/87/97/108/119/125			ND		3.04
88	88/91			ND		1.01
89	00/104/140			ND		0.507
90	90/101/113			ND		1.52
91	88/91			ND		1.01
92				ND		0.507
93	93/98/100/102			ND		2.03
94				ND		0.507
95				ND		0.507
96				ND		0.507

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-07;FO 095222 1090080007

P90312B 11

riiename	F90-	3120_11					
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L	
			Ttatio	9, =	1.9/ =		
97	86/87/97/108/119/125			ND		3.04	
98	93/98/100/102			ND		2.03	
99				ND		0.507	
100	93/98/100/102			ND		2.03	
101	90/101/113			ND		1.52	
102	93/98/100/102			ND		2.03	
103				ND		0.507	
104				ND		0.507	
105				ND		0.507	
106				ND		0.507	
107	107/124			ND		1.01	
108	86/87/97/108/119/125			ND		3.04	
109	440/445			ND		0.507	
110	110/115			ND		1.01	
111				ND		0.507	
112	00/404/440			ND		0.507	
113	90/101/113			ND		1.52	
114	440/445			ND		0.507	
115	110/115			ND		1.01	
116	85/116/117			ND		1.52	
117	85/116/117			ND ND		1.52	
118 119	86/87/97/108/119/125			ND ND		0.507	
119	86/87/97/108/119/125			ND ND		3.04	
120						0.507	
121				ND ND		0.507 0.507	
122				ND ND		0.507	
123	107/124			ND ND		1.01	
125	86/87/97/108/119/125			ND ND		3.04	
126	80/87/97/108/119/123			ND ND		0.507	
127				ND		0.507	
128	128/166			ND		1.01	
129	129/138/163			ND		1.52	
130	120/100/100			ND		0.507	
131				ND		0.507	
132				ND		0.507	
133				ND		0.507	
134	134/143			ND		1.01	
135	135/151			ND		1.01	
136				ND		0.507	
137				ND		0.507	
138	129/138/163			ND		1.52	
139	139/140			ND		1.01	
140	139/140			ND		1.01	
141				ND		0.507	
142				ND		0.507	
1/12	121/112			ND		1 01	

Conc = Concentration

134/143

143

144

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REPORT OF LABORATORY ANALYSIS

ND

ND

1.01

0.507



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename

PSB0692-07;FO 095222 1090080007 P90312B_11

		-				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.507
146				ND		0.507
147	147/149			ND		1.01
148	1477149			ND		0.507
149	147/149			ND		1.01
150	1477149			ND		0.507
150	135/151			ND		1.01
152	133/131			ND		0.507
153	153/168			ND		1.01
154	133/100			ND		0.507
155				ND ND		0.507
156	156/157			ND ND		1.01
157	156/157			ND ND		1.01
157	156/157			ND ND		0.507
150				ND ND		0.507
160				ND ND		0.507
161				ND ND		0.507
162				ND ND		0.507
163	120/120/162			ND ND		0.507
	129/138/163					1.52
164				ND		0.507
165	100/100			ND ND		0.507
166	128/166					1.01
167	450/400			ND		0.507
168	153/168			ND		1.01
169				ND		0.507
170	474/470			ND		0.507
171	171/173			ND		1.01
172	474/470			ND		0.507
173	171/173			ND		1.01
174				ND		0.507
175				ND		0.507
176				ND		0.507
177				ND		0.507
178				ND		0.507
179	100/100			ND		0.507
180	180/193			ND		1.01
181				ND		0.507
182	100/105			ND		0.507
183	183/185			ND		1.01
184	100/105			ND		0.507
185	183/185			ND		1.01
186				ND		0.507
187				ND		0.507
188				ND		0.507
189				ND		0.507
190				ND		0.507
191				ND		0.507
192				ND		0.507

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-07;FO 095222 1090080007 P90312B_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		1.01
194				ND		0.760
195				ND		0.760
196				ND		0.760
197	197/200			ND		1.52
198	198/199			ND		1.52
199	198/199			ND		1.52
200	197/200			ND		1.52
201				ND		0.760
202				ND		0.760
203				ND		0.760
204				ND		0.760
205				ND		0.760
206				ND		0.760
207				ND		0.760
208				ND		0.760
209				ND		0.760

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

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ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-07;FO 095222 1090080007 P90312B_11

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Dilution

Water

NA

Client's Sample ID PSB0692-08;FO 095223 Lab Sample ID 1090080008

Lab Sample ID 1090080008
Filename P90312B_12
Injected By BAL

Total Amount Extracted 1020 mL NA

 Dry Weight Extracted
 NA
 Collected
 02/23/2009

 ICAL ID
 P90312B01
 Received
 02/26/2009

 CCal Filename(s)
 P90312B_02
 Extracted
 02/27/2009

Method Blank ID BLANK-19082 Analyzed 03/13/2009 11:30

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.647	2.94	2.0	1.06	53
13C-4-MoCB	3	9.534	3.07	2.0	1.23	62
13C-2,2'-DiCB	4	9.846	1.56	2.0	1.35	68
13C-4,4'-DiCB	15	17.658	1.49	2.0	1.28	64
13C-2,2',6-TrCB	19	14.039	1.12	2.0	1.52	76
13C-3,4,4'-TrCB	37	25.940	1.00	2.0	1.56	78
13C-2,2',6,6'-TeCB	54	17.958	0.82	2.0	1.62	81
13C-3,4,4',5-TeCB	81	33.302	0.78	2.0	1.60	80
13C-3,3',4,4'-TeCB	77	33.906	0.76	2.0	1.67	83
13C-2,2',4,6,6'-PeCB	104	24.515	1.59	2.0	1.75	88
13C-2,3,3',4,4'-PeCB	105	37.545	1.55	2.0	1.60	80
13C-2,3,4,4',5-PeCB	114	36.891	1.50	2.0	1.49	74
13C-2,3',4,4',5-PeCB	118	36.355	1.57	2.0	1.59	79
13C-2,3',4,4',5'-PeCB	123	36.019	1.54	2.0	1.55	78
13C-3,3',4,4',5-PeCB	126	40.782	1.52	2.0	1.43	72
13C-2,2',4,4',6,6'-HxCB	155	30.837	1.28	2.0	1.79	90
13C-HxCB (156/157)	156/157	43.851	1.21	4.0	2.89	72
13C-2,3',4,4',5,5'-HxCB	167	42.711	1.21	2.0	1.48	74
13C-3,3',4,4',5,5'-HxCB	169	47.205	1.27	2.0	1.44	72
13C-2,2',3,4',5,6,6'-HpCB	188	36.858	1.05	2.0	2.18	109
13C-2,3,3',4,4',5,5'-HpCB	189	49.742	0.94	2.0	1.78	89
13C-2,2',3,3',5,5',6,6'-OcCB	202	42.392	0.92	2.0	2.04	102
13C-2,3,3',4,4',5,5',6-OcCB	205	52.307	0.88	2.0	1.55	78
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.031	0.83	2.0	1.52	76
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	49.181	0.77	2.0	1.65	83
13CDeCB	209	55.605	0.69	2.0	1.44	72
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.362	1.01	2.0	1.69	85
13C-2,3,3',5,5'-PeCB	111	34.007	1.51	2.0	1.74	87
13C-2,2',3,3',5,5',6-HpCB	178	40.044	1.09	2.0	1.77	88
Recovery Standards						
13C-2,5-DiCB	9	12.602	1.55	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.492	0.78	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.089	1.60	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	39.558	1.24	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	51.832	0.83	2.0	NA	NA

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B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion ! = Outside QC Limits RT = Retention Time I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-08;FO 095223 1090080008 P90312B_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.244
2				ND		0.244
3				ND		0.244
4		9.858	1.58	0.387		0.244
5				ND		0.244
6		13.153	1.50	0.353		0.244
7				ND		0.244
8		13.728	1.46	0.777		0.244
9				ND		0.244
10				ND		0.244
11		16.927	1.44	1.76		1.47
12	12/13	17.287	1.48	0.576		0.489
13	12/13	17.287	1.48	(0.576)		0.489
14	,			ND		0.244
15		17.670	1.43	4.04		0.244
16		17.574	1.04	5.31		0.244
17		17.047	1.04	4.85		0.244
18	18/30	16.520	1.03	8.54		0.489
19	10,00	14.064	1.05	0.761		0.244
20	20/28	21.379	0.99	31.0		0.489
21	21/33	21.647	0.96	7.98		0.489
22	21/00	22.100	1.00	15.2		0.244
23				ND		0.244
24				ND		0.244
25		20.674	0.99	1.75		0.244
26	26/29	20.389	0.98	3.95		0.489
27	20/23	17.311	1.06	0.984		0.244
28	20/28	21.379	0.99	(31.0)		0.489
29	26/29	20.389	0.98	(3.95)		0.489
30	18/30	16.520	1.03	(8.54)		0.489
31	10/30	21.043	0.99	18.1		0.244
32		18.259	0.98	4.96		0.244
33	21/33	21.647	0.96	(7.98)		0.489
34	21/33	21.047	0.90	(7.96) ND		0.244
35		25.521	0.89	0.780		0.244
36		23.321	0.09	ND		0.244
37		25.974	0.98	16.5		0.244
38		25.974	0.90	ND		0.244
39		24.380	1.02	0.320		0.244
40	40/41/71	25.739	0.78	31.2		1.47
41	40/41/71	25.739 25.739	0.78	(31.2)		1.47
42	40/41/71	25.739	0.78	12.7		0.489
42 43		23.777	0.77	1.46		0.489
43 44	44/47/65	23.777 24.615	0.79	36.6		1.47
44 45	44/47/65 45/51	24.615	0.77	6.51		0.978
	4 0/0 I	21.429 21.781	0.78 0.78	2.38		0.489
46 47	44/47/6F	∠1./01 24.64E				
47 49	44/47/65	24.615	0.77	(36.6)		1.47
48		24.381	0.77	8.82		0.489

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NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-08;FO 095223 1090080008 P90312B_12

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69	24.079	0.77	22.0		0.978
50	50/53	20.658	0.77	4.16		0.978
51	45/51	21.429	0.78	(6.51)		0.978
52		23.525	0.79	`41.9		0.489
53	50/53	20.658	0.77	(4.16)		0.978
54				NĎ		0.489
55		29.378	0.76	0.938		0.489
56		29.915	0.75	19.1		0.489
57				ND		0.489
58				ND		0.489
59	59/62/75	24.984	0.77	4.20		1.47
60	30, 32, 13	30.150	0.76	10.0		0.489
61	61/70/74/76	28.875	0.76	73.3		1.96
62	59/62/75	24.984	0.77	(4.20)		1.47
63	00/02/10	28.506	0.74	1.45		0.489
64		26.007	0.78	21.1		0.489
65	44/47/65	24.615	0.77	(36.6)		1.47
66	11/11/00	29.227	0.75	35.6		0.489
67		28.238	0.77	1.40		0.489
68				ND		0.489
69	49/69	24.079	0.77	(22.0)		0.978
70	61/70/74/76	28.875	0.76	(73.3)		1.96
71	40/41/71	25.739	0.78	(31.2)		1.47
72	40/41/11			ND		0.489
73				ND		0.489
74	61/70/74/76	28.875	0.76	(73.3)		1.96
7 5	59/62/75	24.984	0.77	(4.20)		1.47
76	61/70/74/76	28.875	0.76	(73.3)		1.96
77	01/10/14/10	33.923	0.78	5.86		0.489
78				ND		0.489
79		32.263	0.73	0.863		0.489
80			0.73	ND		0.489
81				ND		0.489
82		33.487	1.57	10.3		0.489
83		31.575	1.57	3.83		0.489
84		29.026	1.56	19.7		0.489
85	85/116/117	33.001	1.56	14.1		1.47
86	86/87/97/108/119/125	32.313	1.55	55.9		2.93
87	86/87/97/108/119/125	32.313	1.55	(55.9)		2.93
88	88/91	28.825	1.58	11.4		0.978
89	00/91	29.546	1.62	0.928		0.489
90	90/101/113	31.122	1.55	78.5		1.47
91	88/91	28.825	1.58	(11.4)		0.978
92	00/31	30.502	1.50	13.8		0.489
93	93/98/100/102	28.271	1.52	3.07		1.96
93 94	33/30/100/102	20.271	1.52	ND		0.489
9 4 95		27.886	1.55	56.0		0.489
95 96		27.000	1.55	ND		0.489
90				ND		U. 4 U3

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSB0692-08;FO 095223 Lab Sample ID 1090080008

Filename P90312B_12

IIIDAO	On abothers	DT	D-C-	Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
97	86/87/97/108/119/125	32.313	1.55	(55.9)		2.93
98	93/98/100/102	28.271	1.52	(3.07)		1.96
99		31.743	1.56	`32.5		0.489
100	93/98/100/102	28.271	1.52	(3.07)		1.96
101	90/101/113	31.122	1.55	(78.5)		1.47
102	93/98/100/102	28.271	1.52	(3.07)		1.96
103				ND		0.489
104				ND		0.489
105		37.579	1.52	38.2		0.489
106				ND		0.489
107	107/124	35.684	1.57	3.57		0.978
108	86/87/97/108/119/125	32.313	1.55	(55.9)		2.93
109	00/01/01/100/110/120	35.935	1.49	5.04		0.489
110	110/115	33.185	1.57	104		0.978
111	110/110			ND		0.489
112				ND		0.489
113	90/101/113	31.122	1.55	(78.5)		1.47
114	30/101/113	36.908	1.53	1.80		0.489
115	110/115	33.185	1.57	(104)		0.978
116	85/116/117	33.001	1.56	(14.1)		1.47
117	85/116/117	33.001	1.56	(14.1)		1.47
117	03/110/117	36.388	1.53	84.0		0.489
119	86/87/97/108/119/125	32.313	1.55	(55.9)		2.93
120	00/07/97/100/119/125	32.313	1.55	(55.9) ND		0.489
120				ND ND		
			1.52	1.28		0.489
122 123		36.707		1.20		0.489
123	107/124	36.053	1.49			0.489
		35.684	1.57	(3.57)		0.978
125	86/87/97/108/119/125	32.313	1.55	(55.9)		2.93
126		40.816	1.44	1.18		0.489
127	400/400		4.00	ND		0.489
128	128/166	40.849	1.23	20.4		0.978
129	129/138/163	39.591	1.24	125		1.47
130		38.937	1.24	7.27		0.489
131		35.952	1.25	1.46		0.489
132		36.422	1.22	40.2		0.489
133	10.1/1.10	37.042	1.27	1.03		0.489
134	134/143	35.332	1.28	5.03		0.978
135	135/151	34.191	1.27	24.4		0.978
136		31.558	1.28	10.0		0.489
137	100/100/100	39.155	1.21	6.19		0.489
138	129/138/163	39.591	1.24	(125)		1.47
139	139/140	35.768	1.32	1.79		0.978
140	139/140	35.768	1.32	(1.79)		0.978
141		38.518	1.23	19.4		0.489
142				ND (7.00)		0.489
143	134/143	35.332	1.28	(5.03)		0.978
144		34.761	1.26	3.11		0.489

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-08;FO 095223 1090080008 P90312B_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.489
146		37.713	1.22	11.6		0.489
147	147/149	35.147	1.24	67.3		0.978
148	,			ND		0.489
149	147/149	35.147	1.24	(67.3)		0.978
150	1177110			ND		0.489
151	135/151	34.191	1.27	(24.4)		0.978
152	100, 101			ND		0.489
153	153/168	38.350	1.24	80.3		0.978
154	100/100	34.476	1.25	0.657		0.489
155				ND		0.489
156	156/157	43.868	1.21	15.8		0.978
157	156/157	43.868	1.21	(15.8)		0.978
158	130/137	40.011	1.25	11.9		0.489
159				ND		0.489
160				ND		0.489
161				ND		0.489
162		42.241	1.26	0.569		0.489
163	129/138/163	39.591	1.24	(125)		1.47
164	129/130/103	39.289	1.22	7.66		0.489
165		39.209		ND		0.489
166	128/166	40.849	1.23	(20.4)		0.409
167	120/100	42.727	1.23	4.96		0.489
168	153/168	38.350	1.24	(80.3)		0.469
169	155/166	30.330	1.24	(80.3) ND		0.489
170		46.551	1.03	24.0		0.489
170	171/173	42.929	1.03	7.58		0.469
171	17 1/173	44.639	1.03	4.23		0.489
172	171/173	42.929	1.02	(7.58)		0.469
173	17 1/173	41.839	1.03	(7.56) 25.5		0.489
174		40.715	1.03	25.5 0.865		0.489
175		38.116	1.10	2.66		
176		42.291	1.03			0.489
177			1.03	13.9 4.06		0.489
		40.078	1.04	4.06 8.01		0.489
179	180/193	37.210 45.310	1.04	52.2		0.489
180	160/193			52.Z ND		0.978
181				ND ND		0.489
182	102/105	44.007		ND		0.489
183	183/185	41.637	1.01	16.4		0.978
184	183/185	44.007	4.04	ND (40.4)		0.489
185	183/185	41.637	1.01	(16.4)		0.978
186		44.000	4.00	ND		0.489
187		41.000	1.06	25.0		0.489
188		40.762		ND		0.489
189		49.763	0.93	1.06		0.489
190		47.088	1.02	4.78		0.489
191		45.662	1.04	0.972		0.489
192				ND		0.489

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-08;FO 095223 1090080008 P90312B_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	45.310	1.02	(52.2)		0.978
194		51.854	0.86	`10.9		0.733
195		49.440	0.90	4.44		0.733
196		47.943	0.92	5.28		0.733
197	197/200	44.354	0.86	1.67		1.47
198	198/199	47.272	0.89	11.0		1.47
199	198/199	47.272	0.89	(11.0)		1.47
200	197/200	44.354	0.86	(1.67)		1.47
201		43.365	0.86	`1.2Ś		0.733
202		42.425	0.93	1.53		0.733
203		48.144	0.92	6.40		0.733
204				ND		0.733
205				ND		0.733
206		54.053	0.80	2.46		0.733
207				ND		0.733
208				ND		0.733
209				ND		0.733

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EMPC = Estimated Maximum Possible Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSB0692-08;FO 095223 1090080008 P90312B_12

 Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	7.89	
Total Trichloro Biphenyls	121	
Total Tetrachloro Biphenyls	342	
Total Pentachloro Biphenyls	541	
Total Hexachloro Biphenyls	466	
Total Heptachloro Biphenyls	191	
Total Octachloro Biphenyls	42.5	
Total Nonachloro Biphenyls	2.46	
Decachloro Biphenyls	ND	
Total PCBs	1710	

ND = Not Detected

Water

02/27/2009



Tel: 612-607-1700 Fax: 612-607-6444

Method 1668A Polychlorobiphenyl **Blank Analysis Results**

Lab Sample ID BLANK-19082 P90312A_07 Filename Injected By SMT **Total Amount Extracted** 1900 mL **ICAL ID** P90312A03

Analyzed 03/12/2009 17:05 P90312A 02 Dilution NA

Matrix

Extracted

CCal Filename(s)

CCal Filename(s)	P90312A_	02		Dilution	NA	
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.587	2.75	2.0	0.944	47
13C-4-MoCB	3	9.438	3.14	2.0	0.897	45
13C-2,2'-DiCB	. 4	9.750	1.59	2.0	1.05	52
13C-4,4'-DiCB	15	17.537	1.54	2.0	0.853	43
13C-2,2',6-TrCB	19	13.943	1.12	2.0	0.889	44
13C-3,4,4'-TrCB	37	25.803	1.05	2.0	0.987	49
13C-2,2',6,6'-TeCB	54	17.839	0.83	2.0	0.772	39
13C-3,4,4',5-TeCB	81	33.129	0.74	2.0	1.06	53
13C-3,3',4,4'-TeCB	77	33.733	0.74	2.0	1.22	61
13C-2,2',4,6,6'-PeCB	104	24.378	1.58	2.0	0.978	49
13C-2,3,3',4,4'-PeCB	105 114	37.371 36.701	1.51 1.48	2.0 2.0	1.29 1.27	64 64
13C-2,3,4,4',5-PeCB	114	36.181	1.46	2.0	1.27 1.24	62
13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5'-PeCB	123	35.846	1.60	2.0	1.24	57
13C-3,3',4,4',5-PeCB	123	40.590	1.52	2.0	1.14	65
13C-2,2',4,4',6,6'-HxCB	155	30.682	1.34	2.0	1.14	57
13C-HxCB (156/157)	156/157	43.658	1.20	4.0	2.77	69
13C-2,3',4,4',5,5'-HxCB	167	42.502	1.24	2.0	1.34	67
13C-3,3',4,4',5,5'-HxCB	169	46.978	1.20	2.0	1.42	71
13C-2,2',3,4',5,6,6'-HpCB	188	36.701	1.09	2.0	1.35	68
13C-2,3,3',4,4',5,5'-HpCB	189	49.517	0.96	2.0	1.45	72
13C-2,2',3,3',5,5',6,6'-OcCB	202	42.217	0.90	2.0	1.39	70
13C-2,3,3',4,4',5,5',6-OcCB	205	52.081	0.89	2.0	1.40	70
13C-2,2',3,3',4,4',5,5',6-NoCB		53.827	0.82	2.0	1.41	70
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	48.978	0.82	2.0	1.42	71
13CDeCB	209	55.400	0.71	2.0	1.43	72
Cleanup Standards		04.00=				
13C-2,4,4'-TrCB	28	21.225	0.98	2.0	1.40	70
13C-2,3,3',5,5'-PeCB	111	33.834	1.59	2.0	1.69	84
13C-2,2',3,3',5,5',6-HpCB	178	39.869	1.08	2.0	1.89	94
Recovery Standards						
13C-2,5-DiCB	9	12.493	1.61	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.355	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	30.933	1.61	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	39.383	1.29	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	51.607	0.87	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19082 P90312A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.132
2				ND		0.132
3				ND		0.132
4				ND		0.132
4 5 6 7				ND		0.132
6				ND		0.132
7				ND		0.132
8				ND		0.132
9				ND		0.132
10				ND		0.132
11				ND		0.790
12	12/13			ND		0.263
13	12/13			ND		0.263
14	12.10			ND		0.132
15				ND		0.132
16				ND		0.132
17				ND		0.132
18	18/30			ND		0.263
19	10/00			ND		0.132
20	20/28			ND		0.263
21	21/33			ND		0.263
22	2.700			ND		0.132
23				ND		0.132
24				ND		0.132
25				ND		0.132
26	26/29			ND		0.263
27	_0,_0			ND		0.132
28	20/28			ND		0.263
29	26/29			ND		0.263
30	18/30			ND		0.263
31	10/00			ND		0.132
32				ND		0.132
33	21/33			ND		0.263
34	, 00			ND		0.132
34 35				ND		0.132
36				ND		0.132
37				ND		0.132
38				ND		0.132
39				ND		0.132
40	40/41/71			ND		0.790
41	40/41/71			ND		0.790
42	10/ 11// 1			ND		0.263
43				ND		0.263
44	44/47/65			ND		0.790
45	45/51			ND		0.730
	TJ/J I			IND		0.021

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*! = See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19082 P90312A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46				ND		0.263
47	44/47/65			ND		0.790
48	,,			ND		0.263
49	49/69			ND		0.527
50	50/53			ND		0.527
51	45/51			ND		0.527
52	16,61			ND		0.263
53	50/53			ND		0.527
54	33,33			ND		0.263
55				ND		0.263
56				ND		0.263
57				ND		0.263
58				ND		0.263
59	59/62/75			ND		0.790
60	00/02/10			ND		0.263
61	61/70/74/76			ND		1.05
62	59/62/75			ND		0.790
63	33/02/13			ND		0.263
64				ND		0.263
65	44/47/65			ND		0.790
66	44/47/03			ND ND		0.790
67				ND ND		0.263
68				ND ND		0.263
69	49/69			ND ND		0.527
70	49/09 61/70/74/76			ND ND		1.05
70 71	40/41/71			ND ND		0.790
71 72	40/41/71			ND ND		0.790
73	C4/70/74/7C			ND ND		0.263
74 75	61/70/74/76			ND		1.05
75 70	59/62/75			ND		0.790
<u>76</u>	61/70/74/76			ND		1.05
77				ND		0.263
78				ND		0.263
79				ND		0.263
80				ND		0.263
81				ND		0.263
82				ND		0.263
83				ND		0.263
84				ND		0.263
85	85/116/117			ND		0.790
86	86/87/97/108/119/125			ND		1.58
87	86/87/97/108/119/125			ND		1.58
88	88/91			ND		0.527
89				ND		0.263
90	90/101/113			ND		0.790

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I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19082 P90312A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
			Ratio	_		
91	88/91			ND		0.527
92	00/00/400/400			ND		0.263
93	93/98/100/102			ND		1.05
94				ND		0.263
95				ND		0.263
96	00/07/07/400/440/407			ND		0.263
97	86/87/97/108/119/125			ND		1.58
98	93/98/100/102			ND		1.05
99				ND		0.263
100	93/98/100/102			ND		1.05
101	90/101/113			ND		0.790
102	93/98/100/102			ND		1.05
103				ND		0.263
104				ND		0.263
105				ND		0.263
106				ND		0.263
107	107/124			ND		0.527
108	86/87/97/108/119/125			ND		1.58
109				ND		0.263
110	110/115			ND		0.527
111				ND		0.263
112				ND		0.263
113	90/101/113			ND		0.790
114				ND		0.263
115	110/115			ND		0.527
116	85/116/117			ND		0.790
117	85/116/117			ND		0.790
118				ND		0.263
119	86/87/97/108/119/125			ND		1.58
120				ND		0.263
121				ND		0.263
122				ND		0.263
123				ND		0.263
124	107/124			ND		0.527
125	86/87/97/108/119/125			ND		1.58
126				ND		0.263
127				ND		0.263
128	128/166			ND		0.527
129	129/138/163			ND		0.790
130				ND		0.263
131				ND		0.263
132				ND		0.263
133				ND		0.263
134	134/143			ND		0.527
135	135/151			ND		0.527
100	.50/101			110		0.021

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits

ND = Not Detected

RT = Retention Time I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19082 P90312A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136				ND		0.263
137				ND		0.263
138	129/138/163			ND		0.790
139	139/140			ND		0.527
140	139/140			ND		0.527
141	100/140			ND		0.263
142				ND		0.263
143	134/143			ND		0.527
144	10 1/1 10			ND		0.263
145				ND		0.263
146				ND		0.263
147	147/149			ND		0.527
148	1477140			ND		0.263
149	147/149			ND		0.527
150	1477140			ND		0.263
151	135/151			ND		0.527
152	199/191			ND		0.263
153	153/168			ND		0.527
154	199/100			ND		0.263
155				ND ND		0.263
156	156/157			ND ND		0.527
157	156/157			ND ND		0.527
158	130/137			ND ND		0.263
159				ND ND		0.263
160				ND ND		0.263
161				ND ND		0.263
162				ND ND		0.263
163	129/138/163			ND ND		0.790
164	129/130/103			ND ND		0.790
165				ND ND		0.263
166	128/166			ND ND		0.527
167	120/100			ND ND		0.263
168	153/168			ND ND		0.527
169	155/100			ND ND		0.263
170				ND ND		0.263
170	171/173			ND ND		0.527
171	17 1/173			ND ND		0.263
172	171/173			ND ND		0.203
173	171/173			ND ND		0.263
174				ND ND		0.263
175				ND ND		0.203 0.262
				ND ND		0.263
177 170						0.263
178				ND		0.263
179	100/102			ND		0.263
180	180/193			ND		0.527

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19082 P90312A_07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
181				ND		0.263
182				ND		0.263
183	183/185			ND		0.527
184				ND		0.263
185	183/185			ND		0.527
186				ND		0.263
187				ND		0.263
188				ND		0.263
189				ND		0.263
190				ND		0.263
191				ND		0.263
192				ND		0.263
193	180/193			ND		0.527
194				ND		0.395
195				ND		0.395
196				ND		0.395
197	197/200			ND		0.790
198	198/199			ND		0.790
199	198/199			ND		0.790
200	197/200			ND		0.790
201				ND		0.395
202				ND		0.395
203				ND		0.395
204				ND		0.395
205				ND		0.395
206				ND		0.395
207				ND		0.395
208				ND		0.395
209				ND		0.395

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits

ND = Not Detected

RT = Retention Time I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename

BLANK-19082 P90312A_07

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename Total Amount Extracted

ICAL ID CCal Filename(s) Method Blank ID LCS-19083 P90312A_04 1920 mL P90312A03

1920 mL P90312A03 P90312A_02 BLANK-19082 Matrix Water Dilution NA

Extracted 02/27/2009 Analyzed 03/12/2009 14:01

Injected By SMT

	N	Native Analyt	tes	Labeled Analytes		
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.04	104	2.0	1.01	50
3	1.0	1.03	103	2.0	1.03	51
4	1.0	0.992	99	2.0	1.16	58
15	1.0	1.06	106	2.0	0.959	48
19	1.0	0.994	99	2.0	1.04	52
37	1.0	1.10	110	2.0	1.18	59
54	1.0	1.01	101	2.0	0.920	46
81	1.0	1.01	101	2.0	1.35	68
77	1.0	1.01	101	2.0	1.50	75
104	1.0	0.978	98	2.0	1.16	58
105	1.0	0.995	99	2.0	1.57	79
114	1.0	1.07	107	2.0	1.50	75
118	1.0	1.06	106	2.0	1.51	76
123	1.0	1.05	105	2.0	1.44	72
126	1.0	1.02	102	2.0	1.51	75
155	1.0	0.994	99	2.0	1.49	75
156/157	2.0	2.06	103	4.0	3.40	85
167	1.0	1.06	106	2.0	1.65	82
169	1.0	1.02	102	2.0	1.68	84
188	1.0	1.05	105	2.0	1.69	84
189	1.0	1.04	104	2.0	1.70	85
202	1.0	1.01	101	2.0	1.69	84
205	1.0	1.11	111	2.0	1.58	79
206	1.0	1.13	113	2.0	1.57	78
208	1.0	1.13	113	2.0	1.57	79
209	1.0	1.10	110	2.0	1.61	81

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms I = Interference

Nn = Result obtained from alternate analysis



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename Total Amount Extracted

ICAL ID
CCal Filename(s)

Method Blank ID

LCSD-19084 P90312A_05 1920 mL P90312A03

P90312A03 P90312A_02 BLANK-19082 Matrix Water Dilution NA

Extracted 02/27/2009 Analyzed 03/12/2009 15:02

Injected By SMT

	N	Native Analyt	tes	Labeled Analytes		
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	0.976	98	2.0	0.859	43
3	1.0	1.02	102	2.0	0.842	42
4	1.0	1.01	101	2.0	0.967	48
15	1.0	1.07	107	2.0	0.842	42
19	1.0	0.977	98	2.0	0.884	44
37	1.0	1.01	101	2.0	1.09	55
54	1.0	0.979	98	2.0	0.863	43
81	1.0	1.01	101	2.0	1.28	64
77	1.0	0.978	98	2.0	1.43	72
104	1.0	1.03	103	2.0	1.14	57
105	1.0	1.02	102	2.0	1.45	73
114	1.0	1.03	103	2.0	1.46	73
118	1.0	1.05	105	2.0	1.43	72
123	1.0	0.997	100	2.0	1.35	68
126	1.0	0.997	100	2.0	1.46	73
155	1.0	1.05	105	2.0	1.32	66
156/157	2.0	2.10	105	4.0	3.08	77
167	1.0	1.09	109	2.0	1.53	76
169	1.0	1.06	106	2.0	1.54	77
188	1.0	1.07	107	2.0	1.59	79
189	1.0	1.10	110	2.0	1.61	81
202	1.0	1.03	103	2.0	1.57	78
205	1.0	1.04	104	2.0	1.56	78
206	1.0	1.05	105	2.0	1.54	77
208	1.0	1.06	106	2.0	1.56	78
209	1.0	1.04	104	2.0	1.53	77

P = Recovery outside of method 1668A control limits

Nn = Result obtained from alternate analysis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

^{! =} See Discussion

ng = Nanograms

I = Interference



Method 1668A Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

 Spike 1 ID
 LCS-19083
 Spike 2 ID
 LCSD-19084

 Spike 1 Filename
 P90312A_04
 Spike 2 Filename
 P90312A_05

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	104	98	5.9
4-MoCB	3	103	102	1.0
2,2'-DiCB	4	99	101	2.0
4,4'-DiCB	15	106	107	0.9
2,2',6-TrCB	19	99	98	1.0
3,4,4'-TrCB	37	110	101	8.5
2,2',6,6'-TeCB	54	101	98	3.0
3,3',4,4'-TeCB	77	101	98	3.0
3,4,4',5-TeCB	81	101	101	0.0
2,2',4,6,6'-PeCB	104	98	103	5.0
2,3,3',4,4'-PeCB	105	99	102	3.0
2,3,4,4',5-PeCB	114	107	103	3.8
2,3',4,4',5-PeCB	118	106	105	0.9
2,3',4,4',5'-PeCB	123	105	100	4.9
3,3',4,4',5-PeCB	126	102	100	2.0
2,2',4,4',6,6'-HxCB	155	99	105	5.9
(156/157)	156/157	103	105	1.9
2,3',4,4',5,5'-HxCB	167	106	109	2.8
3,3',4,4',5,5'-HxCB	169	102	106	3.8
2,2',3,4',5,6,6'-HpCB	188	105	107	1.9
2,3,3',4,4',5,5'-HpCB	189	104	110	5.6
2,2',3,3',5,5',6,6'-OcCB	202	101	103	2.0
2,3,3',4,4',5,5',6-OcCB	205	111	104	6.5
2,2',3,3',4,4',5,5',6-NoCB	206	113	105	7.3
2,2',3,3',4,5,5',6,6'-NoCB	208	113	106	6.4
Decachlorobiphenyl	209	110	104	5.6

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value

Event 5: March 23, 2009



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Laboratory Data QA/QC Review Albina Riverlots Source Control Investigation Second Quarter 2009 Stormwater Sampling – Event 5

To: File

From: Julia Fowler, GSI

Date: May 22, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during a source control investigation sampling event conducted by the City of Portland (City) in the Albina Riverlots area on March 23, 2009. Six stormwater samples were collected from Outfall Basins 43, 44, and 44A and submitted for analyses. A field decontamination blank (FO095377) and field duplicate (FO095378) were also submitted for analysis.

The laboratory analyses for these source control program samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

- BES WPCL
 - o Total Metals EPA 200.8
 - o Total Mercury WPCL SOP M-10.02
 - o Total Suspended Solids (TSS) SM 2540D
- Test America (TA)
 - o Polycyclic Aromatic Hydrocarbons (PAHs) EPA 8270M-SIM
 - Phthalates EPA 8270M-SIM
- Columbia Analytical Services (CAS)
 - o Semivolatile Organic Compounds (SVOCs) EPA 8270C
 - Organochlorine Pesticides EPA 8081
- Pace Analytical Services (Pace)
 - o Polychlorinated Biphenyls as Congeners (PCB Congeners) EPA 1668A

The WPCL summary report for all analyses associated with this stormwater sampling event and the subcontracted laboratory's data reports are attached. The WPCL summary report comments that, with some exceptions (included in the following sections below), all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The following QA/QC review is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within laboratory control limits
- Internal standard recoveries within laboratory control limits
- Matrix spike and matrix spike duplicate results within laboratory control limits
- Laboratory control sample and duplicate laboratory control sample (LCS/DLCS) recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the required method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analyses of PAHs, phthalates, pesticides, SVOCs, and PCB congeners. Naphthalene was detected in the method blank analyzed for PAHs by EPA 8270M-SIM at a concentration between one-half the method reporting limit (MRL) and the MRL. In accordance with TA policy, the detections of naphthalene reported in samples FO095372, FO095373, FO095374, FO095375, and FO095376 are flagged as estimated ("B"); these detections should be considered as biased high or possibly false positives.

Phenol and di-n-butyl phthalate were detected in the method blank analyzed for SVOCs by 8270C at estimated concentrations between the MDL and the MRL. For those samples with detected concentrations of phenol, if the concentration is less than 10 times higher than the method blank results, the sample result is flagged with a "B" indicating the result is an estimated value. The results for phenol should therefore be considered biased high or possibly false

positives. The values in the accompanying DEQ table for di-n-butyl phthalate are from the EPA 8270M-SIM method and are not qualified.

Surrogate Recoveries

Surrogate recoveries were completed during the subcontracted laboratory analysis of PAHs, phthalates, pesticides, and SVOCs. The control criteria were exceeded during the PAH analysis by EPA 8270M-SIM for two surrogates in sample FO095374. TA reports that there was insufficient sample volume to re-extract and no further corrective action was possible. Based on information from WPCL¹, because the sample results appear to be consistent with the other samples, the data are not qualified.

The control criterion was exceeded during the SVOC analysis by 8270C for one surrogate in sample FO095376. CAS reports a reanalysis was not performed because insufficient sample was available and no further action was taken. WPCL notes that some results for late-eluting compounds could be low estimates in this sample. However, because the other two surrogates were within control criteria, no data are qualified.

Internal Standard Recoveries

Internal standard recoveries were processed during the laboratory analysis of PCB congeners. The labeled internal standard recoveries were within the target ranges specified in the method, with the exception of three congeners in the laboratory control sample (LCS). These exceptions are flagged "P" in the Pace laboratory report. Pace states that the data were automatically corrected for variation in recovery and accurate values were obtained.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicates (MS/MSD)were processed during the laboratory analysis of PAHs and phthalates. The MS/MDS recoveries and relative percent differences were within the laboratory control limits.

CAS reports there was insufficient volume to perform a matrix spike/matrix spike duplicate (MS/MSD) analysis for SVOCs by EPA 8270C and pesticides. A laboratory control sample/duplicate laboratory control sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

Laboratory Control/ Duplicate Laboratory Control Samples

A laboratory control sample (LCS) was processed during the laboratory analysis of PAHs and phthalates. The LCS recoveries were within the laboratory control limits.

Laboratory control/duplicate laboratory control samples (LCS/DLCS) were processed during the laboratory analysis of SVOCs, pesticides and PCB congeners. The LCS/DLCS recoveries and relative percent differences were within the laboratory control limits.

Other

The CAS laboratory report for pesticides indicates that the method reporting limits were elevated in most samples due to non-target background components (matrix interference). Additionally,

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¹ Email communication from Peter Abrams, WPCL to Julia Fowler, GSI. May 21, 2008.

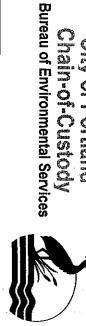
CAS notes that the JP qualifier indicates that the confirmation comparison criteria are not applicable because at least one of the values is below the MRL.

A field decontamination blank was collected and analyzed for metals, PAHs, phthalates, pesticides, SVOC, and PCB congeners. Two metals (copper and zinc) were detected in the field decontamination blank at estimated concentrations between the MDL and the MRL. Copper and zinc concentrations in the field samples were greater than 10 times the concentrations detected in the field decontamination blank; therefore, no copper or zinc data are flagged. 4,4'-DDE also was detected in the field decontamination blank. DDE was detected in two samples at similar concentrations; these data are flagged as estimated.

(503) 823-5696 Portland, Oregon 97203-4552 6543 N. Burlington Ave. Water Pollution Control Laboratory



Chair-of-Custody CTY of Portland



Date: 3/23/04

Collected By: MJS, JXB

signature: File Number: Project Name: PORTLAND HARBOR STORMWATER SAMP WPCL Sample I.D. FO095378 FO095377 FO095373 F0095372 FO095371 FO095376 F0095374 FO095375 すること S:\EID\1000\1020.005 - Portland Harbor Stormwater Samp\Sampdoc\Portland Harbor Stormwater OF Grab COC FY08-09.xls FY 2008-09 Stormwater Grab Chain-of-custody 1020.005 \ \ \ \ \ \ thollowing A N N LARABEE & RANDOLPH FIELD DECON BLANK N KERBY & TILLAMOOK SW-43-ABC552-MMYY N WHEELER PL & KERBY N KERBY & WHEELER Sample Time recorded in PST SW-44-ABC352-MMYY SW-43-ABC499-MMYY SW-43-ABC539-MMYY SW-43-ABC290-MMY N HARDING & RIVER N ALBINA & RIVER DUPLICATE Location 3 73/09 Time: \647 3/23/09 Received By: Relinquished By: 44A_SW1 44_SW1 rinted Name: 43_SW4 43_SW3 43_SW1 43_SW2 FDB Code Point 3/23/04 Matrix: Sample 3 H & 28.11 <u>=</u> 1330 1322 1389 Sample STORMWTR 1402 Time Sample Type മ G മ വ G G G മ Time Date Time: • • • TSS • • • • General Printed Name: Received By: Signature: rinted Name: ignature: Relinguished By: • • • • • PCB Congeners (Ali 209) • • • • • PAH + Phthalates (TA) • • Organics • • • • SVOC's (CAS) • • • • Pesticides (CAS) Requested Analyses Time: and me Date: Total Metals (As, Cd, Cr, Cu, ĕ • Wetals Pb, Ni, Ag, Zn) • • • Total Mercury Signature: Received By: Signature: Relinquished By: rinted Name: toted Name: 10.0 هنس Ô ្យ ت نې Ç. Temperature (Deg C) 4 <u>ء</u> اب 122 JT JT ت ھ <u>د</u>. دو دو Conductivity (umhos/cm) Field نگ ime: Date: Time: 7.5 4 Ų €.. ~1 œ Q. ھ pH (pH units)



City of Portland Water Pollution Control Laboratory

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095375 Sample Collected: 03/23/09 14:02 Sample Status: COMPLETE AND

Sample Received: 03/23/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 1 of 4

Address/Location: SW-44-ABC352-0309

 N HARDING & RIVER
 System ID:
 AN03342

 Sample Point Code:
 44_SW1
 EID File #:
 1020.005

Sample Type:GRABLocCode:PORTHASWSample Matrix:STORMWTRCollected By:MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The result for PAH compound Naphthalene is flagged as an estimate because this compound was also detected in the Method Blank.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	129	μmhos/cm	1	SM 2510 B	03/23/09
pH (FIELD)	7.8	pH Units	0.1	SM 4500-H B	03/23/09
TEMPERATURE	9.1	Deg. C	0.1	SM 2550 B	03/23/09
GENERAL				ů.	
TOTAL SUSPENDED SOLIDS	31	mg/L	2	SM 2540 D	03/25/09
METALS					
MERCURY	0.023	μg/L	0.002	WPCLSOP M-10.02	03/26/09
METALS BY ICP-MS (TOTAL) - 8		•			
ARSENIC	2.94	μg/L	0.1	EPA 200.8	03/24/09
CADMIUM	0.54	μg/L	0.1	EPA 200.8	03/24/09
CHROMIUM	4.39	μg/L	0.4	EPA 200.8	03/24/09
COPPER	19.2	μg/L	0.2	EPA 200.8	03/24/09
LEAD	13.1	μg/L	0.1	EPA 200.8	03/24/09
NICKEL	3.69	μg/L	0.2	EPA 200.8	03/24/09
SILVER	<0.10	μg/L	0.1	EPA 200.8	03/24/09
ZINC	193	μg/L	0.5	EPA 200.8	03/24/09
OUTSIDE ANALYSIS				•	
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<2.5	ng/L	2.5	EPA 8081	03/25/09
4,4'-DDE	<2.5	ng/L	2.5	EPA 8081	03/25/09
4,4'-DDT	<2.5	ng/L	2.5	EPA 8081	03/25/09
Aldrin	<2.5	ng/L	2.5	EPA 8081	03/25/09
Alpha-BHC	<2.5	ng/L	2.5	EPA 8081	03/25/09
Alpha-Chlordane	<2.5	ng/L	2.5	EPA 8081	03/25/09
Beta-BHC	<2.5	ng/L	2.5	EPA 8081	03/25/09
Delta-BHC	<2.5	ng/L	2.5	EPA 8081	03/25/09
Dieldrin	<2.5	ng/L	2.5	EPA 8081	03/25/09
Endosulfan I	<2.5	ng/L	2.5	EPA 8081	03/25/09
Endosulfan II	<2.5	ng/L	2.5	EPA 8081	03/25/09
Endosulfan Sulfate	<2.5	ng/L	2.5	EPA 8081	03/25/09
Endrin	<2.8	ng/L	2.8	EPA 8081	03/25/09
Endrin Aldehyde	<2.5	ng/L	2.5	EPA 8081	03/25/09

Report Date: 04/30/09

iy: A

Validated By:



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095375

Sample Collected: 03/23/09 Sample Received: 03/23/09 14:02

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 2 of 4

Address/Location:

SW-44-ABC352-0309

AN03342

N HARDING & RIVER

System ID:

Sample Point Code:

44_SW1

EID File #: LocCode:

1020.005 **PORTHASW**

Sample Type:

GRAB

Collected By: MJS/JXB

Sample Matrix:

STORMWTR

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The result for PAH compound Naphthalene is flagged as an estimate because this compound was also detected in the Method Blank.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Endrin Ketone	<2.5	ng/L	2.5	EPA 8081	03/25/09
Gamma-BHC(Lindane)	<2.5	ng/L	2.5	EPA 8081	03/25/09
Gamma-Chlordane	<2.5	ng/L	2.5	EPA 8081	03/25/09
Heptachlor	<8.8	ng/L	8.8	EPA 8081	03/25/09
Heptachlor Epoxide	<2.5	ng/L	2.5	EPA 8081	03/25/09
Methoxychlor	<2.5	ng/L	2.5	EPA 8081	03/25/09
Toxaphene	<130	ng/L	130	EPA 8081	03/25/09
POLYCHLORINATED BIPHENYL C	ONGENERS -PACE				
Refer to Contract Report	COMPLETED	ng/L	• .	EPA 1668 MOD	04/03/09
POLYNUCLEAR AROMATICS & PI	ITHALATES - TA		•		
Acenaphthene	<0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Acenaphthylene	< 0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Anthracene	<0.0192	μ g/L	0.0192	EPA 8270M-SIM	03/26/09
Benzo(a)anthracene	0.0120	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Benzo(a)pyrene	0.0121	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Benzo(b)fluoranthene	0.0212	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Benzo(ghi)perylene	0.0309	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Benzo(k)fluoranthene	0.0135	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Bis(2-ethylhexyl) phthalate	1.41	μg/L	0.962	EPA 8270M-SIM	03/26/09
Butyl benzyl phthalate	< 0.962	μ g/L	0.962	EPA 8270M-SIM	03/26/09
Chrysene	0.0474	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Dibenzo(a,h)anthracene	< 0.00962	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Diethyl phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Dimethyl phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Di-n-butyl phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Di-n-octyl phthalate	1.78	μg/L	0.962	EPA 8270M-SIM	03/26/09
Fluoranthene	0.0759	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Fluorene	<0.0192	μg/L	. 0.0192	EPA 8270M-SIM	03/26/09
Indeno(1,2,3-cd)pyrene	0.0135	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Naphthalene	EST 0.0309	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Phenanthrene	0.0781	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Pyrene	0.0945	$\mu g/L$	0.0192	EPA 8270M-SIM	03/26/09
SEMI-VOLATILE ORGANICS - CAS					

Validated By: Report Date: 04/30/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095375

Sample Collected: 03/23/09 Sample Received: 03/23/09 14:02

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 3 of 4

Address/Location:

SW-44-ABC352-0309

System ID:

AN03342

N HARDING & RIVER

EID File #:

1020.005

Sample Point Code:

44_SW1

LocCode:

PORTHASW

Sample Type:

GRAB

Collected By: MJS/JXB

Sample Matrix:

STORMWTR

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The result for PAH compound Naphthalene is flagged as an estimate because this compound was also detected in the Method Blank.

est Parameter	Result	Units	MRL	Method	Analysis Date
1,2,4-Trichlorobenzene	<0.20	μg/L	0.20	EPA 8270	03/30/09
1,2-Dichlorobenzene	<0.20	μg/L	0.20	EPA 8270	03/30/09
1,3-Dichlorobenzene	<0.20	μg/L	0.20	EPA 8270	03/30/09
1,4-Dichlorobenzene	<0.20	μg/L	0.20	EPA 8270	03/30/09
2,4,5-Trichlorophenol	<0.49	μg/L	0.49	EPA 8270	03/30/09
2,4,6-Trichlorophenol	<0.49	μg/L	0.49	EPA 8270	03/30/09
2,4-Dichlorophenol	<0.49	μg/L μg/L	0.49	EPA 8270	03/30/0
2,4-Dimethylphenol	<3.9	μg/L	3.9	EPA 8270	03/30/09
2,4-Dinitrophenol	<3.9	μg/L	3.9	EPA 8270	03/30/09
2,4-Dinitrotoluene	<0.20	μg/L	0.20	EPA 8270	03/30/09
2,6-Dinitrotoluene	<0.20	μg/L	0.20	EPA 8270	03/30/0
2-Chloronaphthalene	<0.20	μg/L	0.20	EPA 8270	03/30/0
2-Chlorophenol	<0.49	μg/L μg/L	0.49	EPA 8270	03/30/0
2-Methylnaphthalene	<0.20	μg/L	0.20	EPA 8270	03/30/0
2-Methylphenol	<0.49	μg/L	0.49	EPA 8270	03/30/0
2-Nitroaniline	<0.20	μg/L	0.20	EPA 8270	03/30/0
2-Nitrophenol	<0.49	μg/L	0.49	EPA 8270	03/30/0
3,3'-Dichlorobenzidine	<2.0	μg/L	2.0	EPA 8270	03/30/0
3-Nitroaniline	<0.98	μg/L	0.98	EPA 8270	03/30/0
4,6-Dinitro-2-methylphenol	<2.0	μg/L	2.0	EPA 8270	03/30/0
4-Bromophenylphenyl ether	<0.20	μg/L	0.20	EPA 8270	03/30/0
4-Chloro-3-methylphenol	<0.49	μg/L	0.49	EPA 8270	03/30/0
4-Chloroaniline	<0.20	μg/L	0.20	EPA 8270	03/30/0
4-Chlorophenylphenyl ether	<0.20	μg/L	0.20	EPA 8270	03/30/0
4-Methylphenol	< 0.49	μg/L	0.49	EPA 8270	03/30/0
4-Nitroaniline	<0.98	μg/L	0.98	EPA 8270	03/30/0
4-Nitrophenol	<2.0	μg/L	2.0	EPA 8270	03/30/0
Acenaphthene	<0.20	μg/L	0.20	EPA 8270	03/30/0
Acenaphthylene	<0.20	μg/L	0.20	EPA 8270	03/30/0
Anthracene	<0.20	μg/L	0.20	EPA 8270	03/30/0
Benzo(a)anthracene	<0.20	μg/L	0.20	EPA 8270	03/30/0
Benzo(a)pyrene	<0.20	μg/L	0.20	EPA 8270	03/30/0
Benzo(b)fluoranthene	<0.20	μg/L	0.20	EPA 8270	03/30/0
Benzo(g,h,i)perylene	<0.20	μg/L	0.20	EPA 8270	03/30/0
Benzo(k)fluoranthene	<0.20	μg/L	0.20	EPA 8270	03/30/0

Report Date: 04/30/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095375 Sample Collected: 03/23/09 14:02 Sample Status: COMPLETE AND

Sample Received: 03/23/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 4 of 4

Address/Location: SW-44-ABC352-0309

 N HARDING & RIVER
 System ID:
 AN03342

 Sample Point Code:
 44_SW1
 EID File #:
 1020.005

Sample Type: GRAB LocCode: PORTHASW

Sample Matrix: STORMWTR Collected By: MJS/JXB

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. The result for PAH compound Naphthalene is flagged as an estimate because this compound was also detected in the Method Blank.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzoic acid	<4.9	μg/L	4.9	EPA 8270	03/30/09
Benzyl alcohol	< 0.49	μg/L	0.49	EPA 8270	03/30/09
Bis(2-chloroethoxy) methane	<0.20	μ g/L	0.20	EPA 8270	. 03/30/09
Bis(2-chloroethyl) ether	<0.20	μg/L	0.20	EPA 8270	03/30/09
Bis(2-chloroisopropyl) ether	<0.20	μg/L	0.20	EPA 8270	03/30/09
Bis(2-ethylhexyl) phthalate	3.1	μg/L	0.98	EPA 8270	03/30/09
Butyl benzyl phthalate	< 0.20	μg/L	0.20	EPA 8270	03/30/09
Chrysene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Dibenzo(a,h)anthracene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Dibenzofuran	<0.20	μg/L	0.20	EPA 8270	03/30/09
Diethyl phthalate	<0.20	μg/L	0.20	EPA 8270	03/30/09
Dimethyl phthalate	<0.20	μ g/L	0.20	EPA 8270	03/30/09
Di-n-butyl phthalate	<0.20	μg/L	0.20	EPA 8270	03/30/09
Di-n-octyl phthalate	<0.20	μg/L	0.20	EPA 8270	03/30/09
Fluoranthene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Fluorene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Hexachlorobenzene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Hexachlorobutadiene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Hexachlorocyclopentadiene	<0.98	μg/L	0.98	EPA 8270	03/30/09
Hexachloroethane	<0.20	μg/L	0.20	EPA 8270	03/30/09
Indeno(1,2,3-cd)pyrene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Isophorone	<0.28	μg/L	0.28	EPA 8270	03/30/09
Naphthalene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Nitrobenzene	<0.20	μg/L	0.20	EPA 8270	03/30/09
N-Nitrosodi-n-propylamine	<0.20	μg/L	0.20	EPA 8270	03/30/09
N-Nitrosodiphenylamine	<0.20	μg/L	0.20	EPA 8270	03/30/09
Pentachlorophenol	<0.98	μg/L	0.98	EPA 8270	03/30/09
Phenanthrene	<0.20	μg/L	0.20	EPA 8270	03/30/09
Phenol	0.54	μg/L	0.49	EPA 8270	03/30/09
Pyrene	<0.20	μg/L	0.20	EPA 8270	03/30/09

End of Report for Sample ID: FO095375

Report Date: 04/30/09 Validated By:





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095377

Sample Collected: 03/23/09 Sample Received: 03/23/09 14:32

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AN03344

Sample Point Code:

EID File #:

1020.005

Sample Type:

FDBLANK GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SUSPENDED SOLIDS	<2	mg/L	2	SM 2540 D	03/25/09
METALS		ð	•	x = x + x = x + y = x = y = y = y = y = y = y = y = y =	
MERCURY	<0.0020	μg/L	0.002	WPCLSOP M-10.02	03/26/09
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	<0.10	μg/L	0.1	EPA 200.8	03/24/09
CADMIUM	<0.10	μg/L	0.1	EPA 200.8	03/24/09
CHROMIUM	< 0.40	μg/L	0.4	EPA 200.8	03/24/09
COPPER	0.42	μg/L	0.2	EPA 200.8	03/24/09
LEAD	<0.10	μg/L	0.1	EPA 200.8	03/24/09
NICKEL	<0.20	μg/L	0.2	EPA 200.8	03/24/09
SILVER	<0.10	μg/L	0.1	EPA 200.8	03/24/09
ZINC	0.58	μg/L	0.5	EPA 200.8	03/24/09
OUTSIDE ANALYSIS		•			
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<0.50	ng/L	0.50	EPA 8081	03/25/09
4,4'-DDE	1.4	ng/L	0.50	EPA 8081	03/25/09
4,4'-DDT	<0.50	ng/L	0.50	EPA 8081	03/25/09
Aldrin	<0.50	ng/L	0.50	EPA 8081	03/25/09
Alpha-BHC	<0.50	ng/L	0.50	EPA 8081	03/25/09
Alpha-Chlordane	<0.50	ng/L	0.50	EPA 8081	03/25/09
Beta-BHC	<0.50	ng/L	0.50	EPA 8081	03/25/09
Delta-BHC	<0.50	ng/L	0.50	EPA 8081	03/25/09
Dieldrin	<0.50	ng/L	0.50	EPA 8081	03/25/09
Endosulfan I	<0.50	ng/L	0.50	EPA 8081	03/25/09
Endosulfan II	<0.50	ng/L	0.50	EPA 8081	03/25/09
Endosulfan Sulfate	<0.50	ng/L	0.50	EPA 8081	03/25/09
Endrin	<0.50	ng/L	0.50	EPA 8081	03/25/09
Endrin Aldehyde	<0.50	ng/L	0.50	EPA 8081	03/25/09
Endrin Ketone	<0.50	ng/L	0.50	EPA 8081	03/25/09
Gamma-BHC(Lindane)	<0.50	ng/L	0.50	EPA 8081	03/25/09
Gamma-Chlordane	<0.50	ng/L	0.50	EPA 8081	03/25/09
Heptachlor	<0.50	ng/L	0.50	EPA 8081	03/25/09
Heptachlor Epoxide	<0.50	ng/L	0.50	EPA 8081	03/25/09

Report Date: 04/30/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095377

Sample Collected: 03/23/09 Sample Received: 03/23/09 14:32

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Page 2 of 4

Address/Location:

FIELD DECON BLANK

System ID:

Report Page:

AN03344

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type: Sample Matrix: **GRAB STORMWTR** LocCode: Collected By: MJS/JXB

PORTHASW

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Methoxychlor	<0.50	ng/L	0.50	EPA 8081	03/25/09
Toxaphene	<25	ng/L	25	EPA 8081	03/25/09
POLYCHLORINATED BIPHENYL CO	NGENERS -PACE				
Refer to Contract Report	COMPLETED	ng/L		EPA 1668 MOD	04/03/09
POLYNUCLEAR AROMATICS & PHT	HALATES - TA				
Acenaphthene	< 0.0192	μg/L ⋅	0.0192	EPA 8270M-SIM	03/26/09
Acenaphthylene	< 0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Anthracene	< 0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Benzo(a)anthracene	< 0.00962	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Benzo(a)pyrene	< 0.00962	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Benzo(b)fluoranthene	< 0.00962	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Benzo(ghi)perylene	<0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Benzo(k)fluoranthene	< 0.00962	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Bis(2-ethylhexyl) phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Butyl benzyl phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Chrysene	< 0.00962	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Dibenzo(a,h)anthracene	< 0.00962	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Diethyl phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Dimethyl phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Di-n-butyl phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Di-n-octyl phthalate	< 0.962	μg/L	0.962	EPA 8270M-SIM	03/26/09
Fluoranthene	<0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Fluorene	< 0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Indeno(1,2,3-cd)pyrene	< 0.00962	μg/L	0.00962	EPA 8270M-SIM	03/26/09
Naphthalene	<0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Phenanthrene	<0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
Pyrene	<0.0192	μg/L	0.0192	EPA 8270M-SIM	03/26/09
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<0.21	μg/L	0.21	EPA 8270	03/30/09
1,2-Dichlorobenzene	<0.21	μg/L	0.21	EPA 8270	03/30/09
1,3-Dichlorobenzene	<0.21	μg/L	0.21	EPA 8270	03/30/09
1,4-Dichlorobenzene	<0.21	μg/L	0.21	EPA 8270	03/30/09
2,4,5-Trichlorophenol	< 0.53	μg/L	0.53	EPA 8270	03/30/09
2,4,6-Trichlorophenol	<0.53	μg/L	0.53	EPA 8270	03/30/09

Report Date: 04/30/09





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LABORATORY ANALYSIS REPORT

Sample ID: **FO095377**

Sample Collected: 03/23/09 Sample Received: 03/23/09 14:32

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page: Page 3 of 4

Address/Location:

FIELD DECON BLANK

System ID:

AN03344

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

		-	,		Analysis
Test Parameter	Result	Units	MRL	Method	Date
2,4-Dichlorophenol	<0.53	μg/L	0.53	EPA 8270	03/30/09
2,4-Dimethylphenol	<4.2	μg/L	4.2	EPA 8270	03/30/09
2,4-Dinitrophenol	<4.2	μg/L	4.2	EPA 8270	03/30/09
2,4-Dinitrotoluene	<0.21	μg/L	0.21	EPA 8270	03/30/09
2,6-Dinitrotoluene	<0.21	μ g/L	0.21	EPA 8270	03/30/09
2-Chloronaphthalene	<0.21	μg/L	0.21	EPA 8270	03/30/09
2-Chlorophenol	< 0.53	μg/L	0.53	EPA 8270	03/30/09
2-Methylnaphthalene	<0.21	μg/L	0.21	EPA 8270	03/30/09
2-Methylphenol	< 0.53	μg/L	0.53	EPA 8270	03/30/09
2-Nitroaniline	<0.21	μg/L	0.21	EPA 8270	03/30/09
2-Nitrophenol	< 0.53	μg/L	0.53	EPA 8270	03/30/09
3,3'-Dichlorobenzidine	<2.1	μg/L	2.1	EPA 8270	03/30/09
3-Nitroaniline	<1.1	μg/L	1.1	EPA 8270	03/30/09
4,6-Dinitro-2-methylphenol	<2.1	μg/L	2.1	EPA 8270	03/30/09
4-Bromophenylphenyl ether	<0.21	μg/L	0.21	EPA 8270	03/30/09
4-Chloro-3-methylphenol	<0.53	μg/L	0.53	EPA 8270	03/30/09
4-Chloroaniline	<0.21	μg/L	0.21	EPA 8270	03/30/09
4-Chlorophenylphenyl ether	<0.21	μg/L	0.21	EPA 8270	03/30/09
4-Methylphenol	< 0.53	μg/L	0.53	EPA 8270	03/30/09
4-Nitroaniline	<1.1	μg/L	1.1	EPA 8270	03/30/09
4-Nitrophenol	<2.1	μg/L	2.1	EPA 8270	03/30/09
Acenaphthene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Acenaphthylene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Anthracene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Benzo(a)anthracene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Benzo(a)pyrene	< 0.21	μg/L	0.21	EPA 8270	03/30/09
Benzo(b)fluoranthene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Benzo(g,h,i)perylene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Benzo(k)fluoranthene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Benzoic acid	<5.3	μg/L	5.3	EPA 8270	03/30/09
Benzyl alcohol	< 0.53	μg/L	0.53	EPA 8270	03/30/09
Bis(2-chloroethoxy) methane	<0.21	μg/L	0.21	EPA 8270	03/30/09
Bis(2-chloroethyl) ether	<0.21	μg/L	0.21	EPA 8270	03/30/09
Bis(2-chloroisopropyl) ether	<0.21	μg/L	0.21	EPA 8270	03/30/09
Bis(2-ethylhexyl) phthalate	<1.1	μg/L	1.1	EPA 8270	03/30/09
Butyl benzyl phthalate	<0.21	μg/L	0.21	EPA 8270	03/30/09

Report Date: 04/30/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095377

Sample Collected: 03/23/09 Sample Received: 03/23/09 14:32

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 4 of 4

Address/Location:

FIELD DECON BLANK

AN03344

System ID:

Sample Point Code: Sample Type:

FDBLANK GRAB

EID File #:

1020.005 **PORTHASW**

Sample Matrix:

STORMWTR

LocCode:

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
Chrysene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Dibenzo(a,h)anthracene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Dibenzofuran	<0.21	μg/L	0.21	EPA 8270	03/30/09
Diethyl phthalate	<0.21	μg/L	0.21	EPA 8270	03/30/09
Dimethyl phthalate	<0.21	μg/L	0.21	EPA 8270	03/30/09
Di-n-butyl phthalate	<0.21	μg/L	0.21	EPA 8270	03/30/09
Di-n-octyl phthalate	<0.21	μg/L	0.21	EPA 8270	03/30/09
Fluoranthene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Fluorene	` <0.21	μg/L	0.21	EPA 8270	03/30/09
Hexachlorobenzene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Hexachlorobutadiene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Hexachlorocyclopentadiene	<1.1	μg/L	1.1	EPA 8270	03/30/09
Hexachloroethane	<0.21	μg/L	0.21	EPA 8270	03/30/09
Indeno(1,2,3-cd)pyrene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Isophorone	<0.21	μg/L	0.21	EPA 8270	03/30/09
Naphthalene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Nitrobenzene	<0.21	μg/L	0.21	EPA 8270	03/30/09
N-Nitrosodi-n-propylamine	<0.21	μg/L	0.21	EPA 8270	03/30/09
N-Nitrosodiphenylamine	<0.21	μg/L	0.21	EPA 8270	03/30/09
Pentachlorophenol	<1.1	μg/L	1.1	EPA 8270	03/30/09
Phenanthrene	<0.21	μg/L	0.21	EPA 8270	03/30/09
Phenol	<0.53	μg/L	0.53	EPA 8270	03/30/09
Pyrene	<0.21	μg/L	0.21	EPA 8270	03/30/09

End of Report for Sample ID: FO095377

Report Date: 04/30/09 Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: FO095378

Sample Collected: 03/23/09 Sample Received: 03/23/09 00:00

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

FIELD DUPLICATE

AN03345

Sample Point Code:

DUP

System ID: EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/JXB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter Resu	ult	Units	MRL	Method	Analysis Date
GENERAL TOTAL SUSPENDED SOLIDS 33	3	mg/L	2	SM 2540 D	03/25/09
OUTSIDE ANALYSIS POLYCHLORINATED BIPHENYL CONGENERS -PACE Refer to Contract Report COMPLETED	D	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095378

Report Date: 04/30/09



April 13, 2009

Analytical Report for Service Request No: K0902522

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor Stormwater

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on March 24, 2009. For your reference, these analyses have been assigned our service request number K0902522.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/lb

Page 1 of 45

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aidol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-







Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request No.:

Date Received:

K0902522

03/24/2009

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Seven water samples were received for analysis at Columbia Analytical Services on 03/24/2009. The temperatures of the cooler and blank were 8.0C and 6.7C respectively upon receipt. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A ULL

Continuing Calibration Verification (CCV) Exceptions:

The primary evaluation criterion was exceeded for 4,4'-DDD in CCV 0401F034. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the average percent recovery of all analytes in the verification standard. The standard meets the alternative evaluation criteria.

Matrix Spike Recovery Exceptions:

Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD). A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

Sample Confirmation Notes:

The JP qualifier indicates that the confirmation comparison criteria are not applicable because at least one of the values is below the Method Reporting Limit (MRL).

Elevated Method Reporting Limits:

The reporting limit is elevated for all analytes in most of the samples. The sample extracts were diluted prior to instrumental analysis due to relatively high levels of non-target background components. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. The results are flagged to indicate the matrix interference.

The reporting limit is further elevated for at least one analyte in most of the samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the reporting limit. The results are flagged to indicate the matrix interference.

	RL.	04/14/09
A		T) - 4 -

No other anomalies associated with the analysis of these samples were observed.

Semivolatile Organic Compounds by EPA Method 8270C LL

Surrogate Exceptions:

The control criteria were exceeded for Terphenyl-d14 in FO 095376. A reanalysis was not performed because insufficient sample was available. No further corrective action was possible.

Sample Notes and Discussion

Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD). A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

No other anomalies associated with the analysis of these samples were observed.

	PL-	04/13/09
Approved by		Date

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522 **Date Collected:** 03/23/2009

Date Received: 03/24/2009

Organochlorine Pesticides

Sample Name:

FO 095375

Lab Code:

K0902522-005

Extraction Method:

EPA 3535

Analysis Method:

8081A

Units: ng/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	2.5	1.1	5	03/25/09	04/02/09	KWG0902494	
beta-BHC	ND U	2.5	2.1	5	03/25/09	04/02/09	KWG0902494	
gamma-BHC (Lindane)	ND U	2.5	2.4	5	03/25/09	04/02/09	KWG0902494	
delta-BHC	ND U	2.5	0.70	5	03/25/09	04/02/09	KWG0902494	***************************************
Heptachlor	ND Ui	8.8	8.8	5	03/25/09	04/02/09	KWG0902494	
Aldrin	ND U	2.5	0.55	5	03/25/09	04/02/09	KWG0902494	
Heptachlor Epoxide	ND U	2.5	1.1	5	03/25/09	04/02/09	KWG0902494	
gamma-Chlordane†	ND U	2.5	1.6	5	03/25/09	04/02/09	KWG0902494	
Endosulfan I	ND U	2.5	1.3	5	03/25/09	04/02/09	KWG0902494	
alpha-Chlordane	ND U	2.5	1.4	5	03/25/09	04/02/09	KWG0902494	
Dieldrin	ND U	2.5	1.9	5	03/25/09	04/02/09	KWG0902494	
4,4'-DDE	ND Ui	2.5	1.6	5	03/25/09	04/02/09	KWG0902494	
Endrin	ND Ui	2.8	2.8	5	03/25/09	04/02/09	KWG0902494	
Endosulfan II	ND U	2.5	1.8	5	03/25/09	04/02/09	KWG0902494	
4,4'-DDD	ND U	2.5	1.1	5	03/25/09	04/02/09	KWG0902494	
Endrin Aldehyde	ND U	2.5	1.1	5	03/25/09	04/02/09	KWG0902494	
Endosulfan Sulfate	ND U	2.5	1.4	5	03/25/09	04/02/09	KWG0902494	
4,4'-DDT	ND U	2.5	0.85	5	03/25/09	04/02/09	KWG0902494	
Endrin Ketone	2.0 JD	2.5	1.6	5	03/25/09	04/02/09	KWG0902494	
Methoxychlor	ND U	2.5	1.4	5	03/25/09	04/02/09	KWG0902494	
Toxaphene	ND U	130	45	5	03/25/09	04/02/09	KWG0902494	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	55	10-121	04/02/09	Acceptable Acceptable
Decachlorobiphenyl	74	17-150	04/02/09	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

Printed: 04/06/2009 13:52:29

 $u: \label{lem:lem:lem:rpt} u: \label{lem:lem:rpt} \label{lem:lem:rpt} u: \label{lem:lem:rpt} \label{lem:lem:lem:rpt} \label{lem:lem:lem:rpt}$

Merged

Form 1A - Organic

SuperSet Reference: RR

Page 1 of 1

RR100412

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009 **Date Received:** 03/24/2009

Organochlorine Pesticides

Sample Name:

FO 095377

Lab Code:

K0902522-007

Extraction Method:

EPA 3535

Units: ng/L Basis: NA

Analysis Method:

8081A

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND	U	0.50	0.21	1	03/25/09	04/02/09	KWG0902494	
beta-BHC	ND	U	0.50	0.41	1	03/25/09	04/02/09	KWG0902494	
gamma-BHC (Lindane)	ND	U	0.50	0.47	1	03/25/09	04/02/09	KWG0902494	
delta-BHC	ND	U	0.50	0.14	1	03/25/09	04/02/09	KWG0902494	
Heptachlor	ND	U	0.50	0.18	1	03/25/09	04/02/09	KWG0902494	
Aldrin	ND	U	0.50	0.11	1	03/25/09	04/02/09	KWG0902494	
Heptachlor Epoxide	ND	U	0.50	0.21	1	03/25/09	04/02/09	KWG0902494	
gamma-Chlordane†	ND	U	0.50	0.31	1	03/25/09	04/02/09	KWG0902494	
Endosulfan I	ND	U	0.50	0.25	1	03/25/09	04/02/09	KWG0902494	
alpha-Chlordane	ND	U	0.50	0.27	1	03/25/09	04/02/09	KWG0902494	
Dieldrin	ND	U	0.50	0.37	1	03/25/09	04/02/09	KWG0902494	
4,4'-DDE	1.4		0.50	0.19	1	03/25/09	04/02/09	KWG0902494	
Endrin	ND	U	0.50	0.49	1	03/25/09	04/02/09	KWG0902494	
Endosulfan II	ND	U	0.50	0.35	1	03/25/09	04/02/09	KWG0902494	
4,4'-DDD	ND	Ui	0.50	0.50	1	03/25/09	04/02/09	KWG0902494	
Endrin Aldehyde	ND	U	0.50	0.21	1	03/25/09	04/02/09	KWG0902494	
Endosulfan Sulfate	ND	U	0.50	0.28	1	03/25/09	04/02/09	KWG0902494	
4,4'-DDT	ND	U	0.50	0.17	1	03/25/09	04/02/09	KWG0902494	
Endrin Ketone	ND	U	0.50	0.32	1	03/25/09	04/02/09	KWG0902494	
Methoxychlor	ND	U	0.50	0.28	1	03/25/09	04/02/09	KWG0902494	
Toxaphene	ND	U	25	9.0	1	03/25/09	04/02/09	KWG0902494	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Tetrachloro-m-xylene	59	10-121	04/02/09	Acceptable	
Decachlorobiphenyl	77	17-150	04/02/09	Acceptable	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic

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RR100412

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Lab Code: Method Blank KWG0902494-3

Extraction Method:

EPA 3535

Analysis Method:

8081A

Units: ng/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	0.49	0.21	1	03/25/09	04/02/09	KWG0902494	
beta-BHC	ND U	0.49	0.41	1	03/25/09	04/02/09	KWG0902494	
gamma-BHC (Lindane)	ND U	0.49	0.47	1	03/25/09	04/02/09	KWG0902494	
delta-BHC	ND U	0.49	0.14	1	03/25/09	04/02/09	KWG0902494	
Heptachlor	ND U	0.49	0.18	1	03/25/09	04/02/09	KWG0902494	
Aldrin	ND U	0.49	0.11	1	03/25/09	04/02/09	KWG0902494	
Heptachlor Epoxide	ND U	0.49	0.21	1	03/25/09	04/02/09	KWG0902494	
gamma-Chlordane†	ND U	0.49	0.31	1	03/25/09	04/02/09	KWG0902494	
Endosulfan I	ND U	0.49	0.25	1	03/25/09	04/02/09	KWG0902494	
alpha-Chlordane	ND U	0.49	0.27	1	03/25/09	04/02/09	KWG0902494	
Dieldrin	ND U	0.49	0.37	1	03/25/09	04/02/09	KWG0902494	
4,4'-DDE	ND U	0.49	0.19	1	03/25/09	04/02/09	KWG0902494	
Endrin	ND U	0.49	0.49	1	03/25/09	04/02/09	KWG0902494	
Endosulfan II	ND U	0.49	0.35	1	03/25/09	04/02/09	KWG0902494	
4,4'-DDD	ND U	0.49	0.21	1	03/25/09	04/02/09	KWG0902494	
Endrin Aldehyde	ND U	0.49	0.21	1	03/25/09	04/02/09	KWG0902494	
Endosulfan Sulfate	ND U	0.49	0.28	1	03/25/09	04/02/09	KWG0902494	
4,4'-DDT	ND U	0.49	0.17	1	03/25/09	04/02/09	KWG0902494	
Endrin Ketone	ND U	0.49	0.32	1	03/25/09	04/02/09	KWG0902494	
Methoxychlor	ND U	0.49	0.28	1	03/25/09	04/02/09	KWG0902494	
Toxaphene	ND U	25	9.0	1	03/25/09	04/02/09	KWG0902494	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Tetrachloro-m-xylene	51	10-121	04/02/09	Acceptable	
Decachlorobiphenyl	76	17-150	04/02/09	Acceptable	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic

SuperSet Reference:

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ference: RR100412

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Surrogate Recovery Summary Organochlorine Pesticides

Extraction Method:

EPA 3535

Analysis Method:

8081A

Service Request: K0902522

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2
FO 095371	K0902522-001	60 D	74 D
FO 095372	K0902522-002	55 D	67 D
FO 095373	K0902522-003	73 D	78 D
FO 095374	K0902522-004	64 D	78 D
FO 095375	K0902522-005	55 D	74 D
FO 095376	K0902522-006	44 D	45 D
FO 095377	K0902522-007	59	77
Method Blank	KWG0902494-3	51	76
Lab Control Sample	KWG0902494-1	52	77
Duplicate Lab Control Sample	KWG0902494-2	50	79

Surrogate Recovery Control Limits (%)

Surl = Tetrachloro-m-xylene 10-121 Sur2 = Decachlorobiphenyl 17-150

Results flagged with an asterisk (*) indicate values outside control criteria. Results flagged with a pound (#) indicate the control criteria is not applicable.

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SuperSet Reference:

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QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522 Date Extracted: 03/25/2009

Date Analyzed: 04/02/2009

Lab Control Spike/Duplicate Lab Control Spike Summary **Organochlorine Pesticides**

Extraction Method: EPA 3535 **Analysis Method:**

8081A

Units: ng/L

Basis: NA Level: Low

Extraction Lot: KWG0902494

Lab Control Sample KWG0902494-1

Duplicate Lab Control Sample KWG0902494-2

		Control Spik			VG0902494-2 e Lab Control		- %Rec		RPD
Analyte Name	Result	Expected %Rec		Result Expected		%Rec	Limits	RPD	Limit
alpha-BHC	8.49	10.0	85	8.02	10.0	80	43-127	6	30
beta-BHC	9.34	10.0	93	9.22	10.0	92	41-129	1	30
gamma-BHC (Lindane)	8.82	10.0	88	8.08	10.0	81	42-128	9	30
delta-BHC	8.66	10.0	87	8.57	10.0	86	47-141	1	30
Heptachlor	8.65	10.0	86	8.25	10.0	83	34-126	5	30
Aldrin	7.35	10.0	74	6.96	10.0	70	10-125	5	30
Heptachlor Epoxide	8.17	10.0	82	7.96	10.0	80	45-124	3	30
gamma-Chlordane	8.72	10.0	87	8.35	10.0	84	48-119	4	30
Endosulfan I	7.96	10.0	80	7.64	10.0	76	30-115	4	30
alpha-Chlordane	8.43	10.0	84	7.97	10.0	80	48-119	6	30
Dieldrin	8.86	10.0	89	8.50	10.0	85	50-120	4	30
4,4'-DDE	9.89	10.0	99	9.45	10.0	95	36-137	4	30
Endrin	9.57	10.0	96	9.42	10.0	94	53-132	2	30
Endosulfan II	8.38	10.0	84	8.57	10.0	86	32-123	2	30
4,4'-DDD	9.93	10.0	99	9.82	10.0	98	38-140	1	30
Endrin Aldehyde	7.39	10.0	74	7.22	10.0	72	30-114	2	30
Endosulfan Sulfate	9.00	10.0	90	8.80	10.0	88	46-120	2	30
4,4'-DDT	10.3	10.0	103	9.96	10.0	100	45-146	3	30
Endrin Ketone	9.00	10.0	90	8.71	10.0	87	45-127	3	30
Methoxychlor	11.4	10.0	114	11.0	10.0	110	48-140	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic 16

RR100412 SuperSet Reference:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Date Collected: K0902522 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095371

Lab Code:

K0902522-001

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	0.20	0.035	1	03/30/09	04/02/09	KWG0902636	
Phenol	0.60	0.50	0.063	1	03/30/09	04/02/09	KWG0902636	
2-Chlorophenol	ND U	0.50	0.054	1	03/30/09	04/02/09	KWG0902636	
1,3-Dichlorobenzene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
1,4-Dichlorobenzene	ND U	0.20	0.029	1	03/30/09	04/02/09	KWG0902636	
1,2-Dichlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Benzyl Alcohol	0.52	0.50	0.073	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroisopropyl) Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
2-Methylphenol	0.19 J	0.50	0.11	1	03/30/09	04/02/09	KWG0902636	
Hexachloroethane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodi-n-propylamine	ND U	0.20	0.037	1	03/30/09	04/02/09	KWG0902636	
4-Methylphenol†	ND U	0.50	0.12	1	03/30/09	04/02/09	KWG0902636	
Nitrobenzene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Isophorone	0.20 J	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
2-Nitrophenol	ND U	0.50	0.063	1	03/30/09	04/02/09	KWG0902636	
2,4-Dimethylphenol	ND U	4.0	2.2	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroethoxy)methane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
2,4-Dichlorophenol	ND U	0.50	0.047	1	03/30/09	04/02/09	KWG0902636	
Benzoic Acid	3.0 J	5.0	1.1	1	03/30/09	04/02/09	KWG0902636	
1,2,4-Trichlorobenzene	ND U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
Naphthalene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
4-Chloroaniline	ND U	0.20	0.025	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobutadiene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chloro-3-methylphenol	ND U	0.50	0.037	1	03/30/09	04/02/09	KWG0902636	
2-Methylnaphthalene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorocyclopentadiene	ND U	1.0	0.19	1	03/30/09	04/02/09	KWG0902636	
2,4,6-Trichlorophenol	ND U	0.50	0.058	1	03/30/09	04/02/09	KWG0902636	
2,4,5-Trichlorophenol	ND U	0.50	0.031	1	03/30/09	04/02/09	KWG0902636	
2-Chloronaphthalene	ND U	0.20	0.041	1	03/30/09	04/02/09	KWG0902636	
2-Nitroaniline	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Acenaphthylene	0.092 J	0.20	0.015	1	03/30/09	04/02/09	KWG0902636	
Dimethyl Phthalate	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
2,6-Dinitrotoluene	ND U	0.20	0.033	1	03/30/09	04/02/09	KWG0902636	
Acenaphthene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	

Comments:

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Form 1A - Organic 17

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522 **Date Collected:** 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095371

Lab Code:

K0902522-001

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result	0	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND	_	1.0	0.029	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrophenol	ND		4.0	0.17	1	03/30/09	04/02/09	KWG0902636	
Dibenzofuran	ND	U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
4-Nitrophenol	ND	U	2.0	0.28	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrotoluene	ND	U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Fluorene	ND	U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chlorophenyl Phenyl Ether	ND	U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
Diethyl Phthalate	0.23		0.20	0.012	1	03/30/09	04/02/09	KWG0902636	
4-Nitroaniline	ND	U	1.0	0.019	1	03/30/09	04/02/09	KWG0902636	
2-Methyl-4,6-dinitrophenol	ND	U	2.0	0.025	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodiphenylamine	ND	U	0.20	0.048	1	03/30/09	04/02/09	KWG0902636	
4-Bromophenyl Phenyl Ether	ND	U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobenzene	ND	U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Pentachlorophenol	ND	U	1.0	0.34	1	03/30/09	04/02/09	KWG0902636	
Phenanthrene	ND	U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Anthracene	ND	U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Di-n-butyl Phthalate	ND	U	, 0.20	0.023	1	03/30/09	04/02/09	KWG0902636	
Fluoranthene	0.090	J	0.20	0.020	1	03/30/09	04/02/09	KWG0902636	
Pyrene	0.15	J	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	
Butyl Benzyl Phthalate	ND	U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
3,3'-Dichlorobenzidine	ND	U	2.0	0.43	1	03/30/09	04/02/09	KWG0902636	
Benz(a)anthracene	ND	U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Chrysene	ND	U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Bis(2-ethylhexyl) Phthalate	2.0		1.0	0.13	1	03/30/09	04/02/09	KWG0902636	
Di-n-octyl Phthalate	ND	U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Benzo(b)fluoranthene	ND	U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(k)fluoranthene	ND	U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Benzo(a)pyrene	ND	U	0.20	0.031	1	03/30/09	04/02/09	KWG0902636	
Indeno(1,2,3-cd)pyrene	ND	U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
Dibenz(a,h)anthracene	ND	U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(g,h,i)perylene	ND	U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	

Commo	ents:
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RR100571

SuperSet Reference:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095371

Lab Code:

K0902522-001

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	72	21-119	04/02/09	Acceptable	
Phenol-d6	80	31-121	04/02/09	Acceptable	
Nitrobenzene-d5	79	29-121	04/02/09	Acceptable	
2-Fluorobiphenyl	83	25-109	04/02/09	Acceptable	
2,4,6-Tribromophenol	119	30-131	04/02/09	Acceptable	
Terphenyl-d14	62	20-140	04/02/09	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference: RR100571

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009 **Date Received:** 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095372

Lab Code:

K0902522-002

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.20	0.035	1	03/30/09	04/02/09	KWG0902636	
Phenol	0.32	J	0.50	0.063	1	03/30/09	04/02/09	KWG0902636	
2-Chlorophenol	ND	U	0.50	0.054	1	03/30/09	04/02/09	KWG0902636	
1,3-Dichlorobenzene	ND	U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
1,4-Dichlorobenzene	ND	U	0.20	0.029	1	03/30/09	04/02/09	KWG0902636	
1,2-Dichlorobenzene	ND	U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Benzyl Alcohol	0.35	J	0.50	0.073	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroisopropyl) Ether	ND	U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
2-Methylphenol	ND	U	0.50	0.11	1	03/30/09	04/02/09	KWG0902636	
Hexachloroethane	ND	U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodi-n-propylamine	ND		0.20	0.037	1	03/30/09	04/02/09	KWG0902636	
4-Methylphenol†	ND	U	0.50	0.12	1	03/30/09	04/02/09	KWG0902636	
Nitrobenzene	ND	U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Isophorone	ND	U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
2-Nitrophenol	ND	U	0.50	0.063	1	03/30/09	04/02/09	KWG0902636	
2,4-Dimethylphenol	ND	U	4.0	2.2	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroethoxy)methane	ND	U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
2,4-Dichlorophenol	ND	U	0.50	0.047	1	03/30/09	04/02/09	KWG0902636	
Benzoic Acid	3.3	J	5.0	1.1	1	03/30/09	04/02/09	KWG0902636	
1,2,4-Trichlorobenzene	ND	U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
Naphthalene	ND	U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
4-Chloroaniline	ND	U	0.20	0.025	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobutadiene	ND		0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chloro-3-methylphenol	ND	U	0.50	0.037	1	03/30/09	04/02/09	KWG0902636	
2-Methylnaphthalene	ND		0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorocyclopentadiene	ND	U	1.0	0.19	1	03/30/09	04/02/09	KWG0902636	
2,4,6-Trichlorophenol	ND	U	0.50	0.058	1	03/30/09	04/02/09	KWG0902636	
2,4,5-Trichlorophenol	ND	U	0.50	0.031	1	03/30/09	04/02/09	KWG0902636	
2-Chloronaphthalene	ND	U	0.20	0.041	1	03/30/09	04/02/09	KWG0902636	
2-Nitroaniline	ND	U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Acenaphthylene	ND		0.20	0.015	1	03/30/09	04/02/09	KWG0902636	
Dimethyl Phthalate	0.062		0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
2,6-Dinitrotoluene	ND	U	0.20	0.033	1	03/30/09	04/02/09	KWG0902636	
Acenaphthene	ND	U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	

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Analytical Results

Client:

Portland, City of

Project: Sample Matrix: Portland Harbor Stormwater

Water

Service Request: K0902522 **Date Collected:** 03/23/2009 **Date Received:** 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095372

Lab Code:

K0902522-002

Extraction Method:

EPA 3520C

Analysis Method: 8270C

Basis: NA Level: Low

Units: ug/L

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND U	1.0	0.029	1	03/30/09	04/02/09	KWG0902636	***************************************
2,4-Dinitrophenol	ND U	4.0	0.17	1	03/30/09	04/02/09	KWG0902636	
Dibenzofuran	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
4-Nitrophenol	ND U	2.0	0.28	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrotoluene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Fluorene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chlorophenyl Phenyl Ether	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
Diethyl Phthalate	2.2	0.20	0.012	1	03/30/09	04/02/09	KWG0902636	
4-Nitroaniline	ND U	1.0	-0.019	1	03/30/09	04/02/09	KWG0902636	
2-Methyl-4,6-dinitrophenol	ND U	2.0	0.025	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodiphenylamine	ND U	0.20	0.048	1	03/30/09	04/02/09	KWG0902636	
4-Bromophenyl Phenyl Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Pentachlorophenol	0.58 J	1.0	0.34	1	03/30/09	04/02/09	KWG0902636	
Phenanthrene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Anthracene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Di-n-butyl Phthalate	ND U	0.20	0.023	1	03/30/09	04/02/09	KWG0902636	
Fluoranthene	ND U	0.20	0.020	1	03/30/09	04/02/09	KWG0902636	
Pyrene	ND U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	
Butyl Benzyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
3,3'-Dichlorobenzidine	ND U	2.0	0.43	1	03/30/09	04/02/09	KWG0902636	
Benz(a)anthracene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Chrysene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Bis(2-ethylhexyl) Phthalate	1.4	1.0	0.13	1	03/30/09	04/02/09	KWG0902636	
Di-n-octyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Benzo(b)fluoranthene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(k)fluoranthene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Benzo(a)pyrene	ND U	0.20	0.031	1	03/30/09	04/02/09	KWG0902636	
Indeno(1,2,3-cd)pyrene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
Dibenz(a,h)anthracene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(g,h,i)perylene	ND U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	

Comments:	

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522 **Date Collected:** 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095372

Lab Code:

K0902522-002

Units: ug/L Basis: NA

Note		
 Acceptable	21110001110000000000000000000	•

Surrogate Name	%Rec	Control Limits	Date	Note	
Surrogate Ivallie	/UKCC	Dantes	Analyzed	Note	متدارة التسمية بالجراء وجروع
2-Fluorophenol	74	21-119	04/02/09	Acceptable	
Phenol-d6	70	31-121	04/02/09	Acceptable	
Nitrobenzene-d5	79	29-121	04/02/09	Acceptable	
2-Fluorobiphenyl	73	25-109	04/02/09	Acceptable	
2,4,6-Tribromophenol	97	30-131	04/02/09	Acceptable	
Terphenyl-d14	63	20-140	04/02/09	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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RR100571

SuperSet Reference:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009 **Date Received:** 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095373

Lab Code:

K0902522-003

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	0.20	0.035	1	03/30/09	04/02/09	KWG0902636	
Phenol	0.23 J	0.50	0.063	1	03/30/09	04/02/09	KWG0902636	
2-Chlorophenol	ND U	0.50	0.054	1	03/30/09	04/02/09	KWG0902636	
1,3-Dichlorobenzene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
1,4-Dichlorobenzene	ND U	0.20	0.029	1	03/30/09	04/02/09	KWG0902636	
1,2-Dichlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Benzyl Alcohol	ND U	0.50	0.073	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroisopropyl) Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
2-Methylphenol	ND U	0.50	0.11	1	03/30/09	04/02/09	KWG0902636	
Hexachloroethane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodi-n-propylamine	ND U	0.20	0.037	1	03/30/09	04/02/09	KWG0902636	
4-Methylphenol†	ND U	0.50	0.12	1	03/30/09	04/02/09	KWG0902636	
Nitrobenzene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Isophorone	0.11 J	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
2-Nitrophenol	ND U	0.50	0.063	1	03/30/09	04/02/09	KWG0902636	
2,4-Dimethylphenol	ND U	4.0	2.2	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroethoxy)methane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
2,4-Dichlorophenol	ND U	0.50	0.047	1	03/30/09	04/02/09	KWG0902636	
Benzoic Acid	2.0 J	5.0	1.1	1	03/30/09	04/02/09	KWG0902636	
1,2,4-Trichlorobenzene	ND U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
Naphthalene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
4-Chloroaniline	ND U	0.20	0.025	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobutadiene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chloro-3-methylphenol	ND U	0.50	0.037	1	03/30/09	04/02/09	KWG0902636	
2-Methylnaphthalene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorocyclopentadiene	ND U	1.0	0.19	1	03/30/09	04/02/09	KWG0902636	
2,4,6-Trichlorophenol	ND U	0.50	0.058	1	03/30/09	04/02/09	KWG0902636	
2,4,5-Trichlorophenol	ND U	0.50	0.031	1	03/30/09	04/02/09	KWG0902636	
2-Chloronaphthalene	ND U	0.20	0.041	1	03/30/09	04/02/09	KWG0902636	
2-Nitroaniline	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Acenaphthylene	0.067 J	0.20	0.015	1	03/30/09	04/02/09	KWG0902636	
Dimethyl Phthalate	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
2,6-Dinitrotoluene	ND U	0.20	0.033	1	03/30/09	04/02/09	KWG0902636	
Acenaphthene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	THE RESIDENCE OF THE PARTY OF T

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Form 1A - Organic

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Units: ug/L

Basis: NA

Level: Low

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095373

Lab Code:

K0902522-003

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Analysis Method: 8270C								
Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND U	1.0	0.029	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrophenol	ND U	4.0	0.17	1	03/30/09	04/02/09	KWG0902636	
Dibenzofuran	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
4-Nitrophenol	ND U	2.0	0.28	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrotoluene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Fluorene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chlorophenyl Phenyl Ether	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
Diethyl Phthalate	0.077 J	0.20	0.012	1	03/30/09	04/02/09	KWG0902636	
4-Nitroaniline	ND U	1.0	0.019	1	03/30/09	04/02/09	KWG0902636	
2-Methyl-4,6-dinitrophenol	ND U	2.0	0.025	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodiphenylamine	ND U	0.20	0.048	1	03/30/09	04/02/09	KWG0902636	
4-Bromophenyl Phenyl Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Pentachlorophenol	0.57 J	1.0	0.34	1	03/30/09	04/02/09	KWG0902636	
Phenanthrene	0.12 J	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Anthracene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Di-n-butyl Phthalate	0.15 J	0.20	0.023	1	03/30/09	04/02/09	KWG0902636	
Fluoranthene	0.16 J	0.20	0.020	1	03/30/09	04/02/09	KWG0902636	
Pyrene	0.26	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	
Butyl Benzyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
3,3'-Dichlorobenzidine	ND U	2.0	0.43	1	03/30/09	04/02/09	KWG0902636	
Benz(a)anthracene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Chrysene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Bis(2-ethylhexyl) Phthalate	0.85 J	1.0	0.13	1	03/30/09	04/02/09	KWG0902636	
Di-n-octyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Benzo(b)fluoranthene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(k)fluoranthene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Benzo(a)pyrene	ND U	0.20	0.031	1	03/30/09	04/02/09	KWG0902636	
Indeno(1,2,3-cd)pyrene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
Dibenz(a,h)anthracene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(g,h,i)perylene	0.058 J	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	

Comments:	

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522 **Date Collected:** 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095373

Lab Code:

K0902522-003

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	67	21-119	04/02/09	Acceptable
Phenol-d6	71	31-121	04/02/09	Acceptable
Nitrobenzene-d5	73	29-121	04/02/09	Acceptable
2-Fluorobiphenyl	58	25-109	04/02/09	Acceptable
2,4,6-Tribromophenol	88	30-131	04/02/09	Acceptable
Terphenyl-d14	33	20-140	04/02/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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SuperSet Reference: RR100571

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Collected: 03/23/2009 **Date Received:** 03/24/2009

Date Received:

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095374

Lab Code:

K0902522-004

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.20	0.035	1	03/30/09	04/02/09	KWG0902636	
Phenol	0.94		0.49	0.063	1	03/30/09	04/02/09	KWG0902636	
2-Chlorophenol	ND	U	0.49	0.054	1	03/30/09	04/02/09	KWG0902636	
1,3-Dichlorobenzene	ND	U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
1,4-Dichlorobenzene	ND	U	0.20	0.029	1	03/30/09	04/02/09	KWG0902636	
1,2-Dichlorobenzene	ND	U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Benzyl Alcohol	ND	U	0.49	0.073	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroisopropyl) Ether	ND	U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
2-Methylphenol	0.27	J	0.49	0.11	1	03/30/09	04/02/09	KWG0902636	
Hexachloroethane	ND		0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodi-n-propylamine	ND		0.20	0.037	1	03/30/09	04/02/09	KWG0902636	
4-Methylphenol†	0.37	J	0.49	0.12	1	03/30/09	04/02/09	KWG0902636	
Nitrobenzene	ND		0.20	.0.028	1	03/30/09	04/02/09	KWG0902636	
Isophorone	ND		0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
2-Nitrophenol	ND	U	0.49	0.063	. 1	03/30/09	04/02/09	KWG0902636	
2,4-Dimethylphenol	ND	U	3.9	2.2	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroethoxy)methane	ND		0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
2,4-Dichlorophenol	ND	U	0.49	0.047	1	03/30/09	04/02/09	KWG0902636	
Benzoic Acid	7.5		4.9	1.1	1	03/30/09	04/02/09	KWG0902636	
1,2,4-Trichlorobenzene	ND		0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
Naphthalene	0.080	J	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
4-Chloroaniline	ND	U	0.20	0.025	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobutadiene	ND		0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chloro-3-methylphenol	ND	U	0.49	0.037	1	03/30/09	04/02/09	KWG0902636	
2-Methylnaphthalene	ND		0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorocyclopentadiene	ND	U	0.98	0.19	1	03/30/09	04/02/09	KWG0902636	
2,4,6-Trichlorophenol	ND	U	0.49	0.058	1	03/30/09	04/02/09	KWG0902636	
2,4,5-Trichlorophenol	ND	U	0.49	0.031	1	03/30/09	04/02/09	KWG0902636	
2-Chloronaphthalene	ND	U	0.20	0.041	1	03/30/09	04/02/09	KWG0902636	
2-Nitroaniline	ND	U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Acenaphthylene	ND	U	0.20	0.015	1	03/30/09	04/02/09	KWG0902636	
Dimethyl Phthalate	0.095		0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
2,6-Dinitrotoluene	ND	U	0.20	0.033	1	03/30/09	04/02/09	KWG0902636	
Acenaphthene	ND	U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	

Co	mn	ıen	ts:

RR100571

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095374

Lab Code:

K0902522-004

Extraction Method:

Analysis Method:

EPA 3520C 8270C

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND U	0.98	0.029	l	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrophenol	ND U	3.9	0.17	1	03/30/09	04/02/09	KWG0902636	
Dibenzofuran	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
4-Nitrophenol	ND U	2.0	0.28	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrotoluene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Fluorene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chlorophenyl Phenyl Ether	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
Diethyl Phthalate	12	0.20	0.012	1	03/30/09	04/02/09	KWG0902636	
4-Nitroaniline	ND U	0.98	0.019	1	03/30/09	04/02/09	KWG0902636	
2-Methyl-4,6-dinitrophenol	ND U	2.0	0.025	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodiphenylamine	ND U	0.20	0.048	1	03/30/09	04/02/09	KWG0902636	
4-Bromophenyl Phenyl Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Pentachlorophenol	0.67 J	0.98	0.34	1	03/30/09	04/02/09	KWG0902636	
Phenanthrene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Anthracene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Di-n-butyl Phthalate	0.078 J	0.20	0.023	1	03/30/09	04/02/09	KWG0902636	
Fluoranthene	ND U	0.20	0.020	1	03/30/09	04/02/09	KWG0902636	
Pyrene	0.096 J	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	
Butyl Benzyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
3,3'-Dichlorobenzidine	ND U	2.0	0.43	1	03/30/09	04/02/09	KWG0902636	
Benz(a)anthracene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Chrysene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Bis(2-ethylhexyl) Phthalate	3.2	0.98	0.13	1	03/30/09	04/02/09	KWG0902636	
Di-n-octyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Benzo(b)fluoranthene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(k)fluoranthene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Benzo(a)pyrene	ND U	0.20	0.031	1	03/30/09	04/02/09	KWG0902636	
Indeno(1,2,3-cd)pyrene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
Dibenz(a,h)anthracene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(g,h,i)perylene	ND U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	

RR100571

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522 **Date Collected:** 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095374

Lab Code:

K0902522-004

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	79	21-119	04/02/09	Acceptable
Phenol-d6	87	31-121	04/02/09	Acceptable
Nitrobenzene-d5	87	29-121	04/02/09	Acceptable
2-Fluorobiphenyl	72	25-109	04/02/09	Acceptable
2,4,6-Tribromophenol	96	30-131	04/02/09	Acceptable
Terphenyl-d14	55	20-140	04/02/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference: RR100571

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095375

Lab Code:

K0902522-005

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	0.20	0.035	1	03/30/09	04/02/09	KWG0902636	
Phenol	0.54	0.49	0.063	1	03/30/09	04/02/09	KWG0902636	
2-Chlorophenol	ND U	0.49	0.054	1	03/30/09	04/02/09	KWG0902636	
1,3-Dichlorobenzene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
1,4-Dichlorobenzene	ND U	0.20	0.029	1	03/30/09	04/02/09	KWG0902636	
1,2-Dichlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Benzyl Alcohol	ND U	0.49	0.073	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroisopropyl) Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
2-Methylphenol	ND U	0.49	0.11	1	03/30/09	04/02/09	KWG0902636	
Hexachloroethane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodi-n-propylamine	ND U	0.20	0.037	1	03/30/09	04/02/09	KWG0902636	
4-Methylphenol†	ND U	0.49	0.12	1	03/30/09	04/02/09	KWG0902636	
Nitrobenzene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Isophorone	ND Ui	0.28	0.28	1	03/30/09	04/02/09	KWG0902636	
2-Nitrophenol	ND U	0.49	0.063	1	03/30/09	04/02/09	KWG0902636	
2,4-Dimethylphenol	ND U	3.9	2.2	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroethoxy)methane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
2,4-Dichlorophenol	ND U	0.49	0.047	1	03/30/09	04/02/09	KWG0902636	
Benzoic Acid	2.3 J	4.9	1.1	1	03/30/09	04/02/09	KWG0902636	
1,2,4-Trichlorobenzene	ND U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
Naphthalene	ND U	, 0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
4-Chloroaniline	ND U	0.20	0.025	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobutadiene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chloro-3-methylphenol	ND U	0.49	0.037	1	03/30/09	04/02/09	KWG0902636	
2-Methylnaphthalene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorocyclopentadiene	ND U	0.98	0.19	1	03/30/09	04/02/09	KWG0902636	
2,4,6-Trichlorophenol	ND U	0.49	0.058	1	03/30/09	04/02/09	KWG0902636	
2,4,5-Trichlorophenol	ND U	0.49	0.031	1	03/30/09	04/02/09	KWG0902636	
2-Chloronaphthalene	ND U	0.20	0.041	1	03/30/09	04/02/09	KWG0902636	
2-Nitroaniline	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Acenaphthylene	0.10 J	0.20	0.015	1	03/30/09	04/02/09	KWG0902636	
Dimethyl Phthalate	0.075 J	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
2,6-Dinitrotoluene	ND U	0.20	0.033	1	03/30/09	04/02/09	KWG0902636	
Acenaphthene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	

Comments:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522 **Date Collected:** 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095375

Lab Code:

K0902522-005

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND U	0.98	0.029	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrophenol	ND U	3.9	0.17	1	03/30/09	04/02/09	KWG0902636	
Dibenzofuran	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
4-Nitrophenol	ND U	2.0	0.28	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrotoluene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Fluorene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chlorophenyl Phenyl Ether	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
Diethyl Phthalate	0.12 J	0.20	0.012	1	03/30/09	04/02/09	KWG0902636	
4-Nitroaniline	ND U	0.98	0.019	1	03/30/09	04/02/09	KWG0902636	
2-Methyl-4,6-dinitrophenol	ND U	2.0	0.025	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodiphenylamine	ND U	0.20	0.048	1	03/30/09	04/02/09	KWG0902636	
4-Bromophenyl Phenyl Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Pentachlorophenol	0.70 J	0.98	0.34	1	03/30/09	04/02/09	KWG0902636	
Phenanthrene	0.092 J	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Anthracene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Di-n-butyl Phthalate	ND U	0.20	0.023	1	03/30/09	04/02/09	KWG0902636	
Fluoranthene	0.13 J	0.20	0.020	1	03/30/09	04/02/09	KWG0902636	
Pyrene	0.13 J	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	
Butyl Benzyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
3,3'-Dichlorobenzidine	ND U	2.0	0.43	1	03/30/09	04/02/09	KWG0902636	
Benz(a)anthracene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Chrysene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Bis(2-ethylhexyl) Phthalate	3.1	0.98	0.13	1	03/30/09	04/02/09	KWG0902636	
Di-n-octyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Benzo(b)fluoranthene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(k)fluoranthene	ND U	0.20	0.024	i	03/30/09	04/02/09	KWG0902636	
Benzo(a)pyrene	ND U	0.20	0.031	1	03/30/09	04/02/09	KWG0902636	
Indeno(1,2,3-cd)pyrene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
Dibenz(a,h)anthracene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(g,h,i)perylene	ND U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	

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Form 1A - Organic 30

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095375

Lab Code:

K0902522-005

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	62	21-119	04/02/09	Acceptable
Phenol-d6	66	31-121	04/02/09	Acceptable
Nitrobenzene-d5	70	29-121	04/02/09	Acceptable
2-Fluorobiphenyl	68	25-109	04/02/09	Acceptable
2,4,6-Tribromophenol	93	30-131	04/02/09	Acceptable
Terphenyl-d14	51	20-140	04/02/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 31

Page 3 of 3

SuperSet Reference: RR100571

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095376

Lab Code:

K0902522-006

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND U	0.20	0.035	1	03/30/09	04/02/09	KWG0902636	and the same of th
Phenol	0.76	0.50	0.063	1	03/30/09	04/02/09	KWG0902636	
2-Chlorophenol	ND U	0.50	0.054	1	03/30/09	04/02/09	KWG0902636	
1,3-Dichlorobenzene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
1,4-Dichlorobenzene	ND U	0.20	0.029	1	03/30/09	04/02/09	KWG0902636	
1,2-Dichlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Benzyl Alcohol	ND U	0.50	0.073	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroisopropyl) Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
2-Methylphenol	ND U	0.50	0.11	1	03/30/09	04/02/09	KWG0902636	
Hexachloroethane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodi-n-propylamine	ND U	0.20	0.037	1	03/30/09	04/02/09	KWG0902636	
4-Methylphenol†	ND U	0.50	0.12	1	03/30/09	04/02/09	KWG0902636	
Nitrobenzene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Isophorone	ND U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
2-Nitrophenol	ND U	0.50	0.063	1	03/30/09	04/02/09	KWG0902636	
2,4-Dimethylphenol	ND U	4.0	2.2	1	03/30/09	04/02/09.	KWG0902636	
Bis(2-chloroethoxy)methane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
2,4-Dichlorophenol	ND U	0.50	0.047	1	03/30/09	04/02/09	KWG0902636	
Benzoic Acid	2.7 J	5.0	1.1	1	03/30/09	04/02/09	KWG0902636	
1,2,4-Trichlorobenzene	ND U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
Naphthalene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
4-Chloroaniline	ND U	0.20	0.025	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobutadiene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chloro-3-methylphenol	ND U	0.50	0.037	1	03/30/09	04/02/09	KWG0902636	
2-Methylnaphthalene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorocyclopentadiene	ND U	1.0	0.19	1	03/30/09	04/02/09	KWG0902636	
2,4,6-Trichlorophenol	ND U	0.50	0.058	1	03/30/09	04/02/09	KWG0902636	
2,4,5-Trichlorophenol	ND U	0.50	0.031	1	03/30/09	04/02/09	KWG0902636	
2-Chloronaphthalene	ND U	0.20	0.041	1	03/30/09	04/02/09	KWG0902636	
2-Nitroaniline	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Acenaphthylene	ND U	0.20	0.015	1	03/30/09	04/02/09	KWG0902636	
Dimethyl Phthalate	0.097 J	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
2,6-Dinitrotoluene	ND U	0.20	0.033	1	03/30/09	04/02/09	KWG0902636	
Acenaphthene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	

Comments:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095376

Lab Code:

K0902522-006

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND U	1.0	0.029	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrophenol	ND U	4.0	0.17	1	03/30/09	04/02/09	KWG0902636	
Dibenzofuran	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
4-Nitrophenol	ND U	2.0	0.28	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrotoluene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Fluorene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chlorophenyl Phenyl Ether	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
Diethyl Phthalate	0.23	0.20	0.012	1	03/30/09	04/02/09	KWG0902636	
4-Nitroaniline	ND U	1.0	0.019	1	03/30/09	04/02/09	KWG0902636	
2-Methyl-4,6-dinitrophenol	ND U	2.0	0.025	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodiphenylamine	ND U	0.20	0.048	1	03/30/09	04/02/09	KWG0902636	
4-Bromophenyl Phenyl Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Pentachlorophenol	0.86 J	1.0	0.34	1	03/30/09	04/02/09	KWG0902636	
Phenanthrene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Anthracene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Di-n-butyl Phthalate	ND U	0.20	0.023	× 1	03/30/09	04/02/09	KWG0902636	
Fluoranthene	ND U	0.20	0.020	1	03/30/09	04/02/09	KWG0902636	
Pyrene	ND U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	
Butyl Benzyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
3,3'-Dichlorobenzidine	ND U	2.0	0.43	1	03/30/09	04/02/09	KWG0902636	
Benz(a)anthracene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Chrysene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Bis(2-ethylhexyl) Phthalate	1.1	1.0	0.13	1	03/30/09	04/02/09	KWG0902636	
Di-n-octyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Benzo(b)fluoranthene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(k)fluoranthene	ND U	0.20	0.024	Ĩ	03/30/09	04/02/09	KWG0902636	
Benzo(a)pyrene	ND U	0.20	0.031	1	03/30/09	04/02/09	KWG0902636	
Indeno(1,2,3-cd)pyrene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
Dibenz(a,h)anthracene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(g,h,i)perylene	ND U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	

Comments:	
COMMINICATION	

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009 **Date Received:** 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095376

Lab Code:

K0902522-006

Units: ug/L Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	69	21-119	04/02/09	Acceptable
Phenol-d6	71	31-121	04/02/09	Acceptable
Nitrobenzene-d5	75	29-121	04/02/09	Acceptable
2-Fluorobiphenyl	64	25-109	04/02/09	Acceptable
2,4,6-Tribromophenol	91	30-131	04/02/09	Acceptable
Terphenyl-d14	16	20-140	04/02/09	Outside Control Limits

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference: RR100571

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/23/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095377

Lab Code:

K0902522-007

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.21	0.037	1	03/30/09	04/08/09	KWG0902636	MOONING TO SHARE
Phenol	ND	U	0.53	0.066	1	03/30/09	04/08/09	KWG0902636	
2-Chlorophenol	ND	U	0.53	0.057	1	03/30/09	04/08/09	KWG0902636	
1,3-Dichlorobenzene	ND	U	0.21	0.022	1	03/30/09	04/08/09	KWG0902636	
1,4-Dichlorobenzene	ND	U	0.21	0.031	1	03/30/09	04/08/09	KWG0902636	
1,2-Dichlorobenzene	ND	U	0.21	0.023	1	03/30/09	04/08/09	KWG0902636	
Benzyl Alcohol	ND		0.53	0.077	1	03/30/09	04/08/09	KWG0902636	
Bis(2-chloroisopropyl) Ether	ND	U	0.21	0.028	1	03/30/09	04/08/09	KWG0902636	
2-Methylphenol	ND	U	0.53	0.12	1	03/30/09	04/08/09	KWG0902636	
Hexachloroethane	ND	U	0.21	0.025	1	03/30/09	04/08/09	KWG0902636	
N-Nitrosodi-n-propylamine		U	0.21	0.039	1	03/30/09	04/08/09	KWG0902636	
4-Methylphenol†	ND	U	0.53	0.13	1	03/30/09	04/08/09	KWG0902636	
Nitrobenzene	ND		0.21	0.030	1	03/30/09	04/08/09	KWG0902636	
Isophorone	ND		0.21	0.017	1	03/30/09	04/08/09	KWG0902636	
2-Nitrophenol	ND	U	0.53	0.066	1	03/30/09	04/08/09	KWG0902636	
2,4-Dimethylphenol	ND	U	4.2	2.3	1	03/30/09	04/08/09	KWG0902636	
Bis(2-chloroethoxy)methane	ND		0.21	0.025	1	03/30/09	04/08/09	KWG0902636	
2,4-Dichlorophenol	ND	U	0.53	0.049	1	03/30/09	04/08/09	KWG0902636	
Benzoic Acid	ND		5.3	1.2	1	03/30/09	04/08/09	KWG0902636	
1,2,4-Trichlorobenzene	ND		0.21	0.017	1	03/30/09	04/08/09	KWG0902636	
Naphthalene	ND	U	0.21	0.023	1	03/30/09	04/08/09	KWG0902636	
4-Chloroaniline	ND		0.21	0.027	1	03/30/09	04/08/09	KWG0902636	
Hexachlorobutadiene		U	0.21	0.029	1	03/30/09	04/08/09	KWG0902636	
4-Chloro-3-methylphenol	ND	U	0.53	0.039	1	03/30/09	04/08/09	KWG0902636	
2-Methylnaphthalene	ND		0.21	0.028	1	03/30/09	04/08/09	KWG0902636	
Hexachlorocyclopentadiene	ND		1.1	0.20	1	03/30/09	04/08/09	KWG0902636	
2,4,6-Trichlorophenol	ND	U	0.53	0.061	1	03/30/09	04/08/09	KWG0902636	
2,4,5-Trichlorophenol	ND	U	0.53	0.033	1	03/30/09	04/08/09	KWG0902636	
2-Chloronaphthalene	ND		0.21	0.043	1	03/30/09	04/08/09	KWG0902636	
2-Nitroaniline	ND	U	0.21	0.025	1	03/30/09	04/08/09	KWG0902636	
Acenaphthylene		U	0.21	0.016	1	03/30/09	04/08/09	KWG0902636	
Dimethyl Phthalate		U	0.21	0.022	1	03/30/09	04/08/09	KWG0902636	
2,6-Dinitrotoluene	ND	U	0.21	0.035	1	03/30/09	04/08/09	KWG0902636	
Acenaphthene	ND	U	0.21	0.028	1	03/30/09	04/08/09	KWG0902636	

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Comments:

Form 1A - Organic

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Page 1 of 3

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095377

Lab Code:

K0902522-007

Extraction Method:
Analysis Method:

EPA 3520C 8270C Units: ug/L Basis: NA

1171

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND U	1.1	0.031	1	03/30/09	04/08/09	KWG0902636	***************************************
2,4-Dinitrophenol	ND U	4.2	0.18	1	03/30/09	04/08/09	KWG0902636	
Dibenzofuran	ND U	0.21	0.019	1	03/30/09	04/08/09	KWG0902636	
4-Nitrophenol	ND U	2.1	0.30	1	03/30/09	04/08/09	KWG0902636	
2,4-Dinitrotoluene	ND U	0.21	0.019	1	03/30/09	04/08/09	KWG0902636	
Fluorene	ND U	0.21	0.029	1	03/30/09	04/08/09	KWG0902636	
4-Chlorophenyl Phenyl Ether	ND U	0.21	0.029	1	03/30/09	04/08/09	KWG0902636	
Diethyl Phthalate	0.041 J	0.21	0.013	1	03/30/09	04/08/09	KWG0902636	
4-Nitroaniline	ND U	1.1	0.020	1	03/30/09	04/08/09	KWG0902636	
2-Methyl-4,6-dinitrophenol	ND U	2.1	0.027	1	03/30/09	04/08/09	KWG0902636	
N-Nitrosodiphenylamine	ND U	0.21	0.050	1	03/30/09	04/08/09	KWG0902636	
4-Bromophenyl Phenyl Ether	ND U	0.21	0.028	1	03/30/09	04/08/09	KWG0902636	
Hexachlorobenzene	ND U	0.21	0.023	1	03/30/09	04/08/09	KWG0902636	
Pentachlorophenol	ND U	1.1	0.36	1	03/30/09	04/08/09	KWG0902636	
Phenanthrene	ND U	0.21	0.023	1	03/30/09	04/08/09	KWG0902636	
Anthracene	ND U	0.21	0.025	1	03/30/09	04/08/09	KWG0902636	
Di-n-butyl Phthalate	0.034 J	0.21	0.024	1	03/30/09	04/08/09	KWG0902636	
Fluoranthene	ND U	0.21	0.021	1	03/30/09	04/08/09	KWG0902636	
Pyrene	ND U	0.21	0.020	1	03/30/09	04/08/09	KWG0902636	
Butyl Benzyl Phthalate	ND U	0.21	0.019	1	03/30/09	04/08/09	KWG0902636	
3,3'-Dichlorobenzidine	ND U	2.1	0.45	1	03/30/09	04/08/09	KWG0902636	
Benz(a)anthracene	ND U	0.21	0.019	1	03/30/09	04/08/09	KWG0902636	
Chrysene	ND U	0.21	0.030	1	03/30/09	04/08/09	KWG0902636	
Bis(2-ethylhexyl) Phthalate	ND U	1.1	0.14	1	03/30/09	04/08/09	KWG0902636	
Di-n-octyl Phthalate	ND U	0.21	0.019	1	03/30/09	04/08/09	KWG0902636	
Benzo(b)fluoranthene	ND U	0.21	0.018	1	03/30/09	04/08/09	KWG0902636	
Benzo(k)fluoranthene	ND U	0.21	0.025	l	03/30/09	04/08/09	KWG0902636	
Benzo(a)pyrene	ND U	0.21	0.033	1	03/30/09	04/08/09	KWG0902636	
Indeno(1,2,3-cd)pyrene	ND U	0.21	0.022	1	03/30/09	04/08/09	KWG0902636	
Dibenz(a,h)anthracene	ND U	0.21	0.018	1	03/30/09	04/08/09	KWG0902636	
Benzo(g,h,i)perylene	ND U	0.21	0.020	1	03/30/09	04/08/09	KWG0902636	

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: 03/23/2009

Date Received: 03/24/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095377

Lab Code:

K0902522-007

Units: ug/L

Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	68	21-119	04/08/09	Acceptable	***************************************
Phenol-d6	75	31-121	04/08/09	Acceptable	
Nitrobenzene-d5	92	29-121	04/08/09	Acceptable	
2-Fluorobiphenyl	80	25-109	04/08/09	Acceptable	
2,4,6-Tribromophenol	80	30-131	04/08/09	Acceptable	
Terphenyl-d14	99	20-140	04/08/09	Acceptable	

Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 37

SuperSet Reference: RR100571

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: NA Date Received: NA

Units: ug/L

Extraction

Basis: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0902636-3

Extraction Method:

Analysis Method: 8270C

EPA 3520C Level: Low

Dilution

Date

Date

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	0.20	0.035	1	03/30/09	04/02/09	KWG0902636	-
Phenol	0.27 J	0.49	0.063	1	03/30/09	04/02/09	KWG0902636	
2-Chlorophenol	ND U	0.49	0.054	1	03/30/09	04/02/09	KWG0902636	
1,3-Dichlorobenzene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
1,4-Dichlorobenzene	ND U	0.20	0.029	1	03/30/09	04/02/09	KWG0902636	
1,2-Dichlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Benzyl Alcohol	ND U	0.49	0.073	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroisopropyl) Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
2-Methylphenol	ND U	0.49	0.11	1	03/30/09	04/02/09	KWG0902636	
Hexachloroethane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodi-n-propylamine	ND U	0.20	0.037	1	03/30/09	04/02/09	KWG0902636	
4-Methylphenol†	ND U	0.49	0.12	1	03/30/09	04/02/09	KWG0902636	
Nitrobenzene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Isophorone	ND U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
2-Nitrophenol	ND U	0.49	0.063	1	03/30/09	04/02/09	KWG0902636	
2,4-Dimethylphenol	ND U	3.9	2.2	1	03/30/09	04/02/09	KWG0902636	
Bis(2-chloroethoxy)methane	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
2,4-Dichlorophenol	ND U	0.49	0.047	1	03/30/09	04/02/09	KWG0902636	
Benzoic Acid	ND U	4.9	1.1	1	03/30/09	04/02/09	KWG0902636	
1,2,4-Trichlorobenzene	ND U	0.20	0.016	1	03/30/09	04/02/09	KWG0902636	
Naphthalene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
4-Chloroaniline	ND U	0.20	0.025	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobutadiene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
4-Chloro-3-methylphenol	ND U	0.49	0.037	1	03/30/09	04/02/09	KWG0902636	
2-Methylnaphthalene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorocyclopentadiene	ND U	0.98	0.19	1	03/30/09	04/02/09	KWG0902636	
2,4,6-Trichlorophenol	ND U	0.49	0.058	1	03/30/09	04/02/09	KWG0902636	
2,4,5-Trichlorophenol	ND U	0.49	0.031	1	03/30/09	04/02/09	KWG0902636	
2-Chloronaphthalene	ND U	0.20	0.041	1	03/30/09	04/02/09	KWG0902636	
2-Nitroaniline	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Acenaphthylene	ND U	0.20	0.015	1	03/30/09	04/02/09	KWG0902636	
Dimethyl Phthalate	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
2,6-Dinitrotoluene	ND U	0.20	0.033	1	03/30/09	04/02/09	KWG0902636	
Acenaphthene	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	

Comment	-

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0902636-3

Extraction Method:

EPA 3520C

Analysis Method:

8270C

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND U	0.98	0.029	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrophenol	ND U	3.9	0.17	1	03/30/09	04/02/09	KWG0902636	
Dibenzofuran	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
4-Nitrophenol	ND U	2.0	0.28	1	03/30/09	04/02/09	KWG0902636	
2,4-Dinitrotoluene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Fluorene	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	***************************************
4-Chlorophenyl Phenyl Ether	ND U	0.20	0.027	1	03/30/09	04/02/09	KWG0902636	
Diethyl Phthalate	ND U	0.20	0.012	1	03/30/09	04/02/09	KWG0902636	
4-Nitroaniline	ND U	0.98	0.019	1	03/30/09	04/02/09	KWG0902636	
2-Methyl-4,6-dinitrophenol	ND U	2.0	0.025	1	03/30/09	04/02/09	KWG0902636	
N-Nitrosodiphenylamine	ND U	0.20	0.048	1	03/30/09	04/02/09	KWG0902636	
4-Bromophenyl Phenyl Ether	ND U	0.20	0.026	1	03/30/09	04/02/09	KWG0902636	
Hexachlorobenzene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Pentachlorophenol	ND U	0.98	0.34	1	03/30/09	04/02/09	KWG0902636	
Phenanthrene	ND U	0.20	0.022	1	03/30/09	04/02/09	KWG0902636	
Anthracene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Di-n-butyl Phthalate	0.025 J	0.20	0.023	1	03/30/09	04/02/09	KWG0902636	
Fluoranthene	ND U	0.20	0.020	1	03/30/09	04/02/09	KWG0902636	
Pyrene	ND U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	
Butyl Benzyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
3,3'-Dichlorobenzidine	ND U	2.0	0.43	1	03/30/09	04/02/09	KWG0902636	
Benz(a)anthracene	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Chrysene	ND U	0.20	0.028	1	03/30/09	04/02/09	KWG0902636	
Bis(2-ethylhexyl) Phthalate	ND U	0.98	0.13	1	03/30/09	04/02/09	KWG0902636	
Di-n-octyl Phthalate	ND U	0.20	0.018	1	03/30/09	04/02/09	KWG0902636	
Benzo(b)fluoranthene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(k)fluoranthene	ND U	0.20	0.024	1	03/30/09	04/02/09	KWG0902636	
Benzo(a)pyrene	ND U	0.20	0.031	1	03/30/09	04/02/09	KWG0902636	
Indeno(1,2,3-cd)pyrene	ND U	0.20	0.021	1	03/30/09	04/02/09	KWG0902636	
Dibenz(a,h)anthracene	ND U	0.20	0.017	1	03/30/09	04/02/09	KWG0902636	
Benzo(g,h,i)perylene	ND U	0.20	0.019	1	03/30/09	04/02/09	KWG0902636	

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RR100571

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Date Collected: NA

Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

Method Blank

KWG0902636-3

Basis: NA

Units: ug/L

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	79	21-119	04/02/09	Acceptable
Phenol-d6	77	31-121	04/02/09	Acceptable
Nitrobenzene-d5	84	29-121	04/02/09	Acceptable
2-Fluorobiphenyl	79	25-109	04/02/09	Acceptable
2,4,6-Tribromophenol	88	30-131	04/02/09	Acceptable
Terphenyl-d14	104	20-140	04/02/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 40

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SuperSet Reference: RR100571

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

8270C

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4	Sur5	Sur6
FO 095371	K0902522-001	72	80	79	83	119	62
FO 095372	K0902522-002	74	70	79	73	97	63
FO 095373	K0902522-003	67	71	73	58	88	33
FO 095374	K0902522-004	79	87	87	72	96	55
FO 095375	K0902522-005	62	66	70	68	93	51
FO 095376	K0902522-006	69	71	75	64	91	16 *
FO 095377	K0902522-007	68	75	92	80	80	99
Method Blank	KWG0902636-3	79	77	84	79	88	104
Lab Control Sample	KWG0902636-1	72	75	80	76	92	99
Duplicate Lab Control Sample	KWG0902636-2	75	75	79	78	94	101

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	21-119	Sur5 = 2,4,6-Tribromophenol	30-131
Sur2 = Phenol-d6	31-121	Sur6 = Terphenyl-d14	20-140
Sur3 = Nitrobenzene-d5	29-121	1	
Sur4 = 2-Fluorobiphenyl	25-109		

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Printed: 04/09/2009 14:30:19 $u:\Stealth\Crystal.rpt\Form2.rpt$

QA/QC Report

Client: Portland, City of

Project: Portland Harbor Stormwater

8270C

Sample Matrix: Water Service Request: K0902522 **Date Extracted:** 03/30/2009

Date Analyzed: 04/02/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

Units: ug/L Basis: NA

Level: Low

Extraction Lot: KWG0902636

Lab Control Sample KWG0902636-1

Duplicate Lab Control Sample KWG0902636-2

		Control Spik	e		Lab Control	Spike	%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Bis(2-chloroethyl) Ether	3.80	5.00	76	3.79	5.00	76	39-115	0	30
Phenol	3.89	5.00	78	3.95	5.00	79	39-117	2	30
2-Chlorophenol	4.00	5.00	80	3.93	5.00	79	40-113	2	30
1,3-Dichlorobenzene	2.41	5.00	48	2.42	5.00	48	18-71	1	30
1,4-Dichlorobenzene	2.39	5.00	48	2.44	5.00	49	19-73	2	30
1,2-Dichlorobenzene	2.59	5.00	52	2.52	5.00	50	22-78	3	30
Benzyl Alcohol	4.41	5.00	88	4.28	5.00	86	37-119	3	30
Bis(2-chloroisopropyl) Ether	3.43	5.00	69	3.29	5.00	66	35-113	4	30
2-Methylphenol	3.88	5.00	78	3.50	5.00	70	26-113	10	30
Hexachloroethane	1.77	5.00	35	2.02	5.00	40	11-62	13	30
N-Nitrosodi-n-propylamine	4.06	5.00	81	3.83	5.00	77	32-117	6	30
4-Methylphenol	3.88	5.00	78	3.72	5.00	74	25-118	4	30
Nitrobenzene	3.97	5.00	79	3.82	5.00	76	37-116	4	30
Sophorone	4.07	5.00	81	3.95	5.00	79	39-112	3	30
2-Nitrophenol	4.48	5.00	90	4.50	5.00	90	42-116	0	30
2,4-Dimethylphenol	3.67	5.00	73	2.85	5.00	57	10-113	25	30
Bis(2-chloroethoxy)methane	4.07	5.00	81	3.92	5.00	78	40-113	4	30
2,4-Dichlorophenol	4.66	5.00	93	4.49	5.00	90	39-115	4	30
Benzoic Acid	7.99	15.0	53	6.74	15.0	45	10-102	17	30
1,2,4-Trichlorobenzene	2.81	5.00	56	2.84	5.00	57	21-78	1	30
Naphthalene	3.55	5.00	71	3,46	5.00	69	33-98	3	30
4-Chloroaniline	4.08	5.00	82	4.02	5.00	80	10-119	1	30
Hexachlorobutadiene	2.05	5.00	41	2.14	5.00	43	10-61	4	30
4-Chloro-3-methylphenol	4.19	5.00	84	4.18	5.00	84	37-119	0	30
2-Methylnaphthalene	3.57	5.00	71	3.45	5.00	69	32-95	4	30
Hexachlorocyclopentadiene	1.01	5.00	20	0.998	5.00	20	10-39	1	30
2,4,6-Trichlorophenol	4.40	5.00	88	4.51	5.00	90	40-117	3	30
2,4,5-Trichlorophenol	4.53	5.00	91	4.52	5.00	90	44-116	0	30
2-Chloronaphthalene	3.56	5.00	71	3.46	5.00	69	21-115	3	30
2-Nitroaniline	4.06	5.00	81	4.22	5.00	84	43-124	4	30
Acenaphthylene	4.02	5.00	80	4.19	5.00	84	41-114	4	30
Dimethyl Phthalate	4.27	5.00	85	4.52	5.00	90	47-117	6	30
2,6-Dinitrotoluene	4.54	5.00	91	4.59	5.00	92	45-120	1	30
Acenaphthene	3.93	5.00	79	4.14	5.00	83	38-106	5	30
3-Nitroaniline	4.30	5.00	86	4.61	5.00	92	31-125	7	30
2,4-Dinitrophenol	2.82	5.00	56	2.61	5.00	52	10-121	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Form 3C - Organic Printed: 04/09/2009 14:30:23 Page 1 of 2 $u:\Stealth\Crystal.rpt\Form3DLC.rpt$ RR100571 42 SuperSet Reference:

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Stormwater

Sample Matrix:

Water

Service Request: K0902522 **Date Extracted:** 03/30/2009

Date Analyzed: 04/02/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C

Analysis Method:

8270C

Units: ug/L

Basis: NA Level: Low

Extraction Lot: KWG0902636

Lab Control Sample KWG0902636-1

Duplicate Lab Control Sample KWG0902636-2

		Control Spik	e		Lab Control	Spike	%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Dibenzofuran	3.84	5.00	77	4.10	5.00	82	40-107	6	30
4-Nitrophenol	4.19	5.00	84	4.43	5.00	89	43-133	6	30
2,4-Dinitrotoluene	4.39	5.00	88	4.67	5.00	93	47-125	6	30
Fluorene	4.07	5.00	81	4.35	5.00	87	40-112	7	30
4-Chlorophenyl Phenyl Ether	3.83	5.00	77	3.97	5.00	79	39-108	4	30
Diethyl Phthalate	4.44	5.00	89	4.49	5.00	90	47-120	1	30
4-Nitroaniline	4.33	5.00	87	4.53	5.00	91	36-128	5	30
2-Methyl-4,6-dinitrophenol	3.72	5.00	74	3.46	5.00	69	19-127	7	30
N-Nitrosodiphenylamine	4.12	5.00	82	4.30	5.00	86	36-114	4	30
4-Bromophenyl Phenyl Ether	4.33	5.00	87	4.21	5.00	84	43-110	3	30
Hexachlorobenzene	4.15	5.00	83	4.18	5.00	84	42-107	1	30
Pentachlorophenol	4.37	5.00	87	4.33	5.00	87	28-114	1	30
Phenanthrene	4.07	5.00	81	4.11	5.00	82	43-110	1	30
Anthracene	4.10	5.00	82	4.16	5.00	83	40-110	2	30
Di-n-butyl Phthalate	4.44	5.00	89	4.49	5.00	90	45-135	1	30
Fluoranthene	4.36	5.00	87	4.43	5.00	89	42-119	2	30
Pyrene	4.15	5.00	83	4.21	5.00	84	43-118	2	30
Butyl Benzyl Phthalate	4.30	5.00	86	4.29	5.00	86	48-124	0	30
3,3'-Dichlorobenzidine	4.10	5.00	82	3.99	5.00	80	15-108	3	30
Benz(a)anthracene	4.15	5.00	83	4.19	5.00	84	45-112	1	30
Chrysene	4.03	5.00	81	4.12	5.00	82	47-112	2	30
Bis(2-ethylhexyl) Phthalate	4.27	5.00	85	4.27	5.00	85	32-149	0	30
Di-n-octyl Phthalate	4.20	5.00	84	4.22	5.00	84	49-127	1	30
Benzo(b)fluoranthene	4.16	5.00	83	4.22	5.00	84	45-115	1	30
Benzo(k)fluoranthene	3.97	5.00	79	4.18	5.00	84	46-115	5	30
Benzo(a)pyrene	3.86	5.00	77	3.92	5.00	78	40-117	1	30
Indeno(1,2,3-cd)pyrene	4.24	5.00	85	4.31	5.00	86 .	44-119	1	30
Dibenz(a,h)anthracene	4.13	5.00	83	4.13	5.00	83	45-118	0	30
Benzo(g,h,i)perylene	4.07	5.00	81	4.16	5.00	83	45-116	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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An Employee - Owned Company	Columbia Analytical Services **c	CON 100
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CHAIN OF CUSTODY

1 OF 1 COC#

An Employee - Owned Company 131	17 South 13th Ave. • Kelso, WA 98626	1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (3	FAX (360) 636-1068 PAGEOF	COC #
PROJECT NAME Y DY HOLD A H	tarborstormater			
PROJECT MANAGER JONNIKOSI	rechelford	BTE	S NO	TOC. 506
COMPANY/ADDRESS	Portland	1664	POJ. F	350
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PHONE #	FAX#	Olatile Orga 826 Parboil Fing HCID rease 4 HE	Pheno Tetr 831 Total belo ROD COL	
SAMPLER'S SIGNATURE		emive 625 [Dlatile Vdrocas [] Fuel NW-1 166 28's	AHS Petals, Co.	
SAMPLE I.D. DATE	TIME LAB I.D. MATRIX	0 V8/HG/5/0 PA	60 CTrl P. MSS C) PI NI	/ / REMARKS
FO 095371 31369	248 W 248			
F0 095372	1330 W	×		
F0095373	14S9 W 924	X		
FO 095374	1327 W 2	×		
F009S375	1402 W W	X		
FO 095376	£ £	+		
F0 095377 V	1432 W D	*		
Colonia de la co				
REPORT REQUIREMENTS	P.O. #	Circle which metals are to be analyzed:		
✓ I. Routine Report: Method Blank, Surrogate, as	Bill To:	Al As Sb Ba Be B Ca	Pb Mg Mn Mo N K	Na Se Sr TI Sn V Zn
		TE HYDROCABBON	HRE AK CA WI NORTHWEST	
II. Report Dup., MS, MSD as required	TURNAROUND REQUIREMENTS	SPECIAL INSTRUC	7	>
III. Data Validation Report (includes all raw data)	5 Day Standard (10-15 working days)	Pleas him low	- livel 1240 + Jose	wall fro.
IV. CLP Deliverable Report	Provide FAX Results			1830
V. EDD	Requested Report Date	. #		
ED B			RELINQUISHED BY:	RECEIVED BY: 1360
	Signature	Date/Lime Signature.	Date Time Signature	Bate/Time
ame Cata	TO Kund		Bining	
	2000	A CAMPAGE AND A		

Columbia Analytical Services, Inc. Cooler Receipt and Preservation Form

PC	P	J.

Client / Project: City of	odland	1		_Service	Reque	st <i>K09 () &</i>	2520		
Received: 3-24-09	Opened:_	3240	<u>1</u> B:	y:	<u>J</u>				
 Samples were received via? Samples were received in: (circle Were <u>custody seals</u> on coolers? 	US Mail		Envel	оре	Other_	GS PDX		er Hand De	livered
If present, were custody seals int	-	YN	•		•	ney signed an		Y	N
4. Is shipper's air-bill filed? If not,								NA Y	N
5. Temperature of cooler(s) upon Temperature Blank (°C): Thermometer ID:	receipt (°C	D):	8.0 6.7						
6. If applicable, list Chain of Custo	dy Number	s:							
7. Packing material used. <i>Inserts</i>	Baggies	Bubble Wra	p_(Gel Puc.	ks) Wet	Ice Si	leeves Othe	r•		
8. Were custody papers properly fil	led out (ink	, signed, etc.)?						NA CY	\mathcal{I}
9. Did all bottles arrive in good co	ondition (u	nbroken)? <i>In</i>	dicate in the	table bel	ow.			NA Y	N
10. Were all sample labels complete	(i.e analys:	is, preservation	i, etc.)?					NA Y) N
11. Did all sample labels and tags ag								NA Y	N
12. Were appropriate bottles/conta								NA Y) N
13. Were the pH-preserved bottles to		• •						(NA) Y	И
14. Were VOA vials and 1631 Merc	-		•				_	NA Y	Ν
15. Are CWA Microbiology sampl	es received	I with >1/2 the	24hr. hold	time rem	aining	from collecti	on?	NA	N
16. Was C12/Res negative?				****				NA Y	/ N.
Sample ID on Bottle	Samp	le ID on COC		'Sample	ID on Bo	ottle	Sa	mple ID on COC	
Sample ID	Bottle Count	1 .	Out of Head- Temp space	Broken	pH	Reagent	Volume added	Reagent Lot Number	Initials
- MI Sample									 W.V.
									1
			000,000	0.051					:
*Does not include all pH preserved sample alia Additional Notes, Discrepancies, a				J-GEN).		ž.	and the same of th	*	f
	& Resoluti	ions: (e)	a VM to	the il	zent.	seg ten	p, (0) 9!	30Am 03/2	1709
	& Resoluti	ions: leff	a VM to	the U	žent	reg ten	p, (a) 9!	30Am 08/2	709



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

April 17, 2009

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 03/24/09 12:30. The following list is a summary of the Work Orders contained in this report, generated on 04/17/09 16:45.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	<u>ProjectNumber</u>
PSC0751	Portland Harbor	36238

TestAmerica Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 04/17/09 16:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO095371	PSC0751-01	Water	03/23/09 13:48	03/24/09 12:30
FO095372	PSC0751-02	Water	03/23/09 13:30	03/24/09 12:30
FO095373	PSC0751-03	Water	03/23/09 14:59	03/24/09 12:30
FO095374	PSC0751-04	Water	03/23/09 13:22	03/24/09 12:30
FO095375	PSC0751-05	Water	03/23/09 14:02	03/24/09 12:30
FO095376	PSC0751-06	Water	03/23/09 14:14	03/24/09 12:30
FO095377	PSC0751-07	Water	03/23/09 14:32	03/24/09 12:30
FO095378	PSC0751-08	Water	03/23/09 00:00	03/24/09 12:30

TestAmerica Portland

Howard Holmes, Project Manager

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PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford04/17/09 16:45

Analytical Case Narrative

TestAmerica - Portland, OR

PSC0751

8270 SIM PDX-UIC

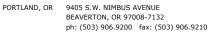
Naphthalene was detected in the Method Blank at a level > 1/2 the MRL. The save vial was analyzed with a similar result. There was no additional sample to re-extract. The data was flagged and reported.

For sample PSC0751-04 the surrgate recoveries were all above the acceptance limits. Evidence indicates that the sample was accidentally double spiked. There was no additional sample to re-extract. The data was flagged and reported.

TestAmerica Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.





City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 04/17/09 16:45

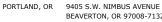
Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
		W	ater		Sampl	led: 03/23/	09 14:02		
EPA 8270m	1.41	0.506	0.962	ug/l	1x	9030837	03/26/09 11:55	03/31/09 03:39	
"	ND	0.506	0.962	"	"	"	"	"	
"	ND	0.506	0.962	"	"	"	"	"	
"	1.78	0.506	0.962	"	"	"	"	"	
"	ND	0.506	0.962	"	"	"	"	"	
"	ND	0.506	0.962	"	"	"	"	"	
"	ND	0.0192	0.0192	"	"	"	"	04/04/09 07:47	
"	ND	0.0192	0.0192	"	"	"	"	"	
"	ND	0.0192	0.0192	"	"	"	"	"	
"	0.0120	0.00962	0.00962	"	"	"	"	"	
"	0.0121	0.00962	0.00962	"	"	"	"	"	
"	0.0212	0.00962	0.00962	"	"	"	"	"	
"	0.0309	0.0192	0.0192	"	"	"	"	"	
"	0.0135	0.00962	0.00962	"	"	"	"	"	
"	0.0474	0.00962	0.00962	"	"	"	"	"	
"	ND	0.00962	0.00962	"	"	"	"	"	
"	0.0759	0.0192	0.0192	"	"	"	"	"	
"	ND	0.0192	0.0192	"	"	"	"	"	
"	0.0135	0.00962	0.00962	"	"	"	"	"	
"	0.0309	0.0192	0.0192	"	"	"	"	"	B, N1
"	0.0781	0.0192	0.0192	"	"	"	"	"	
"	0.0945	0.0192	0.0192	"	"	"	"	"	
			82.7%		25 - 125 %	"			"
			72.4%		23 - 150 %	"			"
ne-d12			68.7%		10 - 125 %	"			"
		w	ater		Sampl	led: 03/23/	09 14:14		
EPA 8270m	1.34	0.511	0.971	ug/l	1x	9030837	03/26/09 11:55	03/31/09 04:16	
"	ND	0.511	0.971	"	"	"	"	"	
"	ND	0.511	0.971	"	"	"	"	"	
"	ND	0.511	0.971	"	"	"	"	"	
"	ND	0.511	0.971	"	"	"	"	"	
"	ND	0.511	0.971	"	"	"	"	"	
"	ND	0.0194	0.0194	"	"	"	"	04/04/09 10:13	
"	ND	0.0194	0.0194	"	"	"	"	"	
	ND	0.0194	0.0194	_				,,	
	EPA 8270m "" "" "" "" "" "" "" "" "" "" "" "" ""	EPA 8270m	EPA 8270m 1.41 .	EPA 8270m 1.41 0.506 0.962 ND 0.0192 0.0192 ND 0.0192 0.0192 ND 0.0192 0.0192 ND 0.0120 0.00962	No	EPA 8270m	Nampled: 03/23/	PAR 8270m	PA 8270m

TestAmerica Portland

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Prepared



Method

Analyte

BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Analyzed

Notes

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

Result MDL*

6543 N. Burlington Ave.

Project Number: 36238

Report Created:
Portland, OR 97203

Project Manager: Jennifer Shackelford

04/17/09 16:45

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Units

Batch

MRL

Allalyte	Method									
PSC0751-06 (FO09	95376)		W	ater		Samp	led: 03/23/	09 14:14		
Benzo (a) anthracene	EPA 8270m	ND	0.00971	0.00971	ug/l	1x	9030837	03/26/09 11:55	04/04/09 10:13	
Benzo (a) pyrene	n	ND	0.00971	0.00971	"	"	"	"	"	
Benzo (b) fluoranthene	n	ND	0.00971	0.00971	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	0.0194	0.0194	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	0.00971	0.00971	"	"	"	"	"	
Chrysene	"	0.0288	0.00971	0.00971	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	0.00971	0.00971	"	"	"	"	"	
Fluoranthene	"	0.0536	0.0194	0.0194	"	"	"	"	"	
Fluorene	"	ND	0.0194	0.0194	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	0.00971	0.00971	"	"	"	"	"	
Naphthalene	"	0.0488	0.0194	0.0194	"	"	"	"	"	B, N1
Phenanthrene	"	0.0533	0.0194	0.0194	"	"	"	"	"	
Pyrene	u	0.0843	0.0194	0.0194	"	"	"	"	"	
Surrogate(s): Fluo	orene-d10			77.5%		25 - 125 %	"			"
Pvre	ene-d10			80.1%		23 - 150 %	"			"
				7.4.00%						
	zo (a) pyrene-d12			74.0%		10 - 125 %				
Benz			w	74.0% ater			led: 03/23/	09 14:32		
Benz PSC0751-07 (FO09	zo (a) pyrene-d12	0.549	0.506		ug/l		led: 03/23/ 9030837	09 14:32	03/30/09 22:12	J
Benz PSC0751-07 (FO09 Bis(2-ethylhexyl)phthala	zo (a) pyrene-d12	0.549 ND		ater		Samp			03/30/09 22:12	J
Benz	95377) te EPA 8270m		0.506	0.962	ug/l	Samp	9030837	03/26/09 11:55		J
PSC0751-07 (FO09 Bis(2-ethylhexyl)phthala Butyl benzyl phthalate Di-n-butyl phthalate	95377) te EPA 8270m	ND	0.506 0.506	0.962 0.962	ug/l	Samp	9030837	03/26/09 11:55	"	1
PSC0751-07 (FO09 Bis(2-ethylhexyl)phthala Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate	95377) te EPA 8270m	ND ND	0.506 0.506 0.506	0.962 0.962 0.962	ug/l	Samp	9030837	03/26/09 11:55	"	J
PSC0751-07 (FO09 Bis(2-ethylhexyl)phthala Butyl benzyl phthalate	95377) te EPA 8270m	ND ND ND	0.506 0.506 0.506 0.506	0.962 0.962 0.962 0.962	ug/l	Samp	9030837	03/26/09 11:55	"	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Dimethyl phthalate	95377) te EPA 8270m	ND ND ND	0.506 0.506 0.506 0.506 0.506	0.962 0.962 0.962 0.962 0.962	ug/l	Samp	9030837	03/26/09 11:55	"	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthala Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene	95377) te EPA 8270m	ND ND ND ND	0.506 0.506 0.506 0.506 0.506 0.506	0.962 0.962 0.962 0.962 0.962 0.962	ug/l	Samp	9030837	03/26/09 11:55	" " " " " " " " " " " " " " " " " " " "	1
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthylene	95377) te EPA 8270m	ND ND ND ND ND	0.506 0.506 0.506 0.506 0.506 0.506 0.0192	0.962 0.962 0.962 0.962 0.962 0.962 0.962	ug/l	Samp	9030837	03/26/09 11:55	" " " " " " " " " " " " " " " " " " " "	J
PSC0751-07 (FO09 Bis(2-ethylhexyl)phthala Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate	95377) te EPA 8270m	ND ND ND ND ND ND ND ND	0.506 0.506 0.506 0.506 0.506 0.506 0.0192 0.0192	0.962 0.962 0.962 0.962 0.962 0.962 0.0192	ug/l	Samp	9030837	03/26/09 11:55	" " " " " " " " " " " " " " " " " " " "	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthylene Anthracene	95377) te EPA 8270m	ND ND ND ND ND ND ND ND ND	0.506 0.506 0.506 0.506 0.506 0.506 0.0192 0.0192	0.962 0.962 0.962 0.962 0.962 0.962 0.0192 0.0192	ug/l	Samp	9030837	03/26/09 11:55	" " " " " " " " " " " " " " " " " " " "	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthala Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene	95377) te EPA 8270m	ND	0.506 0.506 0.506 0.506 0.506 0.506 0.0192 0.0192 0.0192 0.00962	0.962 0.962 0.962 0.962 0.962 0.962 0.0192 0.0192 0.0192 0.00962	ug/l	Samp	9030837	03/26/09 11:55	" " " " " " " " " " " " " " " " " " " "	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (b) fluoranthene	95377) te EPA 8270m	ND	0.506 0.506 0.506 0.506 0.506 0.506 0.0192 0.0192 0.0192 0.00962	0.962 0.962 0.962 0.962 0.962 0.962 0.0192 0.0192 0.0192 0.00962	ug/l	Samp	9030837	03/26/09 11:55	" " " " " " " " " " " " " " " " " " " "	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene	95377) te EPA 8270m	ND N	0.506 0.506 0.506 0.506 0.506 0.506 0.0192 0.0192 0.0192 0.00962 0.00962	0.962 0.962 0.962 0.962 0.962 0.962 0.0192 0.0192 0.0192 0.00962 0.00962	ug/l	Samp	9030837	03/26/09 11:55	" " " " " " " " " " " " " " " " " " " "	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (b) fluoranthene Benzo (ghi) perylene	95377) te EPA 8270m	ND N	0.506 0.506 0.506 0.506 0.506 0.506 0.0192 0.0192 0.0192 0.00962 0.00962 0.00962 0.0192	0.962 0.962 0.962 0.962 0.962 0.962 0.0192 0.0192 0.0192 0.00962 0.00962 0.00962	ug/l	Samp	9030837	03/26/09 11:55	" " " " " " " " " " " " " " " " " " " "	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthala Butyl benzyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Diethyl phthalate Diethyl phthalate Diethyl phthalate Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene Benzo (ghi) perylene Benzo (k) fluoranthene	95377) te EPA 8270m	ND N	0.506 0.506 0.506 0.506 0.506 0.506 0.0192 0.0192 0.0192 0.00962 0.00962 0.00962 0.00962	0.962 0.962 0.962 0.962 0.962 0.0192 0.0192 0.0192 0.00962 0.00962 0.00962 0.00962	ug/l	Samp	9030837	03/26/09 11:55	03/28/09 21:49	J
PSC0751-07 (FO09) Bis(2-ethylhexyl)phthalate Di-n-butyl phthalate Di-n-octyl phthalate Di-thyl phthalate Diethyl phthalate	95377) te EPA 8270m	ND N	0.506 0.506 0.506 0.506 0.506 0.506 0.0192 0.0192 0.0192 0.00962 0.00962 0.00962 0.00962 0.00962	0.962 0.962 0.962 0.962 0.962 0.962 0.0192 0.0192 0.00962 0.00962 0.00962 0.00962	ug/l	Samp	9030837	03/26/09 11:55	03/28/09 21:49	1

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Howard Holmes, Project Manager

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9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 04/17/09 16:45

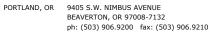
Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSC0751-07 (F	O095377)		W	ater		Samp	led: 03/23/	09 14:32		
Indeno (1,2,3-cd) pyre	ene EPA 8270n	n ND	0.00962	0.00962	ug/l	1x	9030837	03/26/09 11:55	03/28/09 21:49	
Naphthalene	"	ND	0.0192	0.0192	"	"	"	"	"	
Phenanthrene	"	ND	0.0192	0.0192	"	"	"	"	"	
Pyrene	n .	ND	0.0192	0.0192	"	"	"	"	"	
Surrogate(s):	Fluorene-d10			89.7%		25 - 125 %	"			"
Ì	Pyrene-d10			111%		23 - 150 %	"			"
Î	Benzo (a) pyrene-d12			99.3%		10 - 125 %	"			"

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.

Project Number: 36238

Report Created:
Portland, OR 97203

Project Manager: Jennifer Shackelford

04/17/09 16:45

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

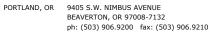
TestAmerica Portland

									٥:					
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9030837-BLK1)								Extr	acted:	03/26/09 11	:55			
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	0.526	1.00	ug/l	1x						(03/30/09 19:47	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"							"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"							"	
Diethyl phthalate	"	ND	0.526	1.00	**	"							"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"							"	
Acenaphthene	"	ND	0.0200	0.0200	"	"						(03/28/09 20:50	
Acenaphthylene	"	ND	0.0200	0.0200	"								"	
Anthracene	"	ND	0.0200	0.0200	"	"							"	
Benzo (a) anthracene	•	ND	0.0100	0.0100	"	"							"	
Benzo (a) pyrene	•	ND	0.0100	0.0100	"	"							"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	**	"							"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	**	"							"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	**	"							"	
Chrysene	"	ND	0.0100	0.0100	"								"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"								"	
Fluoranthene	"	ND	0.0200	0.0200	,,								"	
Fluorene	"	ND	0.0200	0.0200	,,								"	
Indeno (1,2,3-cd) pyrene	,,	ND	0.0100	0.0100	**	"							,,	
Naphthalene	,,	ND	0.0200	0.0200	"									ľ
Phenanthrene	,,	ND	0.0200	0.0200	"									
Pyrene	"	ND	0.0200	0.0200	"	"							"	
Surrogate(s): Fluorene-d10		Recovery:	86.0%		nits: 25-1259	% "							03/28/09 20:50	
Pyrene-d10			98.3%		23-150								"	
Benzo (a) pyrene-d12			97.8%		10-125	% "							"	
LCS (9030837-BS1)								Evtr	acted:	03/26/09 11	.55			
Bis(2-ethylhexyl)phthalate	EPA 8270m	4.75	0.526	1.00	ug/l	1x		4.00	119%	(20-150)		(03/30/09 20:23	
Butyl benzyl phthalate	"	4.53	0.526	1.00	"	"		"	113%	"			"	
Di-n-butyl phthalate	,,	3.59	0.526	1.00	,,			,,	89.9%				,,	
Di-n-octyl phthalate	"	5.23	0.526	1.00	,,	,,		,,	131%				,,	
Diethyl phthalate	,,	3.25	0.526	1.00	,,		-	,,	81.3%	,			,,	
Dimethyl phthalate	,,	3.23	0.526	1.00	,,	,,		,,	81.8%	,,	-		"	
Acenaphthene	,,	2.54	0.0200	0.0200	,,	,,		2.50	102%	(35-120)			03/28/09 21:20	
-	,,		0.0200	0.0200	,,	,		2.50				'	U3/28/U7 21.2U	
Acenaphthylene		2.53			,,			,,	101%	(34-116)			,,	
Anthracene		2.42	0.0200	0.0200				"	96.9%	(24-119)				
Benzo (a) anthracene		2.53	0.0100	0.0100				"	101%	(36-128)				
Benzo (a) pyrene	"	2.59	0.0100	0.0100	"	"			104%	(17-128)			"	
Benzo (b) fluoranthene	"	2.41	0.0100	0.0100	"	"		"	96.3%	(37-131)			"	

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Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 04/17/09 16:45

${\bf Polynuclear\ Aromatic\ Compounds\ per\ EPA\ 8270M-SIM\ -\ Laboratory\ Quality\ Control\ Results}$

TestAmerica Portland

QC Batch: 9030837	Water F	reparation	n Method:	3520B Liq-	Liq									
Analyte	Method	Result	MDL ³	MRL	Units	Dil	Source Result	Spike Amt	e % REC	(Limits)	% RPD	(Limits)) Analyzed	Notes
LCS (9030837-BS1)								Ext	racted:	03/26/09 11	:55			
Benzo (ghi) perylene	EPA 8270m	2.48	0.0200	0.0200	ug/l	1x		2.50	99.4%	(26-126)			03/28/09 21:20	
Benzo (k) fluoranthene	"	2.31	0.0100	0.0100	"	"		"	92.6%	(18-145)			"	
Chrysene	"	2.59	0.0100	0.0100	"	"		"	104%	(16-137)			"	
Dibenzo (a,h) anthracene	"	2.67	0.0100	0.0100	"	"		"	107%	(20-141)			"	
Fluoranthene	"	2.41	0.0200	0.0200	"	"		"	96.5%	(31-125)			"	
Fluorene	"	2.47	0.0200	0.0200	"	"		"	98.9%	(27-124)			"	
Indeno (1,2,3-cd) pyrene	"	2.60	0.0100	0.0100	"	"		"	104%	(30-135)			"	
Naphthalene	"	2.45	0.0200	0.0200	"	"		"	97.8%	(30-113)			"	В1
Phenanthrene	"	2.45	0.0200	0.0200	"	"		"	98.1%	(34-126)			"	
Pyrene	"	2.68	0.0200	0.0200	"	"		"	107%	(21-141)			"	
Surrogate(s): Fluorene-d10		Recovery:	92.6%	Lii	nits: 25-125	% "							03/28/09 21:20	
Pyrene-d10			109%		23-150	0% "							"	
Benzo (a) pyrene-	·d12		105%		10-12:	5% "							"	
Matrix Spike (9030837-MS1)			OC Source	: PSC0752-	-03		Ext	racted:	03/26/09 11	:55			
Bis(2-ethylhexyl)phthalate	EPA 8270m	5.77	2.53	4.81	ug/l	5x	1.15	3.85	120%	(10-150)			03/30/09 20:59	
Butyl benzyl phthalate	"	4.82	2.53	4.81	"	"	ND	"	125%	"			"	
Di-n-butyl phthalate	"	3.64	2.53	4.81	"	"	ND	,,	94.6%	"			"	J
Di-n-octyl phthalate	"	5.51	2.53	4.81	"	"	ND	,,	143%	"			"	
Diethyl phthalate	"	3.25	2.53	4.81	"	"	ND	,,	84.5%	"			"	J
Dimethyl phthalate	"	3.12	2.53	4.81	"	"	ND	"	81.0%	"			"	J
Acenaphthene	"	2.08	0.0962	0.0962	"	"	ND	2.40	86.5%	(35-120)			04/04/09 04:47	
Acenaphthylene	"	2.13	0.0962	0.0962	"	"	ND	"	88.7%	(34-116)			"	
Anthracene	"	2.15	0.0962	0.0962	"	"	ND	"	89.4%	(24-119)			"	
Benzo (a) anthracene	"	1.86	0.0481	0.0481	"	"	ND	"	77.2%	(22-129)			"	
Benzo (a) pyrene	"	1.40	0.0481	0.0481	"	"	ND	"	58.3%	(4-112)			"	
Benzo (b) fluoranthene	"	1.51	0.0481	0.0481	"	"	ND	"	62.9%	(0-136)			"	
Benzo (ghi) perylene	"	1.42	0.0962	0.0962	"	"	ND	"	59.1%	(0-126)			"	
Benzo (k) fluoranthene	"	1.45	0.0481	0.0481	"	"	ND	"	60.4%	(0-145)			"	
Chrysene	"	1.92	0.0481	0.0481	"	"	0.0137	"	79.3%	(7-137)			"	
Dibenzo (a,h) anthracene	"	1.39	0.0481	0.0481	"	"	ND	"	57.9%	(0-141)			"	
Fluoranthene	"	2.03	0.0962	0.0962	"	"	ND	"	84.5%	(30-125)			"	
Fluorene	"	2.21	0.0962	0.0962	"	"	ND	"	91.9%	(27-124)			"	
Indeno (1,2,3-cd) pyrene	"	1.37	0.0481	0.0481	"	"	ND	"	57.0%	(0-135)			"	
Naphthalene	"	2.15	0.0962	0.0962	"	"	ND	"	89.5%	(30-126)			"	В1
Phenanthrene	"	2.24	0.0962	0.0962	"	"	ND	"	93.2%	(34-126)			"	
Pyrene	"	2.80	0.0962	0.0962	"	"	0.0242	"	115%	(14-168)			"	
Surrogate(s): Fluorene-d10 Pyrene-d10		Recovery:	87.2% 119%	Lin	mits: 25-125								04/04/09 04:47	

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Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory

Project Name: Portland Harbor

6543 N. Burlington Ave. Portland, OR 97203

Project Number: 36238 Report Created:
Project Manager: Jennifer Shackelford 04/17/09 16:45

Pol	lynuclear Ar	omatic Co		r EPA 82′ ΓestAmerica		- La	iboratory	Qual i	ity Co	ntrol Re	esults			
QC Batch: 9030837	Water 1	Preparation	1 Method: 3	520B Liq-I	_iq									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	s) Analyzed	Notes
Matrix Spike (9030837-MS1)				QC Source:	PSC0752-03			Exti	racted:	03/26/09 11	:55			
Surrogate(s): Benzo (a) pyrene-d12		Recovery:	84.9%	Lim	its: 10-125%	5x							04/04/09 04:47	
Matrix Spike Dup (9030837-MSI	D1)			QC Source:	PSC0752-03			Exti	racted:	03/26/09 11	:55			
Bis(2-ethylhexyl)phthalate	EPA 8270m	5.92	2.53	4.81	ug/l	5x	1.15	3.85	124%	(10-150)	3.10%	(50)	03/30/09 21:36	
Butyl benzyl phthalate	"	4.90	2.53	4.81	"	"	ND	"	127%	"	1.65%	"	"	
Di-n-butyl phthalate	"	3.69	2.53	4.81	"	"	ND	"	96.0%	"	1.48%	"		
Di-n-octyl phthalate	"	5.57	2.53	4.81	"	"	ND	"	145%	"	1.10%	"	"	
Diethyl phthalate	"	3.24	2.53	4.81	"	"	ND	"	84.3%	"	0.280%	· "	"	
Dimethyl phthalate	"	3.12	2.53	4.81	"	"	ND	"	81.0%	"	0.02629	6 "	"	
Acenaphthene	"	2.05	0.0962	0.0962	"	"	ND	2.40	85.3%	(35-120)	1.37%	(45)	04/04/09 05:16	
Acenaphthylene	"	2.03	0.0962	0.0962	"	"	ND	"	84.5%	(34-116)	4.90%	"	"	
Anthracene	"	2.14	0.0962	0.0962	"	"	ND	"	89.0%	(24-119)	0.473%	· "	"	
Benzo (a) anthracene	"	1.87	0.0481	0.0481	"	"	ND	"	77.8%	(22-129)	0.748%	· "	"	
Benzo (a) pyrene	"	1.36	0.0481	0.0481	"	"	ND	"	56.8%	(4-112)	2.67%	"	"	
Benzo (b) fluoranthene	"	1.49	0.0481	0.0481	"	"	ND	"	62.2%	(0-136)	1.15%	"	"	
Benzo (ghi) perylene	"	1.37	0.0962	0.0962	"	"	ND	"	56.9%	(0-126)	3.92%	"	"	
Benzo (k) fluoranthene	"	1.43	0.0481	0.0481	"	"	ND	"	59.3%	(0-145)	1.83%	"	"	
Chrysene	"	1.93	0.0481	0.0481	"	"	0.0137	"	79.7%	(7-137)	0.516%	· "	"	
Dibenzo (a,h) anthracene	"	1.30	0.0481	0.0481	"	"	ND	"	54.2%	(0-141)	6.65%	"	"	
Fluoranthene	"	1.93	0.0962	0.0962	"	"	ND	"	80.4%	(30-125)	4.97%	"	"	
Fluorene	"	2.21	0.0962	0.0962	"	"	ND	"	92.0%	(27-124)	0.08499	6 "	"	
Indeno (1,2,3-cd) pyrene	"	1.30	0.0481	0.0481	"	"	ND	"	54.0%	(0-135)	5.34%	"	"	
Naphthalene	"	2.05	0.0962	0.0962	"	"	ND	"	85.4%	(30-126)	4.80%	"	"	В
Phenanthrene	"	2.22	0.0962	0.0962	"	"	ND	"	92.3%	(34-126)	0.925%	· "	"	
Pyrene	"	2.49	0.0962	0.0962	"	"	0.0242	"	103%	(14-168)	11.7%	"	"	
Surrogate(s): Fluorene-d10		Recovery:	87.3%	Lim	its: 25-125%	"							04/04/09 05:16	
Pyrene-d10			108%		23-150%	"							"	

10-125% "

TestAmerica Portland

Howard Holmes, Project Manager

Benzo (a) pyrene-d12

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

82.8%



9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

36238 Report Created: 6543 N. Burlington Ave. Project Number: Portland, OR 97203 Project Manager: Jennifer Shackelford 04/17/09 16:45

Notes and Definitions

Report Specific Notes:

В Analyte was detected in the associated Method Blank.

В1 Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

N1See case narrative.

RL1 Reporting limit raised due to sample matrix effects.

<u>Laboratory Reporting Conventions:</u>

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA Not Reported / Not Available

dry Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits

percent solids, where applicable.

- Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Electronic Signature Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 11922 E. First Ave. Spokane, WA 99206-5302

9405 SW Nimbus Ave.Beaverton, OR 97008-7145

2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

425-420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210

	CHAIN OF CUSTODY REPORT	Work Order #: PSC0751		
CLIENT City of Political	INVOICE TO:	TURNAROUND REQUEST		
ADDRESS: 10.00 (S)	(1,000)	in Business Days *		
ADDRESS: Jennifer Shackelford	Charles Lythe	Organic & Inorganic Analyses		
PHONE: FAX:	PO. NUMBER: 34238	7 5 4 3 2 1 <1 Petroleum Hydrocarbon Analyses		
PROJECT NAME: POSTLAND HUSBY 500 18	PRESERVATIVE	5 4 3 2 1 <1		
PROJECT NAME: POSTALA HUBOS PROJECT NUMBER: SAMPLED BY: SAMPLED BY:		STD.		
SAMPLED BY: STOR MWATER Jany	REQUESTED ANALYSES	OTHER Specify:		
CLIENT SAMPLE SAMPLING DATE/TIME SAMPLING		* Turnaround Requests less than standard may incur Rush Charges. MATRIX # OF LOCATION/ 1A		
2020		(W, S, O) CONT. COMMENTS WO ID		
1+0095371 3/23/09 1348 X X		$W _{\mathcal{A}}$		
2F0095372 1330 X X		W2		
F0095373 1459 X +		W a		
4FO 095374 1322 X X		W) 2		
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F0095376 1414 X X		W2		
F0095377 1432 X X		W2		
*F0 095378 V - X		WIX		
9				
10				
RELEASED BY: Moned that	DATE: 3/24/09 RECEIVED BY: SET THE	DATE: 3/24/6"		
PRINT NAME: RONG KINCH FIRM CITY OF POTH	archime: 1/24/2 PRINT NAME: BUSI	FIRM: TAP TIME: 11347)		
PRINT NAME: 13/15 FIRM: 14/1	DATE: 3/2V/C RECEIVED BY: TIME: (3) 30 PRINT NAME: //// A ///	FIRM: TAP DATE: 3 2 910 9		
ADDITIONAL REMARKS:		TEMP:		
COOL CONGLES to Pace	Halytical. Tracks.	2.3 PAGE OF		
PCB-209 Conguers to Pace PPlease turn not custom NIC a PER Please use bother marked	ralyte list w/ low MRLs.	0-7 TAL-1000(0408)		
TO KILLINGE HOE DOLKER MULLED	THE YOU PCB analysis. Than	28		
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TestAmerica Portland Sample Receiving Checklist

		der #: [SC075] Date/Time Received: 3/24/09 1230 ame and Project.C/Ty Of Portland Portland Harbo
Res. Que	idual C ite #:	mplete This Section: Yes No Yes No Chlorine Check Required: Quarantined: Check Required: Check
e-man	e Zone DT/ES	
C	ooler # peratu	res: 13 C1 L Glass) Temperature out of Range: Not enough or No Ice Ice Melted W/in 4 Hrs of collection Other:
N/A	Yes	No Initials:
X		1. If ESI client, were temp blanks received? If no, document on NOD.
\X \X		2. Cooler Seals intact? (N/A if hand delivered) if no, document on NOD.
	\supset	3. Chain of Custody present? If no, document on NOD.
	风	4. Bottles received intact? If no, document on NOD.
	X	5. Sample is not multiphasic? If no, document on NOD.
	X	6. Proper Container and preservatives used? If no, document on NOD.
X		7. pH of all samples checked and meet requirements? If no, document on NOD.
X		8. Cyanide samples checked for sulfides and meet requirements? If no, notify PM.
X		9. HF Dilution required ⁹
	∑	10. Sufficient volume provided for all analysis? If no, document on NOD and consult PM before proceeding.
	\mathbf{X}	11. Did chain of custody agree with samples received? If no, document on NOD.
$\overline{\lambda}$		12. Were VOA/Oil Syringe samples without headspace?
X		13. Were VOA vials preserved? HCL Sodium Thiosulfate Ascorbic Acid
		14. Did samples require preservation with sodium thiosulfate?
K.		15. If yes to #14, was the residual chlorine test negative? If no, document on NOD.
X X		16. Are dissolved/field filtered metals bottles sediment-free? If no, document on NOD.
- X -₹		 17. Is sufficient volume provided for client requested MS/MSD or matrix duplicates? If no. document on NOD and contact PM before proceeding. 18. Are analyses with short holding times received in hold?
	X	19. Was Standard Turn Around (TAT) requested?
	X	20. Receipt date(s) < 48 hours past the collection date(s)? If no, notify PM

TestAmerica Portland

Sample Receiving Checklist

Work Order #: \(\begin{aligned} \frac{1}{50751} \end{aligned}

Log	in C	Checks:	Initials:
N/A	Yes	s No	
X	X	21. Sufficient volume provided for all analysis? If no, of	document on NOD & contact PM
1		22. Sufficient volume provided for client requested MS no, document on NOD and contact PM.	/MSD or matrix duplicates? If
	X	23. Did the chain of custody include "received by" and	"malin and the trans
	••	dates and times?	reinquished by" signatures,
	X	24. Were special log in instructions read and followed?	
	X	☐ 25. Were tests logged checked against the COC?	
X		26. Were rush notices printed and delivered?	
X		27. Were short hold notices printed and delivered?	
	X	28. Were subcontract COCs printed?	
X		29. Was HF dilution logged?	
		and Storage Checks:	Initials:
IN/A	Yes ∧zſ	No	
文	Д □	30. Were the subcontracted samples/containers put in Sx	fridge?
	<u> </u>	31. Were sample bottles and COC double checked for dis	ssolved/filtered metals?
ر ا ا∕∑ا		32. Did the sample ID, Date, and Time from label match	what was logged?
		33. Were Foreign sample stickers affixed to each containe foreign fridge?	er and containers stored in
Z - [34. Were HF stickers affixed to each container, and container	iners stored in Sy fridays
Docum form (N	ent an IOD).	ny problems or discrepancies and the actions taken to resolve the	em on a Notice of Discrepancy



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

Report Prepared for:

Howard Holmes Test America 9405 SW Nimbus Avenue Beaverton OR 97008

> REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 1091808

Sample Receipt Date: 03/26/2009

Client Project #: PSC0751

Client Sub PO #: N/A

State Cert #: MN200001-005

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed and prepared by:

got C. Muye

Scott Unze, Project Manager (612) 607-6383

(612) 607-6444 (fax) scott.unze@pacelabs.com



Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

April 15, 2009



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on eight samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.25-0.75 parts-per-trillion and were adjusted for sample volume. The samples were received within the temperature range specified in the method.

All of the internal standards for this project were recovered within the acceptable ranges for Method 1668A with the exception of three congeners in LCS-19531. Since the quantification of the native PCB congeners was based on internal standards/isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of contaminants at the reporting limits.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native congeners in the lab spikes were recovered at 91-129% with relative percent differences of 1.0-16.4%. These results indicate high degrees of accuracy and precision for these congeners. Matrix spikes were not prepared with the sample set.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Appendix A

Sample Management

1129

SUBCONTRACT ORDER **TestAmerica Portland** PSC0751

SENDING LABORATORY: TestAmerica Portland 9405 SW Nimbus Ave.

Beaverton, OR 97008 Phone: (503) 906-9200

Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone:(612) 607-1700

Fax: (612) 607-6444

Project Location: OR - OREGON

: :	/Ŷ)/	N
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Project Manager. Howard	Holines		Receipt Temperatu	$\frac{\text{OR-OREGON}}{\text{Ire:}} \frac{1}{\sqrt{Y}} \text{ C} \qquad \text{Ice:} \frac{1}{\sqrt{Y}} \text{ N}$
needs Excel EDD				
Analysis	Units	Due	Expires	Comments
Sample ID: PSC0751-01	Water		Sampled: 03/23/09 13:	109180800
1668 Coplanar PCBs - SUB	ug/l	04/07/09	09/19/09 13:48	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				FO 095371
Sample ID: PSC0751-02	Water		Sampled: 03/23/09 13:	30
1668 Coplanar PCBs - SUB	ug/l	04/07/09	09/19/09 13:30	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)		······································		FO 095372
Sample ID: PSC0751-03	Water		Sampled: 03/23/09 14 :5	9 003
1668 Coplanar PCBs - SUB	ug/l	04/07/09	09/19/09 14:59	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				Fo 095373
Sample ID: PSC0751-04	Water		Sampled: 03/23/09 13:2	00°/
1668 Coplanar PCBs - SUB	ug/l	04/07/09	09/19/09 13:22	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				Fo 095374
Sample ID: PSC0751-05	Water		Sampled: 03/23/09 14:0	, 005
1668 Coplanar PCBs - SUB	ug/l	04/07/09	09/19/09 14:02	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				Fo 095375
Sample ID: PSC0751-06	Water		Sampled: 03/23/09 14:1	4 006
1668 Coplanar PCBs - SUB	ug/l	04/07/09	09/19/09 14:14	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				FO 095376

Received By

SUBCONTRACT ORDER

TestAmerica Portland PSC0751

Analysis	Units	Due	Expires	Comme	en ts	
Sample ID: PSC0751-07	Water		Sampled: 03/23/09 14:32		109180	8007
1668 Coplanar PCBs - SUB	ug/l	04/07/09	09/19/09 14:32	***209	Congeners*** to Pace	
Containers Supplied: 1L Amber - Unpres. (A)				Fo	095377	
Sample ID: PSC0751-08	Water		Sampled: 03/23/09 00:00			008
1668 Coplanar PCBs - SUB	ug/l	04/07/09	09/19/09 00:00	***209	Congeners*** to Pace	
Containers Supplied: 1L Amber - Unpres. (A)				FO	095378	

Semple Condition Upon Receipt

and the second s	2.00		
fa-ma A A C C C	lame: Test However	Project #	1091809
Courier: [] Fed Ex [] UPS [] USPS Tracking #: 4796 8712 2655	• •	CONTRACTOR AND ADDRESS OF THE PARTY OF THE P	(iöñal: J. Que Dafe:
Carolina de la como de	⊒yes ☐ no Seals intact:	Pro D no Pro	l Name
Packing Material: Bubble Wrap	Bubble Bags None Othe		The state of the s
Thermometer Used 86344042 (179425	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	omp brank.	
Cooler Temperature 1,4% Temp should be above freezing to 6°C	Biological Tissue is Frozer	7: Yes No Date and ini	cooling process has be flais of person examin 3-24-09
Chain of Custody Present:	DYes ONO ONA 1.	Tech.	
Chain of Custody Filled Out:	Wes □No □NA 2.	THE THE RESIDENCE AND ASSESSMENT OF THE PROPERTY OF THE PROPER	والمرابعة والمرا
Chain of Custody Relinquished:	☐Yēs □No □NA 3.	PAPATAN ARRINGTON BERKELLENGEN STATE OF THE	COMPARED TO THE TOTAL STATE OF THE PROPERTY AND ADDRESS OF THE PARED TO STATE OF THE PAR
Sampler Name & Signature on COC:	□Yes ®No □N/A 4.	والمرابع والم	Secret Manager (Manager)
Samples Arrived within Hold Time:	Wes DNo DNA 5.	ر منظر المراجعة المرا	. When the special states are a supply of an early the state states are states and a supply of the states are states as a supply of the states are states are states are states are states are states are states as a supply of the states are states are states are states are states as a supply of the states are states a
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Rush Turn Around Time Requested:	DYes DNO DNA 7.	- Allectic marks (Argonium reality) which may be all the second of the s	TAKIS-bertalasi bagagamata igi adempi Takigi Matilla Peleb beren isi Faling A
Sufficient Volume:	DVes ONO ON/A 8.	ርቀላንያር ፲፻፻ሳሳት በርር ፲፫ - በሳ መተረግስያ ሲመታለን የርርተላት የላይታቸው የኢትዮጵያ አመር ያለያቸው ረግመታት ሳይጨላን	TOTAL CARLOS AND
Correct Containers Used:	DYES DNO DNA 9.	به بنا سنت حد جو به نقد خدود کنید به حصولت به بازی بین خدان و اینیت دخور و خدسته شاها با باز	C-Appleant to high growth or by the beginning of the beginning of
-Pace Containers Used:	DYes DMO DNA		
Containers Intact:	Pres DNo DNA 10.	· · · · · · · · · · · · · · · · · · ·	eleten militariorista valda se resistan belastisme such assistations in
Fillered volume received for Dissolved tests	☐Yes ᡚNo ☐N/A 11.	T THE COLOR OF THE PROPERTY OF	والمنافئة والمراس ومدوقها المنافظة المساولة والمنافزة والمنافزة المنافظة والمنافزة والمنافزة والمنافزة
Sample Labels match COC:	OKes ONO ONA 12.	Arrandora sagalah di santu-saya arrandora sa Tulana sa Prisidente (est santa sa di manda katadora Prisidente d Prisidente	المساعدة الم
-Includes date/time/ID/Analysis Matrix: All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	UYes []No BKI/A 13.	مهرج ومستعد سيدان الإمارات المقسواتين فلندار مناوج الانتفاز موسان الاي الإنجاب الشار من مراوز والوفيقة	
All containers needing preservation are found to be in compliance with EPA recommendation.	Oyes Ono ONIA		
Exceptions: VOA, Collform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No Initial when completed	l_ot # of added preservative	territorio del Editorio Sala Editorio del Partido del
Samples checked for dechlorination:	DYes DNo DN/A 14.	The transfer of the second desire and the se	
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☐N/A 15.	THE RESIDENCE OF THE PROPERTY	······································
Trip Blank Present:	DYES DNO DNVA 16.	and the second s	- California Cario made materials (v.) 2004 for 21, 1925 (1922)
Trip Blank Custody Seals Present	☐Yes ☐No ØN/A		
Pace Trip Blank Lot # (if purchased):			
Client Notification/ Resolution:		Eight Data to	
Person Contacted:	Date/Time:	Field Data Required?	Y / N
Comments/ Resolution:		The state of the s	
	1		
Project Manager Review:	(a)	Date: 03/2	1.0
		∪ate: <i>€ 2 / 2</i> .	6107

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina
Appendix B

Sample Analysis Summary



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID
Lab Sample ID

Filename Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted ICAL ID

CCal Filename(s)
Method Blank ID

PSC0751-05;FO 095375

1091808005 U90405B_08

BAL 1030 mL NA

NA U90405B02 U90405B_01 BLANK-19530 Matrix Water Dilution NA

Collected 03/23/2009
Received 03/26/2009
Extracted 04/03/2009
Analyzed 04/06/2009 11:01

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.564	3.31	2.0	0.862	43
13C-4-MoCB	3	9.439	3.16	2.0	1.08	54
13C-2,2'-DiCB	4	9.750	1.66	2.0	0.979	49
13C-4,4'-DiCB	15	17.681	1.57	2.0	1.63	82
13C-2,2',6-TrCB	19	13.991	1.04	2.0	1.20	60
13C-3,4,4'-TrCB	37	26.191	1.06	2.0	2.12	106
13C-2,2',6,6'-TeCB	54	17.976	0.83	2.0	1.25	63
13C-3,4,4',5-TeCB	81	33.820	0.78	2.0	2.02	101
13C-3,3',4,4'-TeCB	77	34.440	0.84	2.0	1.96	98
13C-2,2',4,6,6'-PeCB	104	24.716	1.58	2.0	1.45	73
13C-2,3,3',4,4'-PeCB	105	38.229	1.60	2.0	1.98	99
13C-2,3,4,4',5-PeCB	114	37.542	1.57	2.0	1.99	99
13C-2,3',4,4',5-PeCB	118	37.005	1.58	2.0	1.98	99
13C-2,3',4,4',5'-PeCB	123	36.636	1.60	2.0	2.07	103
13C-3,3',4,4',5-PeCB	126	41.599	1.60	2.0	1.88	94
13C-2,2',4,4',6,6'-HxCB	155 156/157	31.254 44.801	1.29 1.24	2.0 4.0	1.63 3.71	81 93
13C-HxCB (156/157) 13C-2,3',4,4',5,5'-HxCB	167	43.611	1.24	2.0	1.94	93 97
13C-2,3,4,4,5,5'-HxCB	169	48.289	1.25	2.0	1.80	90
13C-2,2',3,4',5,6,6'-HpCB	188	37.525	1.05	2.0	1.92	96
13C-2,3,3',4,4',5,5'-HpCB	189	50.942	1.03	2.0	2.26	113
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.276	0.87	2.0	1.87	93
13C-2,3,3',4,4',5,5',6-OcCB	205	53.636	0.95	2.0	1.66	83
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.446	0.77	2.0	1.56	78
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.360	0.77	2.0	1.76	88
13CDeCB	209	57.106	0.69	2.0	1.52	76
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.463	1.04	2.0	2.12	106
13C-2,3,3',5,5'-PeCB	111	34.541	1.60	2.0	1.73	87
13C-2,2',3,3',5,5',6-HpCB	178	40.845	1.04	2.0	1.70	85
Bassyony Standards						
Recovery Standards 13C-2,5-DiCB	9	12.518	1.57	2.0	NA	NA
13C-2,5-DICB 13C-2,2',5,5'-TeCB	52	23.659	0.80	2.0	NA NA	NA NA
13C-2,2',4,5,5'-PeCB	101	31.539	1.59	2.0	NA NA	NA NA
13C-2,2',3,4,4',5'-HxCB	138	40.342	1.31	2.0	NA NA	NA NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.140	0.91	2.0	NA NA	NA NA
	101	50.110	0.01	2.0	141	14/

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits RT = Retention Time

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ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-05;FO 095375 1091808005 U90405B_08

II IDAO	On abothern	DT	D - (* -	Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.242
2				ND		0.242
3				ND		0.242
4				ND		0.242
5				ND		0.242
6				ND		0.242
7				ND		0.242
8				ND		0.242
9				ND		0.242
10				ND		0.242
11				ND		1.45
12	12/13			ND		0.484
13	12/13			ND		0.484
14				ND		0.242
15		17.705	1.46	0.262		0.242
16				ND		0.242
17				ND		0.242
18	18/30			ND		0.484
19	10/00			ND		0.242
20	20/28	21.497	1.02	1.48		0.484
21	21/33			ND		0.484
22	21/33	22.234	1.03	0.760		0.242
23		22.234	1.03	ND		0.242
24				ND ND		0.242
25				ND ND		0.242
26	26/29			ND ND		0.484
20 27	20/29			ND ND		0.464
28	20/28	21.497	1.02	(1.48)		0.484
20 29	26/29	21.497	1.02			0.484
29 30	18/30			ND ND		
30	16/30					0.484
31		21.145	1.08	0.877		0.242
32	04/00			ND		0.242
33	21/33			ND		0.484
34				ND		0.242
35				ND		0.242
36				ND		0.242
37		26.225	1.06	1.13		0.242
38				ND		0.242
39				ND		0.242
40	40/41/71	25.990	0.83	1.78		1.45
41	40/41/71	25.990	0.83	(1.78)		1.45
42		25.437	0.80	0.691		0.484
43				ND		0.484
44	44/47/65	24.833	0.80	2.14		1.45
45	45/51			ND		0.968
46				ND		0.484
47	44/47/65	24.833	0.80	(2.14)		1.45
48				ND		0.484

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-05;FO 095375 1091808005 U90405B_08

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69	24.263	0.83	1.15		0.968
50	50/53			ND		0.968
51	45/51			ND		0.968
52		23.693	0.80	1.99		0.484
53	50/53			ND		0.968
54				ND		0.484
55				ND		0.484
56		30.316	0.77	1.28		0.484
57				ND		0.484
58				ND		0.484
59	59/62/75			ND		1.45
60	00/02/10	30.550	0.78	0.671		0.484
61	61/70/74/76	29.242	0.76	4.08		1.94
62	59/62/75			ND		1.45
63	39/02/13			ND		0.484
64		26.275	0.79	1.16		0.484
65	44/47/65	24.833	0.79	(2.14)		1.45
66	44/47/03	29.595	0.75	2.17		0.484
		29.595	0.75	ND		0.484
67						
68	40/00			ND (4.45)		0.484
69	49/69	24.263	0.83	(1.15)		0.968
70	61/70/74/76	29.242	0.76	(4.08)		1.94
71	40/41/71	25.990	0.83	(1.78)		1.45
72				ND		0.484
73				ND		0.484
74	61/70/74/76	29.242	0.76	(4.08)		1.94
75	59/62/75			ND		1.45
76	61/70/74/76	29.242	0.76	(4.08)		1.94
77		34.457	0.79	0.513		0.484
78				ND		0.484
79				ND		0.484
80				ND		0.484
81				ND		0.484
82		34.021	1.54	0.671		0.484
83				ND		0.484
84		29.393	1.60	0.933		0.484
85	85/116/117			ND		1.45
86	86/87/97/108/119/125	32.780	1.61	3.09		2.90
87	86/87/97/108/119/125	32.780	1.61	(3.09)		2.90
88	88/91			` NĎ		0.968
89				ND		0.484
90	90/101/113	31.556	1.55	3.57		1.45
91	88/91			ND		0.968
92		30.902	1.57	0.619		0.484
93	93/98/100/102			ND		1.94
94	22.20,.00,.0=			ND		0.484
95		28.203	1.58	2.41		0.484
96				ND		0.484

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-05;FO 095375 1091808005 U90405B_08

	• • • • • • • • • • • • • • • • • • • •					
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	32.780	1.61	(3.09)		2.90
98	93/98/100/102			ND		1.94
99	00,00,100,102	32.210	1.50	1.49		0.484
100	93/98/100/102			ND		1.94
101	90/101/113	31.556	1.55	(3.57)		1.45
102	93/98/100/102			ND		1.94
103	00,00,100,100			ND		0.484
104				ND		0.484
105		38.263	1.55	2.56		0.484
106				ND		0.484
107	107/124			ND		0.968
108	86/87/97/108/119/125	32.780	1.61	(3.09)		2.90
109				NĎ		0.484
110	110/115	33.702	1.64	6.06		0.968
111				ND		0.484
112				ND		0.484
113	90/101/113	31.556	1.55	(3.57)		1.45
114				NĎ		0.484
115	110/115	33.702	1.64	(6.06)		0.968
116	85/116/117			ND		1.45
117	85/116/117			ND		1.45
118		37.022	1.57	5.18		0.484
119	86/87/97/108/119/125	32.780	1.61	(3.09)		2.90
120				NĎ		0.484
121				ND		0.484
122				ND		0.484
123				ND		0.484
124	107/124			ND (2.22)		0.968
125	86/87/97/108/119/125	32.780	1.61	(3.09)		2.90
126				ND		0.484
127	100/100			ND		0.484
128	128/166	41.683	1.29	1.36		0.968
129	129/138/163	40.375	1.27	7.98		1.45
130		39.671 	1.42	0.495		0.484
131		37.056	1.32	ND 2.60		0.484 0.484
132 133		37.056	1.32	2.60 ND		0.484
133	134/143			ND ND		0.464
134	135/151	34.742	1.28	1.95		0.968
136	133/131	32.009	1.26	0.652		0.484
137		32.009	1.20	0.032 ND		0.484
138	129/138/163	40.375	1.27	(7.98)		1.45
139	139/140			(7.90) ND		0.968
140	139/140			ND		0.968
141	100, 140	39.252	1.32	1.21		0.484
142				ND		0.484
143	134/143			ND		0.968
144				ND		0.484
						00.

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-05;FO 095375 1091808005 U90405B_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.484
146		38.397	1.27	0.818		0.484
147	147/149	35.748	1.28	5.02		0.968
148				ND		0.484
149	147/149	35.748	1.28	(5.02)		0.968
150				NĎ		0.484
151	135/151	34.742	1.28	(1.95)		0.968
152				ND		0.484
153	153/168	39.067	1.28	5.79		0.968
154				ND		0.484
155				ND		0.484
156	156/157			ND		0.968
157	156/157			ND		0.968
158		40.794	1.33	0.836		0.484
159				ND		0.484
160				ND		0.484
161				ND		0.484
162				ND		0.484
163	129/138/163	40.375	1.27	(7.98)		1.45
164		40.040	1.29	Ò.48Ś		0.484
165				ND		0.484
166	128/166	41.683	1.29	(1.36)		0.968
167				` NĎ		0.484
168	153/168	39.067	1.28	(5.79)		0.968
169				NĎ		0.484
170		47.618	1.06	1.93		0.484
171	171/173			ND		0.968
172				ND		0.484
173	171/173			ND		0.968
174		42.706	1.02	1.99		0.484
175				ND		0.484
176				ND		0.484
177		43.175	1.08	1.08		0.484
178				ND		0.484
179		37.877	1.04	0.688		0.484
180	180/193	46.310	1.05	4.10		0.968
181	. 557 . 55			ND		0.484
182				ND		0.484
183	183/185	42.505	1.06	1.27		0.968
184	100, 100			ND		0.484
185	183/185	42.505	1.06	(1.27)		0.968
186	. 55/ . 55			ND		0.484
187		41.834	1.06	2.21		0.484
188				ND		0.484
189				ND		0.484
190				ND		0.484
191				ND		0.484
192				ND		0.484
						0.101

Conc = Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-05;FO 095375 1091808005 U90405B_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.310	1.05	(4.10)		0.968
194		53.162	0.89	0.862		0.726
195				ND		0.726
196				ND		0.726
197	197/200			ND		1.45
198	198/199			ND		1.45
199	198/199			ND		1.45
200	197/200			ND		1.45
201				ND		0.726
202				ND		0.726
203				ND		0.726
204				ND		0.726
205				ND		0.726
206				ND		0.726
207				ND		0.726
208				ND		0.726
209				ND		0.726

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-05;FO 095375 1091808005 U90405B_08

 Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	0.262	
Total Trichloro Biphenyls	4.24	
Total Tetrachloro Biphenyls	17.6	
Total Pentachloro Biphenyls	26.6	
Total Hexachloro Biphenyls	29.2	
Total Heptachloro Biphenyls	13.3	
Total Octachloro Biphenyls	0.862	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	92.1	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID

Filename Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted ICAL ID

CCal Filename(s) Method Blank ID PSC0751-07;FO 095377

1091808007

U90405B_10 BAL

1030 mL NA NA U90405B02 U90405B_01 BLANK-19530 Matrix Water Dilution NA

Collected 03/23/2009
Received 03/26/2009
Extracted 04/03/2009
Analyzed 04/06/2009 13:09

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.576	3.39	2.0	0.860	43
13C-4-MoCB	3	9.451	3.15	2.0	0.971	49
13C-2,2'-DiCB	4	9.762	1.61	2.0	0.885	44
13C-4,4'-DiCB	15	17.693	1.56	2.0	1.33	67
13C-2,2',6-TrCB	19	13.991	1.01	2.0	1.04	52
13C-3,4,4'-TrCB	37	26.191	1.13	2.0	1.83	91
13C-2,2',6,6'-TeCB	54	17.992	0.80	2.0	1.04	52
13C-3,4,4',5-TeCB	81	33.820	0.80	2.0	1.89	95
13C-3,3',4,4'-TeCB	77	34.440	0.85	2.0	1.87	94
13C-2,2',4,6,6'-PeCB	104	24.716	1.59	2.0	1.20	60
13C-2,3,3',4,4'-PeCB	105	38.212	1.59	2.0	1.97	99
13C-2,3,4,4',5-PeCB	114	37.525	1.57	2.0	1.99	99
13C-2,3',4,4',5-PeCB	118	36.972	1.56	2.0	2.01	100
13C-2,3',4,4',5'-PeCB	123	36.620	1.61	2.0	2.00	100
13C-3,3',4,4',5-PeCB	126	41.582	1.60	2.0	1.96	98
13C-2,2',4,4',6,6'-HxCB	155	31.254	1.27	2.0	1.42	71
13C-HxCB (156/157)	156/157	44.768	1.25	4.0	3.90	97
13C-2,3',4,4',5,5'-HxĆB	167	43.578	1.30	2.0	2.02	101
13C-3,3',4,4',5,5'-HxCB	169 188	48.238	1.29 1.04	2.0	1.87 1.79	94 89
13C-2,2',3,4',5,6,6'-HpCB	189	37.508 50.878	1.04	2.0 2.0	2.35	118
13C-2,3,3',4,4',5,5'-HpCB 13C-2,2',3,3',5,5',6,6'-OcCB	202	43.242	0.89	2.0	2.35 1.86	93
13C-2,2,3,3,5,5,6,6-OCCB	202	53.571	0.89	2.0	1.66	83
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.382	0.83	2.0	1.56	78
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.317	0.79	2.0	1.80	90
13CDeCB	209	57.019	0.73	2.0	1.44	72
130Deob	203	37.013	0.72	2.0	1.77	12
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.463	1.02	2.0	1.72	86
13C-2,3,3',5,5'-PeCB	111	34.524	1.58	2.0	1.58	79
13C-2,2',3,3',5,5',6-HpCB	178	40.811	1.06	2.0	1.65	82
Recovery Standards						
13C-2,5-DiCB	9	12.529	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.659	0.80	2.0	ŇA	NA
13C-2,2',4,5,5'-PeCB	101	31.523	1.57	2.0	ŇA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.308	1.30	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.076	0.95	2.0	NA	NA

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-07;FO 095377 1091808007 U90405B_10

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.242
2				ND		0.242
3				ND		0.242
4				ND		0.242
5				ND		0.242
6				ND		0.242
7				ND		0.242
8				ND		0.242
9				ND		0.242
10				ND		0.242
11				ND		1.45
12	12/13			ND		0.483
13	12/13			ND		0.483
14	12/13			ND		0.242
15				ND ND		0.242
16				ND ND		0.242
17				ND ND		0.242
18	18/30			ND ND		0.483
19	10/30			ND ND		0.242
20	20/28			ND ND		0.483
21	21/33			ND ND		0.483
22	21/33			ND ND		
				ND ND		0.242
23 24				ND ND		0.242 0.242
25	20/20			ND		0.242
26	26/29			ND		0.483
27	20/20			ND		0.242
28	20/28			ND ND		0.483
29	26/29			ND		0.483
30	18/30			ND		0.483
31				ND		0.242
32	04/00			ND		0.242
33	21/33			ND		0.483
34				ND		0.242
35				ND		0.242
36				ND		0.242
37				ND		0.242
38				ND		0.242
39				ND		0.242
40	40/41/71			ND		1.45
41	40/41/71			ND		1.45
42				ND		0.483
43	4.4.47.105			ND		0.483
44	44/47/65			ND		1.45
45	45/51			ND		0.967
46				ND		0.483
47	44/47/65			ND		1.45
48				ND		0.483

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-07;FO 095377 1091808007 U90405B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69			ND		0.967
50	50/53			ND		0.967
51	45/51			ND		0.967
52				ND		0.483
53	50/53			ND		0.967
54				ND		0.483
55				ND		0.483
56				ND		0.483
57				ND		0.483
58				ND		0.483
59	59/62/75			ND		1.45
60				ND		0.483
61	61/70/74/76			ND		1.93
62	59/62/75			ND		1.45
63				ND		0.483
64				ND		0.483
65	44/47/65			ND		1.45
66				ND		0.483
67				ND		0.483
68				ND		0.483
69	49/69			ND		0.967
70	61/70/74/76			ND		1.93
71	40/41/71			ND		1.45
72				ND		0.483
73				ND		0.483
74	61/70/74/76			ND		1.93
75	59/62/75			ND		1.45
76	61/70/74/76			ND		1.93
77				ND		0.483
78				ND		0.483
79				ND		0.483
80				ND		0.483
81				ND		0.483
82				ND		0.483
83				ND		0.483
84				ND		0.483
85	85/116/117			ND		1.45
86	86/87/97/108/119/125			ND		2.90
87	86/87/97/108/119/125			ND		2.90
88	88/91			ND		0.967
89				ND		0.483
90	90/101/113			ND		1.45
91	88/91			ND		0.967
92				ND		0.483
93	93/98/100/102			ND		1.93
94				ND		0.483
95				ND		0.483
96				ND		0.483

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion != Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSC0751-07;FO 095377 1091808007 U90405B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		2.90
98	93/98/100/102			ND		1.93
99				ND		0.483
100	93/98/100/102			ND		1.93
101	90/101/113			ND		1.45
102	93/98/100/102			ND		1.93
103				ND		0.483
104				ND		0.483
105				ND		0.483
106				ND		0.483
107	107/124			ND		0.967
108	86/87/97/108/119/125			ND		2.90
109	00/07/07/100/110/120			ND		0.483
110	110/115			ND		0.967
111	110/110			ND		0.483
112				ND		0.483
113	90/101/113			ND		1.45
114	30/101/119			ND		0.483
115	110/115			ND		0.967
116	85/116/117			ND		1.45
117	85/116/117			ND		1.45
118	03/110/117			ND ND		0.483
119	86/87/97/108/119/125			ND ND		2.90
120	00/07/97/100/119/125			ND ND		0.483
120				ND ND		0.483
121				ND ND		0.483
123				ND ND		0.483
123	107/124			ND ND		0.463
125	86/87/97/108/119/125			ND ND		2.90
126	00/07/97/100/119/125			ND ND		0.483
120				ND ND		0.483
127	128/166			ND ND		0.463
120	129/138/163			ND ND		1.45
130	129/136/163					
				ND ND		0.483
131				ND		0.483
132				ND		0.483
133	404/440			ND		0.483
134	134/143			ND		0.967
135	135/151			ND		0.967
136				ND		0.483
137	400/400/400			ND		0.483
138	129/138/163			ND		1.45
139	139/140			ND		0.967
140	139/140			ND		0.967
141				ND		0.483
142	10.1/1.10			ND		0.483
143	134/143			ND		0.967
144				ND		0.483

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-07;FO 095377 1091808007 U90405B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.483
146				ND		0.483
147	147/149			ND		0.967
148				ND		0.483
149	147/149			ND		0.967
150				ND		0.483
151	135/151			ND		0.967
152				ND		0.483
153	153/168			ND		0.967
154				ND		0.483
155				ND		0.483
156	156/157			ND		0.967
157	156/157			ND		0.967
158				ND		0.483
159				ND		0.483
160				ND		0.483
161				ND		0.483
162				ND		0.483
163	129/138/163			ND		1.45
164				ND		0.483
165				ND		0.483
166	128/166			ND		0.967
167				ND		0.483
168	153/168			ND		0.967
169				ND		0.483
170				ND		0.483
171	171/173			ND		0.967
172				ND		0.483
173	171/173			ND		0.967
174				ND		0.483
175				ND		0.483
176				ND		0.483
177				ND		0.483
178				ND		0.483
179				ND		0.483
180	180/193			ND		0.967
181				ND		0.483
182				ND		0.483
183	183/185			ND		0.967
184				ND		0.483
185	183/185			ND		0.967
186				ND		0.483
187				ND		0.483
188				ND		0.483
189				ND		0.483
190				ND		0.483
191				ND		0.483
192				ND		0.483

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-07;FO 095377 1091808007 U90405B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		0.967
194				ND		0.725
195				ND		0.725
196				ND		0.725
197	197/200			ND		1.45
198	198/199			ND		1.45
199	198/199			ND		1.45
200	197/200			ND		1.45
201				ND		0.725
202				ND		0.725
203				ND		0.725
204				ND		0.725
205				ND		0.725
206				ND		0.725
207				ND		0.725
208				ND		0.725
209				ND		0.725

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-07;FO 095377 1091808007 U90405B_10

Congener Group	Concentration ng/L	
Congener Group	ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID

Filename Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted

ICAL ID CCal Filename(s)

Method Blank ID

PSC0751-08;FO 095378

1091808008

U90405B_11

BAL 1020 mL NA

NA U90405B02 U90405B_01 BLANK-19530 Matrix Water Dilution NA

Collected 03/23/2009
Received 03/26/2009
Extracted 04/03/2009
Applyzed 04/06/2009

Analyzed 04/06/2009 14:13

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.576	3.34	2.0	0.875	44
13C-4-MoCB	3	9.451	3.40	2.0	1.06	53
13C-2,2'-DiCB	4	9.762	1.64	2.0	0.991	50
13C-4,4'-DiCB	15	17.693	1.57	2.0	1.57	79
13C-2,2',6-TrCB	19	14.003	1.00	2.0	1.13	56
13C-3,4,4'-TrCB	37	26.225	1.09	2.0	2.09	104
13C-2,2',6,6'-TeCB	54	17.992	0.82	2.0	1.21	61
13C-3,4,4',5-TeCB	81	33.853	0.78	2.0	2.00	100
13C-3,3',4,4'-TeCB	77	34.457	0.78	2.0	1.98	99
13C-2,2',4,6,6'-PeCB	104	24.732	1.60	2.0	1.49	75
13C-2,3,3',4,4'-PeCB	105	38.263	1.58	2.0	2.05	102
13C-2,3,4,4',5-PeCB	114	37.575	1.55	2.0	2.04	102
13C-2,3',4,4',5-PeCB	118	37.022	1.59	2.0	2.09	105
13C-2,3',4,4',5'-PeCB	123	36.670	1.64	2.0	2.07	103
13C-3,3',4,4',5-PeCB	126	41.633	1.57	2.0	1.91	96
13C-2,2',4,4',6,6'-HxCB	155	31.271	1.28	2.0	1.65	83
13C-HxCB (156/157)	156/157	44.835	1.27	4.0	3.79	95
13C-2,3',4,4',5,5'-HxCB	167	43.628	1.26	2.0	1.91	95
13C-3,3',4,4',5,5'-HxCB	169	48.322	1.27	2.0	1.83	91
13C-2,2',3,4',5,6,6'-HpCB	188	37.542	1.03	2.0	2.07	104
13C-2,3,3',4,4',5,5'-HpCB	189	50.964	1.04	2.0	2.36	118
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.309	0.88	2.0	2.04	102
13C-2,3,3',4,4',5,5',6-OcCB	205	53.679	0.93	2.0	1.81	90
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.468	0.82	2.0	1.70	85
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.382	0.80	2.0	1.90	95
13CDeCB	209	57.127	0.70	2.0	1.67	83
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.480	1.05	2.0	2.03	101
13C-2,3,3',5,5'-PeCB	111	34.574	1.56	2.0	1.79	90
13C-2,2',3,3',5,5',6-HpCB	178	40.861	1.03	2.0	1.69	85
Recovery Standards						
13C-2,5-DiCB	9	12.529	1.59	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.676	0.83	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.556	1.58	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.358	1.33	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.162	0.92	2.0	NA	NA

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! = Outside QC Limits RT = Retention Time

I = Interference

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-08;FO 095378 1091808008 U90405B_11

IUPAC Co-elutions RT Ratio 1 2 3 4 5 6 7 8 9	ng/L ND	ng/L	0.244 0.244 0.244 0.244 0.244 0.244 0.244 0.244 0.244 0.244
2 3 4 5 6 7	ND ND ND ND ND ND ND ND ND	 	0.244 0.244 0.244 0.244 0.244 0.244 0.244
3 4 5 6 7	ND ND ND ND ND ND ND ND	 	0.244 0.244 0.244 0.244 0.244 0.244 0.244
4 5 6 7 8	ND ND ND ND ND ND ND	 	0.244 0.244 0.244 0.244 0.244 0.244
5 6 7 8	ND ND ND ND ND ND ND	 	0.244 0.244 0.244 0.244 0.244
6 7 8	ND ND ND ND ND ND	 	0.244 0.244 0.244 0.244
7 8	ND ND ND ND ND	 	0.244 0.244 0.244
8	ND ND ND ND	 	0.244 0.244
8	ND ND ND		0.244
9	ND ND		
	ND		0 244
10			
11	K i i		1.47
12 12/13	ND		0.489
13 12/13	ND		0.489
14	ND		0.244
15 17.717 1.35	0.297		0.244
16	ND		0.244
17	ND		0.244
18 18/30	ND		0.489
19	ND		0.244
20 20/28 21.497 1.03	1.54		0.489
21 21/33	ND		0.489
22 22.251 1.07	0.799		0.244
23	ND		0.244
24	ND		0.244
25	ND		0.244
26 26/29	ND		0.489
27	ND		0.244
28 20/28 21.497 1.03	(1.54)		0.489
29 26/29	ND		0.489
30 18/30	ND		0.489
31 21.161 0.99	0.902		0.244
32	ND		0.244
33 21/33	ND		0.489
34	ND		0.244
35	ND		0.244
36	ND		0.244
37 26.241 1.04	1.19		0.244
38	ND		0.244
39	ND		0.244
40 40/41/71 25.990 0.81	1.90		1.47
41 40/41/71 25.990 0.81	(1.90)		1.47
42 25.453 0.82	0.721		0.489
43	ND		0.489
44 44/47/65 24.850 0.78	2.24		1.47
45 45/51	ND		0.977
46	ND		0.489
47 44/47/65 24.850 0.78	(2.24)		1.47
48	NĎ		0.489

Conc = Concentration

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! = Outside QC Limits
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-08;FO 095378 1091808008 U90405B_11

50 50/53 ND 0. 51 45/51 ND 0. 52 23.710 0.80 2.10 0. 0. 54 ND 0. 0. 55 ND 0. 0. 56 30.332 0.77 1.41 0. 0. 57 ND 0. 0. 58 ND 0. 0. 59 59/62/75 ND 0. 0. 61 61/70/74/76 29.259 0.77 4.27 62 59/62/75 ND 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
51 45/51 ND 0. 52 23,710 0.80 2,10 0. 53 50/53 ND 0. 54 ND 0. 0. 55 ND 0. 0. 56 30,332 0,77 1,41 0. 0. 58 ND 0. 0. 0. 0. 59 59/62/75 ND ND 0. 0. 0. 60 61 61/70/74/76 29,259 0.77 4,27 0. 62 59/62/75 ND ND 0. 63 ND 0. 64 26,292 0.79 1.24 0. 0. 65 44/47/65	49	49/69	24.280	0.84	1.20		0.977
52	50	50/53			ND		0.977
\$2		45/51					0.977
53 50/53 ND 0. 54 ND 0. 55 ND 0. 56 30.332 0.77 1.41 0. 57 ND 0. 58 ND 0. 59 59/62/75 ND 0. 61 61/70/74/76 29.259 0.77 4.27 62 59/62/75 ND ND <td>52</td> <td></td> <td>23.710</td> <td>0.80</td> <td>2.10</td> <td></td> <td>0.489</td>	52		23.710	0.80	2.10		0.489
54 ND 0. 55 ND 0. 56 30.332 0.77 1.41 0. 57 ND 0. 58 ND 0. 59 59/62/75 ND 61 61/70/74/76 29.259 0.77 4.27 0. 63 ND 0. <	53	50/53			ND		0.977
55							0.489
56 30.332 0.77 1.41 0. 57 ND 0. 58 ND 0. 59 59/62/75 ND 61 61/70/74/76 29.259 0.77 4.27 62 59/62/75 ND 63 ND 0. 64 26.292 0.79 1.24 0. 65 44/47/65 24.850 0.78 (2.24) 0. 66 29.611 0.75 2.35 0. 0. 67 ND 0. 0. 68 ND 0. 0. 69 49/69 24.280 0.84 (1.20) 0. 0.	55						0.489
57 58 58 59/62/75			30.332	0.77			0.489
58 ND 0. 59 59/62/75 ND 0. 61 61/70/74/76 29.259 0.77 4.27 0. 62 59/62/75 ND 0. 63 ND 0. 64 26.292 0.79 1.24 0. 65 44/47/65 24.850 0.78 (2.24) 0. 66 29.611 0.75 2.35 0. 67 ND 0. 68 ND 0. 69 49/69 24.280 0.84 (1.20) 0. 70 61/70/74/76 29.259 0.77 (4.27) ND 73 ND	57				ND		0.489
59 59/62/75 ND 0.687 0.687 0.687 0.687 0.687 0.7 0.687 0.7 0.77 4.27 0.7							0.489
60	59	59/62/75					1.47
61 61/70/74/76 29.259 0.77 4.27 62 59/62/75		00,02,70	30 567	0.72			0.489
62 59/62/75 ND ND O. 63 ND ND O. 64 26.292 0.79 1.24 O. 65 44/47/65 24.850 0.78 (2.24) 66 29.611 0.75 2.35 O. 67 ND ND O. 68 ND ND O. 69 49/69 24.280 0.84 (1.20) O. 70 61/70/74/76 29.259 0.77 (4.27) 71 40/41/71 25.990 0.81 (1.90) 72 ND ND O. 73 ND ND O. 74 61/70/74/76 29.259 0.77 (4.27) 75 59/62/75 ND O. 76 61/70/74/76 29.259 0.77 (4.27) 77 34.490 0.78 0.554 O. 78 ND ND O. 79 ND ND O. 80 ND ND O. 81 ND ND O. 82 34.490 0.78 0.554 O. 83 ND ND O. 84 ND ND O. 85 85 85/116/117 ND ND O. 86 86/87/97/108/119/125 32.797 1.61 3.28 87 86/87/97/108/119/125 32.797 1.61 3.28 ND O. 88 88 88/91 ND ND O. 89 90/101/113 31.573 1.64 3.84		61/70/74/76					1.95
63 64 64 66 65 64 66 67 68 68 69 69 69 69 69 69 69 69 69 69 69 69 69							1.47
64		00/02/10					0.489
65	64						0.489
66 29.611 0.75 2.35 0. 67 ND 0. 68 ND 0. 69 49/69 24.280 0.84 (1.20) 0. 70 61/70/74/76 29.259 0.77 (4.27) 71 40/41/71 25.990 0.81 (1.90) 72 ND 0. 73 ND 0. 74 61/70/74/76 29.259 0.77 (4.27) 75 59/62/75 ND 76 61/70/74/76 29.259 0.77 (4.27) 7 77 34.490 0.78 0.554 0. 0. 0. 0. 79 ND 0. 0. 0. 0.		44/47/65					1.47
67 68 68 69 49/69 24.280 0.844 (1.20) 0. 69 69 49/69 24.280 0.844 (1.20) 0. 70 61/70/74/76 29.259 0.77 (4.27) 71 40/41/71 25.990 0.81 (1.90) 0. 72 ND ND 0. 73 ND ND 0. 74 61/70/74/76 29.259 0.77 (4.27) 75 59/62/75 ND 76 61/70/74/76 29.259 0.77 (4.27) 77 34.490 0.78 0.554 0. 79 ND ND ND ND 0. 80 ND ND 0. 81 ND ND 0. 82 34.038 1.58 0.756 0. 83 ND ND 0. 84 29.410 1.54 0.991 ND 0. 85 86/87/97/108/119/125 32.797 1.61 3.28 87 86/87/97/108/119/125 32.797 1.61 3.28 88 88/91 ND ND 0. 89 90 90/101/113 31.573 1.64 3.84		44/41/00			2 35		0.489
68 69 69 69 69 69 69 69 69 69 69 69 69 69							0.489
69							0.489
70 61/70/74/76 29.259 0.77 (4.27) 71 40/41/71 25.990 0.81 (1.90) 72 ND 0.73 ND 0.74 61/70/74/76 29.259 0.77 (4.27) 75 59/62/75 ND ND 76 61/70/74/76 29.259 0.77 (4.27) 77 34.490 0.78 0.554 0. 77 77 34.490 0.78 0.554 0. 78 ND ND 0. 80 ND ND 0. 80 ND ND 0. 81 ND ND 0. 82 34.038 1.58 0.756 ND 0. 82 34.038 1.58 0.756 ND 0. 84 29.410 1.54 0.991 0. 85 85/116/117 ND ND 0. 86 86/87/97/108/119/125 32.797 1.61 3.28 ND 0. 86 86/87/97/108/119/125 32.797 1.61 3.28 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84		40/60					0.469
71					(1.20)		1.95
72 ND 0. 73 ND 0. 74 61/70/74/76 29.259 0.77 (4.27) 75 59/62/75 ND 76 61/70/74/76 29.259 0.77 (4.27) 7 78 ND 0.	-						1.47
73 74 61/70/74/76 29.259 0.77 (4.27) 75 59/62/75 ND 76 61/70/74/76 29.259 0.77 (4.27) 77 34.490 0.78 0.554 0.77 0.554 0.78 0.554 0.79 ND ND 0.80 ND ND 0.81 ND ND 0.82 34.038 1.58 0.756 0.83		40/41/71					0.489
74 61/70/74/76 29.259 0.77 (4.27) 75 59/62/75 ND 76 61/70/74/76 29.259 0.77 (4.27) 77 77 34.490 0.78 0.554 0.							
75		C4 /70 /74 /7C					0.489
76 61/70/74/76 29.259 0.77 (4.27) 77 77 34.490 0.78 0.554 0. 78 ND 0. 79 ND 0. 80 ND 0. 81 ND 0. 82 34.038 1.58 0.756 0. 83 ND 0. 84 29.410 1.54 0.991 0. 85 85/116/117 ND 0. 86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 90 90/101/113 31.573 1.64 3.84 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.95</td>							1.95
77 34.490 0.78 0.554 0. 78 ND 0. 79 ND 0. 80 ND 0. 81 ND 0. 82 34.038 1.58 0.756 0. 83 ND 0. 84 29.410 1.54 0.991 0. 85 85/116/117 ND 0. 86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/88/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84							1.47
78	-	61/70/74/76					1.95
79							0.489
80 ND 0. 81 ND 0. 82 34.038 1.58 0.756 0. 83 ND 0. 84 29.410 1.54 0.991 0. 85 85/116/117 ND 0. 86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84							0.489
81 ND 0. 82 34.038 1.58 0.756 0. 83 ND 0. 84 29.410 1.54 0.991 0. 85 85/116/117 ND 0. 86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84							0.489
82 34.038 1.58 0.756 0. 83 ND 0. 84 29.410 1.54 0.991 0. 85 85/116/117 ND 2 86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84							0.489
83 ND 0. 84 29.410 1.54 0.991 0. 85 85/116/117 ND 2 86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84							0.489
84 29.410 1.54 0.991 0. 85 85/116/117 ND 6 86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84 7							0.489
85 85/116/117 ND 2 86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84							0.489
86 86/87/97/108/119/125 32.797 1.61 3.28 2 87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84 0.			29.410				0.489
87 86/87/97/108/119/125 32.797 1.61 (3.28) 2 88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84 0.							1.47
88 88/91 ND 0. 89 ND 0. 90 90/101/113 31.573 1.64 3.84							2.93
89 ND 0. 90 90/101/113 31.573 1.64 3.84			32.797				2.93
90 90/101/113 31.573 1.64 3.84		88/91					0.977
							0.489
							1.47
		88/91					0.977
			30.936	1.58			0.489
	93	93/98/100/102					1.95
							0.489
			28.220	1.55			0.489
96 ND 0.	96				ND		0.489

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P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected
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ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-08;FO 095378 1091808008 U90405B_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC	EML ng/L
IUPAC	Co-elutions	KI	Ralio	ng/L	ng/L	IIg/L
97	86/87/97/108/119/125	32.797	1.61	(3.28)		2.93
98	93/98/100/102			NĎ		1.95
99		32.227	1.64	1.55		0.489
100	93/98/100/102			ND		1.95
101	90/101/113	31.573	1.64	(3.84)		1.47
102	93/98/100/102			ND		1.95
103				ND		0.489
104				ND		0.489
105		38.279	1.57	2.73		0.489
106				ND		0.489
107	107/124			ND		0.977
108	86/87/97/108/119/125	32.797	1.61	(3.28)		2.93
109				NĎ		0.489
110	110/115	33.719	1.64	6.51		0.977
111				ND		0.489
112				ND		0.489
113	90/101/113	31.573	1.64	(3.84)		1.47
114				` NĎ		0.489
115	110/115	33.719	1.64	(6.51)		0.977
116	85/116/117			` NĎ		1.47
117	85/116/117			ND		1.47
118		37.056	1.59	5.47		0.489
119	86/87/97/108/119/125	32.797	1.61	(3.28)		2.93
120				ND		0.489
121				ND		0.489
122				ND		0.489
123				ND		0.489
124	107/124			ND		0.977
125	86/87/97/108/119/125	32.797	1.61	(3.28)		2.93
126				ND		0.489
127				ND		0.489
128	128/166	41.700	1.32	1.46		0.977
129	129/138/163	40.392	1.30	8.73		1.47
130		39.688	1.35	0.524		0.489
131				ND		0.489
132		37.089	1.27	2.82		0.489
133				ND		0.489
134	134/143			ND		0.977
135	135/151	34.759	1.28	2.12		0.977
136	100/101	32.026	1.23	0.698		0.489
137				ND		0.489
138	129/138/163	40.392	1.30	(8.73)		1.47
139	139/140			ND		0.977
140	139/140			ND		0.977
141		39.269	1.25	1.41		0.489
142				ND		0.489
143	134/143			ND		0.977
144	. 5 1/ 1 15			ND		0.489
				.,,,		3. 100

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-08;FO 095378 1091808008 U90405B_11

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
145				ND		0.489
146		38.430	1.28	0.876		0.489
147	147/149	35.765	1.27	5.42		0.977
148				ND		0.489
149	147/149	35.765	1.27	(5.42)		0.977
150	-			` NĎ		0.489
151	135/151	34.759	1.28	(2.12)		0.977
152				NĎ		0.489
153	153/168	39.084	1.28	6.27		0.977
154	100,100			ND		0.489
155				ND		0.489
156	156/157	44.835	1.24	1.05		0.977
157	156/157	44.835	1.24	(1.05)		0.977
158	190/197	40.811	1.37	0.892		0.489
159				ND		0.489
160				ND		0.489
161				ND		0.489
162				ND ND		0.489
163	129/138/163	40.392	1.30	(8.73)		1.47
164	129/130/103	40.073	1.30	0.543		0.489
165		40.073	1.30	0.543 ND		0.489
166	128/166	41.700	1.32			0.469
	120/100	41.700		(1.46)		
167	450/400		4.00	NĎ		0.489
168	153/168	39.084	1.28	(6.27)		0.977
169		47.005		ND		0.489
170	474/470	47.635	1.05	2.15		0.489
171	171/173			ND		0.977
172	474/470			ND		0.489
173	171/173			ND		0.977
174		42.739	1.07	2.23		0.489
175				ND		0.489
176				ND		0.489
177		43.192	1.01	1.18		0.489
178				ND		0.489
179		37.894	1.07	0.790		0.489
180	180/193	46.344	1.04	4.64		0.977
181				ND		0.489
182				ND		0.489
183	183/185	42.521	1.05	1.41		0.977
184				ND		0.489
185	183/185	42.521	1.05	(1.41)		0.977
186				ND		0.489
187		41.851	1.02	2.53		0.489
188				ND		0.489
189				ND		0.489
190				ND		0.489
191				ND		0.489
192				ND		0.489

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-08;FO 095378 1091808008 U90405B_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.344	1.04	(4.64)		0.977
194		53.184	0.93	0.903		0.733
195				ND		0.733
196				ND		0.733
197	197/200			ND		1.47
198	198/199			ND		1.47
199	198/199			ND		1.47
200	197/200			ND		1.47
201				ND		0.733
202				ND		0.733
203				ND		0.733
204				ND		0.733
205				ND		0.733
206				ND		0.733
207				ND		0.733
208				ND		0.733
209				ND		0.733

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0751-08;FO 095378 1091808008 U90405B_11

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	0.297	
Total Trichloro Biphenyls	4.42	
Total Tetrachloro Biphenyls	18.7	
Total Pentachloro Biphenyls	28.4	
Total Hexachloro Biphenyls	32.8	
Total Heptachloro Biphenyls	14.9	
Total Octachloro Biphenyls	0.903	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	100	

ND = Not Detected



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID BLANK-19530
Filename U90405A_06
Injected By BAL
Total Amount Extracted I040 mL
ICAL ID U90405A02

 AL
 Matrix
 Water

 040 mL
 Extracted
 04/03/2009

 90405A02
 Analyzed
 04/05/2009
 19:00

 90405A 01
 Dilution
 NA

CCal Filename(s)	U90405A_	01		Dilution	NA	
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.564	3.23	2.0	0.684	34
13C-4-MoCB	3 4	9.439	3.16	2.0	0.756	38
13C-2,2'-DiCB	4	9.750	1.58	2.0	0.682	34
13C-4,4'-DiCB	15	17.669	1.57	2.0	1.13	57
13C-2,2',6-TrCB	19	13.979	1.15	2.0	0.819	41
13C-3,4,4'-TrCB	37	26.174	1.06	2.0	1.69	85
13C-2,2',6,6'-TeCB	54	17.976	0.79	2.0	0.860	43
13C-3,4,4',5-TeCB	81	33.786	0.81	2.0	1.80	90
13C-3,3',4,4'-TeCB	77	34.406	0.80	2.0	1.87	93
13C-2,2',4,6,6'-PeCB	104	24.699	1.63	2.0	1.14	57
13C-2,3,3',4,4'-PeCB	105	38.179	1.58	2.0	2.03	101
13C-2,3,4,4',5-PeCB	114	37.491	1.57	2.0	2.00	100
13C-2,3',4,4',5-PeCB	118	36.955	1.56	2.0	1.93	97
13C-2,3',4,4',5'-PeCB	123	36.603	1.60	2.0	1.98	99
13C-3,3',4,4',5-PeCB	126	41.548	1.56	2.0	1.96	98
13C-2,2',4,4',6,6'-HxCB	155	31.221	1.28	2.0	1.31	66
13C-HxCB (156/157)	156/157	44.734	1.27	4.0	3.95	99
13C-2,3',4,4',5,5'-HxCB	167	43.544	1.26	2.0	2.02	101
13C-3,3',4,4',5,5'-HxCB	169	48.205	1.29	2.0	1.86	93
13C-2,2',3,4',5,6,6'-HpCB	188	37.474	1.06	2.0	1.67	83
13C-2,3,3',4,4',5,5'-HpCB	189	50.856	1.03	2.0	2.34	117
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.225	0.93	2.0	1.76	88
13C-2,3,3',4,4',5,5',6-OcCB	205	53.550	0.93	2.0	1.61	81
13C-2,2',3,3',4,4',5,5',6-NoCB		55.360	0.79	2.0	1.47	73
13C-2,2',3,3',4,5,5',6,6'-NoCB		50.295	0.80	2.0	1.67	84
13CDeCB	209	57.019	0.68	2.0	1.30	65
	203	37.013	0.00	2.0	1.50	00
Cleanup Standards		04.440	4.00		. =0	0=
13C-2,4,4'-TrCB	28	21.446	1.02	2.0	1.70	<u>85</u>
13C-2,3,3',5,5'-PeCB	111	34.507	1.55	2.0	1.55	77
13C-2,2',3,3',5,5',6-HpCB	178	40.777	1.06	2.0	1.51	75
Recovery Standards						
13C-2,5-DiCB	9	12.518	1.59	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.643	0.78	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.506	1.64	2.0	NA	ŇA
13C-2,2',3,4,4',5'-HxCB	138	40.274	1.26	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.054	0.94	2.0	NA	NA
, ,-,-, , ,-,-	-			-		

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19530 U90405A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.240
2				ND		0.240
3				ND		0.240
4				ND		0.240
4 5 6 7				ND		0.240
6				ND		0.240
7				ND		0.240
8				ND		0.240
9				ND		0.240
10				ND		0.240
11				ND		1.44
12	12/13			ND		0.481
13	12/13			ND		0.481
14	12/10			ND		0.240
15				ND		0.240
16				ND		0.240
17				ND		0.240
18	18/30			ND		0.481
19	10/00			ND		0.240
20	20/28			ND		0.481
21	21/33			ND		0.481
22	21/00			ND		0.240
23				ND		0.240
24				ND		0.240
25				ND		0.240
26	26/29			ND		0.481
27	_0,_0			ND		0.240
28	20/28			ND		0.481
29	26/29			ND		0.481
30	18/30			ND		0.481
31	10/00			ND		0.240
32				ND		0.240
33	21/33			ND		0.481
34	, 00			ND		0.240
34 35				ND		0.240
36				ND		0.240
37				ND		0.240
38				ND		0.240
39				ND		0.240
40	40/41/71			ND		1.44
41	40/41/71			ND		1.44
42	· · · · · ·			ND		0.481
43				ND		0.481
44	44/47/65			ND		1.44
45	45/51			ND		0.961

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19530 U90405A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46				ND		0.481
47	44/47/65			ND		1.44
48	,,			ND		0.481
49	49/69			ND		0.961
50	50/53			ND		0.961
51	45/51			ND		0.961
52				ND		0.481
53	50/53			ND		0.961
54				ND		0.481
55				ND		0.481
56				ND		0.481
57				ND		0.481
58				ND		0.481
59	59/62/75			ND		1.44
60				ND		0.481
61	61/70/74/76			ND		1.92
62	59/62/75			ND		1.44
63				ND		0.481
64				ND		0.481
65	44/47/65			ND		1.44
66				ND		0.481
67				ND		0.481
68				ND		0.481
69	49/69			ND		0.961
70	61/70/74/76			ND		1.92
71	40/41/71			ND		1.44
72				ND		0.481
73				ND		0.481
74	61/70/74/76			ND		1.92
75	59/62/75			ND		1.44
76	61/70/74/76			ND		1.92
77				ND		0.481
78				ND		0.481
79				ND		0.481
80				ND		0.481
81				ND		0.481
82				ND		0.481
83				ND		0.481
84				ND		0.481
85	85/116/117			ND		1.44
86	86/87/97/108/119/125			ND		2.88
87	86/87/97/108/119/125			ND		2.88
88	88/91			ND		0.961
89				ND		0.481
90	90/101/113			ND		1.44

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19530 U90405A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
		• • • • • • • • • • • • • • • • • • • •	itatio			
91	88/91			ND		0.961
92	00/00/400/400			ND		0.481
93	93/98/100/102			ND		1.92
94				ND		0.481
95				ND		0.481
96	00/07/07/400/440/405			ND		0.481
97	86/87/97/108/119/125			ND		2.88
98	93/98/100/102			ND		1.92
99	00/00/400/400			ND		0.481
100	93/98/100/102			ND		1.92
101	90/101/113			ND		1.44
102	93/98/100/102			ND		1.92
103				ND		0.481
104				ND		0.481
105				ND		0.481
106				ND		0.481
107	107/124			ND		0.961
108	86/87/97/108/119/125			ND		2.88
109				ND		0.481
110	110/115			ND		0.961
111				ND		0.481
112				ND		0.481
113	90/101/113			ND		1.44
114				ND		0.481
115	110/115			ND		0.961
116	85/116/117			ND		1.44
117	85/116/117			ND		1.44
118				ND		0.481
119	86/87/97/108/119/125			ND		2.88
120				ND		0.481
121				ND		0.481
122				ND		0.481
123				ND		0.481
124	107/124			ND		0.961
125	86/87/97/108/119/125			ND		2.88
126				ND		0.481
127				ND		0.481
128	128/166			ND		0.961
129	129/138/163			ND		1.44
130				ND		0.481
131				ND		0.481
132				ND		0.481
133				ND		0.481
134	134/143			ND		0.961
135	135/151			ND		0.961

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I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19530 U90405A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136				ND		0.481
137				ND		0.481
138	129/138/163			ND		1.44
139	139/140			ND		0.961
140	139/140			ND		0.961
141	100/110			ND		0.481
142				ND		0.481
143	134/143			ND		0.961
144				ND		0.481
145				ND		0.481
146				ND		0.481
147	147/149			ND		0.961
148	,			ND		0.481
149	147/149			ND		0.961
150	,			ND		0.481
151	135/151			ND		0.961
152				ND		0.481
153	153/168			ND		0.961
154	.00, .00			ND		0.481
155				ND		0.481
156	156/157			ND		0.961
157	156/157			ND		0.961
158				ND		0.481
159				ND		0.481
160				ND		0.481
161				ND		0.481
162				ND		0.481
163	129/138/163			ND		1.44
164				ND		0.481
165				ND		0.481
166	128/166			ND		0.961
167				ND		0.481
168	153/168			ND		0.961
169				ND		0.481
170				ND		0.481
171	171/173			ND		0.961
172				ND		0.481
173	171/173			ND		0.961
174				ND		0.481
175				ND		0.481
176				ND		0.481
177				ND		0.481
178				ND		0.481
179				ND		0.481
180	180/193			ND		0.961

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19530 U90405A_06

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
181				ND		0.481
182				ND		0.481
183	183/185			ND		0.961
184				ND		0.481
185	183/185			ND		0.961
186				ND		0.481
187				ND		0.481
188				ND		0.481
189				ND		0.481
190				ND		0.481
191				ND		0.481
192				ND		0.481
193	180/193			ND		0.961
194				ND		0.721
195				ND		0.721
196				ND		0.721
197	197/200			ND		1.44
198	198/199			ND		1.44
199	198/199			ND		1.44
200	197/200			ND		1.44
201				ND		0.721
202				ND		0.721
203				ND		0.721
204				ND		0.721
205				ND		0.721
206				ND		0.721
207				ND		0.721
208				ND		0.721
209				ND		0.721

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable

NC = Not Calculated

*! = See Discussion

! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename DFBLKNE BLANK-19530 U90405A_06

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyls **Laboratory Control Spike Analysis Results**

Lab Sample ID Filename

Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID

LCS-19531 U90406A_03 1030 mL

U90406A02 U90406A_01 BLANK-19530 Matrix Water Dilution NA

Extracted 04/03/2009 Analyzed 04/07/2009 12:38

Injected By SMT

	N	Native Analyt	tes	Labeled Analytes					
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery			
1	1.0	1.23	123	2.0	0.517	26 F			
3	1.0	1.29	129	2.0	0.560	28 F			
4	1.0	1.21	121	2.0	0.477	24 F			
15	1.0	1.01	101	2.0	0.827	41			
19	1.0	0.979	98	2.0	0.633	32			
37	1.0	1.04	104	2.0	1.29	64			
54	1.0	1.03	103	2.0	0.768	38			
81	1.0	1.07	107	2.0	1.30	65			
77	1.0	1.03	103	2.0	1.40	70			
104	1.0	1.10	110	2.0	0.922	46			
105	1.0	1.11	111	2.0	1.49	75			
114	1.0	1.11	111	2.0	1.55	78			
118	1.0	1.15	115	2.0	1.48	74			
123	1.0	1.14	114	2.0	1.49	75			
126	1.0	0.996	100	2.0	1.53	76			
155	1.0	1.12	112	2.0	1.01	51			
156/157	2.0	2.03	101	4.0	3.23	81			
167	1.0	1.21	121	2.0	1.63	81			
169	1.0	0.986	99	2.0	1.54	77			
188	1.0	1.05	105	2.0	1.21	61			
189	1.0	0.920	92	2.0	1.80	90			
202	1.0	1.06	106	2.0	1.29	65			
205	1.0	1.03	103	2.0	1.30	65			
206	1.0	1.01	101	2.0	1.21	61			
208	1.0	1.01	101	2.0	1.32	66			
209	1.0	0.953	95	2.0	1.07	54			

P = Recovery outside of method 1668A control limits

Nn = Result obtained from alternate analysis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

^{! =} See Discussion

ng = Nanograms

I = Interference



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename Total Amount Extracted

ICAL ID CCal Filename(s)

Method Blank ID

LCSD-19532 U90406A_04 1040 mL

U90406A02 U90406A_01 BLANK-19530 Matrix Water Dilution NA

Extracted 04/03/2009 Analyzed 04/07/2009 13:42

Injected By SMT

	ı	Native Analy	tes	Labeled Analytes				
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery		
1	1.0	1.15	115	2.0	0.833	42		
3	1.0	1.11	111	2.0	0.919	46		
4	1.0	1.11	111	2.0	0.781	39		
15	1.0	1.07	107	2.0	1.30	65		
19	1.0	0.942	94	2.0	1.00	50		
37	1.0	0.950	95	2.0	1.92	96		
54	1.0	0.991	99	2.0	1.14	57		
81	1.0	1.01	101	2.0	1.74	87		
77	1.0	1.02	102	2.0	1.79	89		
104	1.0	1.02	102	2.0	1.30	65		
105	1.0	0.972	97	2.0	2.02	101		
114	1.0	1.01	101	2.0	2.06	103		
118	1.0	1.05	105	2.0	1.96	98		
123	1.0	0.968	97	2.0	2.10	105		
126	1.0	0.939	94	2.0	2.03	101		
155	1.0	0.945	95	2.0	1.43	72		
156/157	2.0	1.87	94	4.0	4.26	106		
167	1.0	1.10	110	2.0	2.17	109		
169	1.0	0.925	92	2.0	2.05	102		
188	1.0	0.973	97	2.0	1.51	76		
189	1.0	0.898	90	2.0	2.29	114		
202	1.0	0.978	98	2.0	1.57	79		
205	1.0	0.965	96	2.0	1.64	82		
206	1.0	0.979	98	2.0	1.49	75		
208	1.0	0.948	95	2.0	1.64	82		
209	1.0	0.915	91	2.0	1.43	71		

P = Recovery outside of method 1668A control limits

Nn = Result obtained from alternate analysis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion ng = Nanograms

I = Interference



Method 1668A Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

 Spike 1 ID
 LCS-19531
 Spike 2 ID
 LCSD-19532

 Spike 1 Filename
 U90406A_03
 Spike 2 Filename
 U90406A_04

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD	
2-MoCB	1	123	115	6.7	
4-MoCB	3	129	111	15.0	
2,2'-DiCB	4	121	111	8.6	
4,4'-DiCB	15	101	107	5.8	
2,2',6-TrCB	19	98	94	4.2	
3,4,4'-TrCB	37	104	95	9.0	
2,2',6,6'-TeCB	54	103	99	4.0	
3,3',4,4'-TeCB	77	103	102	1.0	
3,4,4',5-TeCB	81	107	101	5.8	
2,2',4,6,6'-PeCB	104	110	102	7.5	
2,3,3',4,4'-PeCB	105	111	97	13.5	
2,3,4,4',5-PeCB	114	111	101	9.4	
2,3',4,4',5-PeCB	118	115	105	9.1	
2,3',4,4',5'-PeCB	123	114	97	16.1	
3,3',4,4',5-PeCB	126	100	94	6.2	
2,2',4,4',6,6'-HxCB	155	112	95	16.4	
(156/157)	156/157	101	94	7.2	
2,3',4,4',5,5'-HxCB	167	121	110	9.5	
3,3',4,4',5,5'-HxCB	169	99	92	7.3	
2,2',3,4',5,6,6'-HpCB	188	105	97	7.9	
2,3,3',4,4',5,5'-HpCB	189	92	90	2.2	
2,2',3,3',5,5',6,6'-OcCB	202	106	98	7.8	
2,3,3',4,4',5,5',6-OcCB	205	103	96	7.0	
2,2',3,3',4,4',5,5',6-NoCB	206	101	98	3.0	
2,2',3,3',4,5,5',6,6'-NoCB	208	101	95	6.1	
Decachlorobiphenyl	209	95	91	4.3	

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value

Event 6: April 1, 2009



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.gsiwatersolutions.com

Laboratory Data QA/QC Review Albina Riverlots Source Control Investigation First Quarter 2009 Stormwater Sampling – Event 6

To: File

From: Renee Fowler, GSI Water Solutions, Inc.

Date: July 28, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses conducted by the City of Portland (City) on April 1, 2009. Thirteen stormwater samples were collected in Outfall Basin 44 and submitted for analysis. A field decontamination blank (FO095434) and field duplicate (FO095435) were also submitted for analysis.

The laboratory analyses for these samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed below:

- BES WPCL
 - o Total Organic Carbon (EPA 415.2)
 - o Total Suspended Solids (SM 2540 D)
- Pace Analytical Services (Pace)
 - o Polychlorinated Biphenyls (PCB) Congeners (EPA 1668 A)

The WPCL summary reports and the subcontracted laboratory's data reports are attached for all analyses associated with these source control program samples. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Internal standard recoveries within accuracy control limits
- Laboratory control sample (LCS) recoveries within laboratory control limits

The results from the QA/QC review of the laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained through the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the acceptable holding times for all analyses.

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analysis of PCBs. The method blank results show low levels of mono- and trichloro biphenyls. The low concentrations reported in the method blank appear to be associated with the low recovery for the internal standards. Due to the reduced recoveries in the method blank, the information about potential laboratory background levels of mono- and trichloro biphenyls is not reliable. The field duplicate (FO095435) had a similar level of PCB008 and was flagged "B" on the subcontracted laboratory report. Stormwater sample FO095426 had an unflagged concentration of PCB001 that many be originated in the laboratory.

Internal Standard Recoveries

Isotopically-labeled internal standards were processed during the laboratory analysis of PCB congeners. Many internal standard recoveries were below method specified target ranges. Analytes with a result of a low single digit recovery should be considered estimated and were flagged "P" in the subcontracted laboratory report. Pace reports that the data were automatically corrected for variation in recovery and accurate values were obtained.

Laboratory Control Sample

LCS samples were processed during the analysis PCB congeners. LCS recoveries and RPDs were within laboratory control limits. The recoveries do not offer reliable information about the accuracy of mono- & trichloro biphenyls.

Portland, Oregon 97203-4552 6543 N. Burlington Ave. (503) 823-5696 Water Pollution Control Laboratory



Bureau of Environmental Services

CONFIDENTIAL

Rec'd 4/2/09 Date:

(V)

Page:

Collected By:

Signature: MX File Number: 1020,005 Project Name: PORTLAND HARBOR STORMWATER SAMP WPCL Sample I.D FO095430 FO095426 FO095424 FO095428 FO095427 FO095425 FO095423 FO095422 FO095421 FO095429 Pace to Rush PCB Congener analysis (14-day TAT) N LORING & HARDING, CB 70-8 N LORING & CLARK, CB TO S SW-44-ABC348-CBloS-0409 SW-44-ABC348-0409-NE NLORING & HARDING US TO NE SW-44-ABC278-0409 N LORING & LEWIS SW-44-ABC348-0409-NW SW-44-ABC267-CBtoS-0409 N CLARK AND RR TRACKS SW-44-ABC348-0409-SE N LORING & HARDING US TO SE SW-44-ABC259-0409 N RANDOLPH & RIVER N HARDING & RIVER SW-44-ABC355-0409 SW-44-ABC349-0409 SW-44-ABC352-0409 Attorney/Client Privledged 1050 N RIVER ST Date: /3/09 11me: 0837 Location 472/09 44 SW9 44_SW10 Printed Name Received By: 44_SW5 rinted Name 44_SW8 44_SW7 44_SW6 44_SW4 44_SW3 44_SW2 44_SW1 Code Point 7 Matrix: Sample < Date 至 TE ST <u>۔</u> دو تعاتد 140X 1535 <u> </u> Ohsi See 1-3 C Sample STORMWTR Time Sample Type G മ G G G വ റ G ര Date: Time Time G Date • • • • • TSS • • • • • • • TOC General Received By: Signature: rinted Name rinted Name: kelinquished By: • • • • • • PCB Congeners (All 209) Organics Requested Analyses Time Date Metals Signature: Relinquished By: Signature: rinted Name: Received By: Printed Name: 00 ...о О (V) #5 <u>کې</u> **و O**0 رم ا Com so ٥... Temperature (Deg C) Ċ w 00 2 Com bo 100 1 $\mathcal{Q}_{\mathcal{V}}$ <u>آ</u> رو (八 (八) 68 Conductivity (umhos/cm) Field Time Date: Time: 9,8 \mathcal{Z} ģ 5 pH (pH units) N 2 6

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR STORMWATER SAMP



City of Portland Chain-of-Custody Bureau of Environmental Services



CF

Collected By: MJS, AJA, PHA

WER, PTB

	timped Name:	gnature	- 1	Inted Name:	Just Bellin	A 11 A	FO095435	FO095434						FO095433	FO095432	FO095431	WPCL Sample I.D.	Pace to			File Number: 1020.005
Portland Harbor Stormwate	Date:	> Time:	7-7-0	Date: /2/09	0837		DUPLICATE	FIELD DECON BLANK						SW-44-ABC355-PipetoN-0409 1050 N RIVER, PIPE TO N	SW-44-ABC355-PipetoNE-0409 1050 N RIVER, PIPE TO NE	SW-44-AMX004atABC355-0409 1050 N RIVER, CB TO NE	Location	Pace to Rush PCB Congener analysis (14-day TAT)	Attorney/Client Privledged		
Samp\Mor	Printed Name:	Signature:	Received By:	Printed Name:	oignature:	Relinquished By:	DUP	FDB						44_SW13	44_SW12	44_SW1	Point Code	analysis	rivledg		<u>.</u>
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Date:		Time:		Date:	Time:	19-41	en ja manna in sense			_ 1' ***********************************	MANY VALUE PILOTO	A COLOR OF THE COL	action: 17/January	enger per continue	12.000 12.0000 12.000 12.000 12.000 12.000 12.000 12.000 12.000 12.000 12.0000 12.000 12.000 12.000 12.000 12.000 12.000 12.000 12.000 12.0000 12.000 12.000 12.000 12.000 12.000 12.000 12.000 12.000 12.0000 12.000 12.000 12.000 12.000 12.000 12.000 12.000 12.000 12.0000 12.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.0000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.0000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.0000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.0000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.0000 10.000	And the second s	and statement			Metals	Requested Analyses
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6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095421

Sample Collected: 04/01/09 Sample Received: 04/02/09 12:16

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Address/Location:

Page 1 of 1

SW-44-ABC352-0409

N HARDING & RIVER DS OF MH

System ID:

AN03747

Sample Point Code:

44_SW1

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	55	μmhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	7.2	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	7.5	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL TOTAL SUSPENDED SOLIDS	201	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS TOTAL ORGANIC CARBON	1.7	mg/L	1.0	EPA 415.2	04/14/09
POLYCHLORINATED BIPHENYL CONGI	ENERS -PACE		1		
Refer to Contract Report	COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095421

Report Date: 04/30/09

Validated By:



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095422

Sample Collected: 04/01/09

14:02

Sample Status: COMPLETE AND

Sample Received: 04/02/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

SW-44-ABC349-0409

AN03748

N RANDOLPH & RIVER DS OF MH

System ID:

1020.005

Sample Point Code:

44_SW2

EID File #:

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD		-			ų.
CONDUCTIVITY (FIELD)	149	μ mhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	7.7	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	7.3	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL TOTAL SUSPENDED SOLIDS	121	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS TOTAL ORGANIC CARBON	4.9	mg/L	1.0	EPA 415.2	04/14/09
POLYCHLORINATED BIPHENYL CONG	ENERS -PACE				
Refer to Contract Report	COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095422

Report Date: 04/30/09



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095423

Sample Collected: 04/01/09

12:35

Sample Status: COMPLETE AND

Sample Received: 04/02/09

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

SW-44-ABC355-0409

AN03749

Sample Point Code:

1050 N RIVER ST DS OF MH

System ID:

1020.005

Sample Type:

44 SW3 **GRAB**

EID File #: LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Result	Units	MRL	Method	Analysis Date
142	μmhos/cm	1	SM 2510 B	04/02/09
7.6	pH Units	0.1	SM 4500-H B	04/02/09
8.1	Deg. C	0.1	SM 2550 B	04/02/09
122	mg/L	2	SM 2540 D	04/02/09
3.9	mg/L	1.0	EPA 415.2	04/14/09
ENERS -PACE COMPLETED	ng/L		EPA 1668 MOD	04/03/09
	142 7.6 8.1 122 3.9 ENERS -PACE	142 µmhos/cm 7.6 pH Units 8.1 Deg. C 122 mg/L 3.9 mg/L ENERS -PACE	142 μmhos/cm 1 7.6 pH Units 0.1 8.1 Deg. C 0.1 122 mg/L 2 3.9 mg/L 1.0 ENERS -PACE	142 μmhos/cm 1 SM 2510 B 7.6 pH Units 0.1 SM 4500-H B 8.1 Deg. C 0.1 SM 2550 B 122 mg/L 2 SM 2540 D 3.9 mg/L 1.0 EPA 415.2 ENERS -PACE

End of Report for Sample ID: FO095423

Report Date: 04/30/09



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095424

Sample Collected: 04/01/09 Sample Received: 04/02/09 13:35

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

SW-44-ABC348-0409

AN03750

Sample Point Code:

N LORING & HARDING UPSTR 12IN LIN FR NW 44_SW4

System ID:

1020.005

Sample Type:

EID File #: LocCode:

PORTHASW

Sample Matrix:

GRAB STORMWTR

Collected By: MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	50	μmhos/cm	. 1	SM 2510 B	04/02/09
pH (FIELD)	7.6	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	7.4	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL					
TOTAL SUSPENDED SOLIDS	21	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS				·,	
TOTAL ORGANIC CARBON	1.9	mg/L	1.0	EPA 415.2	04/14/09
POLYCHLORINATED BIPHENYL CONGE	NERS -PACE				
Refer to Contract Report	COMPLETED	ng/L	•	EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095424

Report Date: 04/30/09



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LABORATORY ANALYSIS REPORT

Sample ID: FO095425

Sample Collected: 04/01/09 Sample Received: 04/02/09 13:40

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

SW-44-ABC348-0409 N LORING & HARDING UPSTR 12IN LIN FR SE

System ID:

AN03751

Sample Point Code:

44_SW5

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	68	μmhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	8.2	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	8.4	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL TOTAL SUSPENDED SOLIDS	27	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS TOTAL ORGANIC CARBON	2.8	mg/L	1.0	EPA 415.2	04/14/09
POLYCHLORINATED BIPHENYL CONC		B		ED4 4000 MOD	
Refer to Contract Report	COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095425



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095426 Sample Collected: 04/01/09 13:44 Sample Status: COMPLETE AND

Sample Received: 04/02/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 1 of 1

Address/Location: SW-44-ABC348-0409

N LORING & HARDING UPSTR 8IN LINE FR NE System ID: AN03752

Sample Point Code: 44_SW6 EID File #: 1020.005

Sample Type: GRAB LocCode: PORTHASW

Sample Matrix: STORMWTR Collected By: MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	85	µmhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	7.5	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	8.3	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL	•				
TOTAL SUSPENDED SOLIDS	57	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	3.0	mg/L	1.0	EPA 415.2	04/14/09
POLYCHLORINATED BIPHENYL CO	NGENERS -PACE				-
Refer to Contract Report	COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095426

A)



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LABORATORY ANALYSIS REPORT

Sample ID: FO095427

Sample Collected: 04/01/09

14:21

Sample Status: COMPLETE AND

Sample Received: 04/02/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

SW-44-ABC259-0409

Report Page:

Page 1 of 1

Address/Location:

N CLARK & RAILROAD DS OF MH

System ID:

AN03753

Sample Point Code:

44_SW7

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	41	μmhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	7.6	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	8.5	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL TOTAL SUSPENDED SOLIDS	13	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS TOTAL ORGANIC CARBON	4.4	mg/L	1.0	EPA 415.2	04/14/09
POLYCHLORINATED BIPHENYL CON Refer to Contract Report	GENERS -PACE COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095427

Validated By:



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LABORATORY ANALYSIS REPORT

Sample ID: FO095428

Sample Collected: 04/01/09

12:54

Sample Status: COMPLETE AND

Sample Received: 04/02/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

SW-44-ABC278-0409 N LORING & LEWIS DS OF MH

System ID:

AN03754

Sample Point Code:

44 SW8

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD	•			4	
CONDUCTIVITY (FIELD)	98	μmhos/cm	. 1	SM 2510 B	04/02/09
pH (FIELD)	. 8.8	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	7.7	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL TOTAL SUSPENDED SOLIDS	58	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS TOTAL ORGANIC CARBON	2.9	mg/L	1.0	EPA 415.2	04/15/09
POLYCHLORINATED BIPHENYL CONGEN Refer to Contract Report	NERS -PACE COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095428

Report Date: 04/30/09

Validated By:



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095429

Sample Collected: 04/01/09

13:12

Sample Status: COMPLETE AND

Sample Received: 04/02/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Address/Location:

SW-44-ABC267-0409

Report Page:

Page 1 of 1

N LORING & CLARK CB TO SOUTH OF MH

System ID:

AN03755

Sample Point Code:

44_SW9

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	90	μmhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	8.0	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	7.9	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL TOTAL SUSPENDED SOLIDS	100	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS TOTAL ORGANIC CARBON	2.2	mg/L	1.0	EPA 415.2	04/15/09
POLYCHLORINATED BIPHENYL CONGI Refer to Contract Report	ENERS -PACE COMPLETED	ng/L	•	EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095429

Report Date: 04/30/09

Validated By:



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LABORATORY ANALYSIS REPORT

Sample ID: FO095430

Sample Collected: 04/01/09

17:12

Sample Status:

COMPLETE AND

Sample Received: 04/02/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Address/Location:

N LORING & HARDING CB TO SOUTH OF MH

Report Page:

Page 1 of 1

SW-44-ABC348-CBtoS-0409

System ID:

AN03756

Sample Point Code:

44_SW10

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	85	µmhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	7.7	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	9.0	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL				•	
TOTAL SUSPENDED SOLIDS	26	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS		,			,
TOTAL ORGANIC CARBON	3.4	mg/L	1.0	EPA 415.2	04/15/09
POLYCHLORINATED BIPHENYL CONGE	NERS -PACE				
Refer to Contract Report	COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095430



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LABORATORY ANALYSIS REPORT

Sample ID: **FO095431**

Sample Collected: 04/01/09 Sample Received: 04/02/09 12:30 **Sample**

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

SW-44-AMX004atABC355-0409

System ID:

AN03757

Sample Point Code:

1050 N RIVER ST CB TO NE 44_SW11

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Type: Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

	•				Analysis
Test Parameter	Result	Units	MRL	Method	Date
FIELD					
CONDUCTIVITY (FIELD)	99	µmhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	8.4	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	7.8	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL					
TOTAL SUSPENDED SOLIDS	73	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS		•			
TOTAL ORGANIC CARBON	1.5	mg/L	1.0	EPA 415.2	04/15/09
POLYCHLORINATED BIPHENYL CONG	ENERS -PACE				
Refer to Contract Report	COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095431



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LABORATORY ANALYSIS REPORT

Sample ID: **FO095432**

Sample Collected: 04/01/09

16:40

Sample Status: COMPLETE AND

Sample Received: 04/02/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

SW-44-ABC355-PipetoNE-0409

1050 N RIVER ST PIPE TO NE

System ID:

AN03758

Sample Point Code:

44_SW12

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	293	μmhos/cm	1	SM 2510 B	04/02/09
pH (FIELD)	6.3	pH Units	0.1	SM 4500-H B	04/02/09
TEMPERATURE	9.7	Deg. C	0.1	SM 2550 B	04/02/09
GENERAL			·		
TOTAL SUSPENDED SOLIDS	4	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	4.4	mg/L	1.0	EPA 415.2	04/15/09
POLYCHLORINATED BIPHENYL CONG	ENERS -PACE				
Refer to Contract Report	COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095432



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LABORATORY ANALYSIS REPORT

Sample ID: FO095433

Sample Collected: 04/01/09 Sample Received: 04/02/09 16:37

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

SW-44-ABC355-PipetoN-0409 1050 N RIVER ST PIPE TO N

System ID:

AN03759

Sample Point Code:

44_SW13

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By: MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Result	Units	MRL	Method	Analysis Date
155	μ mhos/cm	1	SM 2510 B	04/02/09
7.4	pH Units	0.1	SM 4500-H B	04/02/09
8.9	Deg. C	0.1	SM 2550 B	04/02/09
		÷		
21	mg/L	2	SM 2540 D	04/02/09
2.8	mg/L	1.0	EPA 415.2	04/15/09
SENERS -PACE				
COMPLETED	ng/L		EPA 1668 MOD	04/03/09
	155 7.4 8.9 21 2.8 GENERS -PACE	155 μmhos/cm 7.4 pH Units 8.9 Deg. C 21 mg/L 2.8 mg/L	155 μmhos/cm 1 7.4 pH Units 0.1 8.9 Deg. C 0.1 21 mg/L 2 2.8 mg/L 1.0 GENERS -PACE	155 μmhos/cm 1 SM 2510 B 7.4 pH Units 0.1 SM 4500-H B 8.9 Deg. C 0.1 SM 2550 B 21 mg/L 2 SM 2540 D 2.8 mg/L 1.0 EPA 415.2 GENERS -PACE

End of Report for Sample ID: FO095433

Report Date: 04/30/09

Validated By:



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656





Sample ID: FO095434

Sample Collected: 04/01/09

17:05

Sample Status: COMPLETE AND

Sample Received: 04/02/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

FIELD DECON BLANK

System ID:

AN03760

Sample Point Code:

FDBLANK

EID File #:

1020.005

Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

DIWTR

Collected By: MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL TOTAL SUSPENDED SOLIDS	<2	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS TOTAL ORGANIC CARBON	<1.0	mg/L	1.0	EPA 415.2	04/15/09
POLYCHLORINATED BIPHENYL CON Refer to Contract Report	IGENERS -PACE COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095434

Report Date: 04/30/09

Validated By:



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: **FO095435**

Sample Collected: 04/01/09 Sample Received: 04/02/09 00:00

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR STORMWATER SAMP

Report Page:

Page 1 of 1

Address/Location:

FIELD DUPLICATE

System ID:

AN03761

DUP

EID File #: 102

1020.005

Sample Point Code: Sample Type:

GRAB

LocCode:

PORTHASW

Sample Matrix:

STORMWTR

Collected By:

MJS/AJA/PHA/WCR/

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL TOTAL SUSPENDED SOLIDS	182	mg/L	2	SM 2540 D	04/02/09
OUTSIDE ANALYSIS TOTAL ORGANIC CARBON	1.9	mg/L	1.0	EPA 415.2	04/15/09
POLYCHLORINATED BIPHENYL CON Refer to Contract Report	GENERS -PACE COMPLETED	ng/L		EPA 1668 MOD	04/03/09

End of Report for Sample ID: FO095435

1

Report Date: 04/30/09 Validated By:



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

Report Prepared for:

Howard Holmes Test America 9405 SW Nimbus Avenue Beaverton OR 97008

> REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 1092316

Sample Receipt Date: 04/03/2009

Client Project #: PSD0075

Client Sub PO #: N/A

State Cert #: MN200001-005

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed and prepared by:

gri C. Muye

Scott Unze, Project Manager (612) 607-6383 (612) 607-6444 (fax)

scott.unze@pacelabs.com



Report of Laboratory Analysis

This report should not be reproduced, except in full,

without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

Report Prepared Date:

April 9, 2009



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on fifteen samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.25-0.75 parts-per-trillion and were adjusted for sample volume.

Many of the early eluting isotopically-labeled PCB internal standards in the quality control sample extracts and, to a lesser extent, in the field sample extracts were recovered below the target ranges specified in the method. Since the quantification of the native PCB congeners was based on internal standards/isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained. Results for analytes with low single digit recoveries should be considered estimated where values were reported. The affected internal standards were flagged "P" where recoveries outside of the method ranges were reported.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain low levels of selected early eluting PCB congeners. The concentrations reported appear elevated due to the low signals for the associated internal standards. Due to the reduced recoveries in the method blank, it does not offer reliable information about potential laboratory background levels of the mono through tri chlorinated congeners. Sample PSD0075-15 contained a similar level of congener #8 and was flagged "B" on the results table. An unflagged concentration of congener #1 in sample PSD0075-06 may also have originated in the laboratory.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native tetra through deca chlorinated congeners in the lab spikes were recovered at 92-120% with relative percent differences of 0.0-5.8%. These results indicate high degrees of accuracy and precision for these congeners. The laboratory spike samples do not offer reliable information about the accuracy and precision of the mono through tri chlorinated congeners. Matrix spikes were not prepared with the sample set.

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

SUBCONTRACT ORDER

TestAmerica Portland PSD0075

SENDING LABORATORY: TestAmerica Portland

9405 SW Nimbus Ave. Beaverton, OR 97008

Phone: (503) 906-9200 Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone: (612) 607-1700

Fax: (612) 607-6444

Project Location: OR - OREGON

Receipt Temperature: 3.024°C

needs Excel EDD

Analysis Units

Expires Due

Comments

Sample ID: PSD0075-01

Water

Sampled: 04/01/09 12:16

1668 Coplanar PCBs - SUB ua/l

09/28/09 12:16 04/16/09

04/16/09

04/16/09

09/28/09 14:02

Containers Supplied:

1L Amber - Unpres. (A)

Sample ID: PSD0075-02 1668 Coplanar PCBs - SUB

Water ug/l

Sampled: 04/01/09 14:02

F0095422 00

Containers Supplied:

1L Amber - Unpres. (A)

Sample ID: PSD0075-03

Water

Sampled: 04/01/09 12:35 09/28/09 12:35

F-0 095423 ***209 Congeners*** to Pace

1668 Coplanar PCBs - SUB ug/l

Containers Supplied:

1L Amber - Unpres. (A)

Sample ID: PSD0075-04

Water ug/l

Sampled: 04/01/09 13:35 09/28/09 13:35 04/16/09

F-00952424 000 **209 Congeners*** to Pace

Containers Supplied:

1L Amber - Unpres. (A)

1668 Coplanar PCBs - SUB

Sample ID: PSD0075-05 Water 1668 Coplanar PCBs - SUB ug/l

Sampled: 04/01/09 13:40

F0095425005
209 Congeners* to Pace

04/16/09

09/28/09 13:40

Containers Supplied:

1L Amber - Unpres. (A)

Sample ID: PSD0075-06

1668 Coplanar PCBs - SUB

Water ug/l

Sampled: 04/01/09 13:44

F0095426 006
*209 Congeners*** to Pace

Containers Supplied:

1L Amber - Unpres. (A)

04/16/09 09/28/09 13:44

Received B

face

Released Sport No.....1092316_1668 Time

Received By

Date/TiMage 4 of Page 1 of 3

SUBCONTRACT ORDER

TestAmerica Portland PSD0075

1092316

				(10)(0
Analysis	Units	Due	Expires	Comments
Sample ID: PSD0075-07	Water		Sampled: 04/<u>01/09</u> 14:21	FO09542700
1668 Coplanar PCBs - SUB	ug/l	04/16/09	09/28/09 14:21	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (A)	· · · · · · · · · · · · · · · · · · ·			
Sample ID: PSD0075-08	Water		Sampled: 04/01/09_12:54	F009542800
1668 Coplanar PCBs - SUB	. ug/l	04/16/09	09/28/09 12:54	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (A)			,	
Sample ID: PSD0075-09	Water		Sampled: 04/01/09 13:12	FO 095429000
1668 Coplanar PCBs - SUB	ug/l	04/16/09	09/28/09 13:12	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (A)				
Sample ID: PSD0075-10	Water		Sampled: 04/01/09 17:12	FU09543001
1668 Coplanar PCBs - SUB	ug/l	04/16/09	09/28/09 17:12	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (A)				
Sample ID: PSD0075-11	Water		Sampled: 04/01/09 12:30	
1668 Coplanar PCBs - SUB	ug/l	04/16/09	09/28/09 12:30	***209 Congéners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (A)				
Sample ID: PSD0075-12	Water		Sampled: 04/01/09 16:40	F009543Z 012
1668 Coplanar PCBs - SUB	ug/l	04/16/09	09/28/09 16:40	***209 Congeners*** to Pace
Containers Supplied:			,	
1L Amber - Unpres. (A)				
Sample ID: PSD0075-13	Water		Sampled: 04/01/09 16:37	F0095433 03
1668 Coplanar PCBs - SUB	ug/l	04/16/09	09/28/09 16:37	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				
Sample ID: PSD0075-14	Water		Compled: 04/04/00 47:05	FO 09 5434 O14
1668 Coplanar PCBs - SUB	ug/l	04/16/09	Sampled: 04/01/09 17:05 09/28/09 17:05	***209 Congeners*** to Pace
Containers Supplied:	-			
1L Amber - Unpres. (A)				

SUBCONTRACT ORDER

TestAmerica Portland PSD0075

109236

Analysis	Units	Due	Expires	Comments
Sample ID: PSD0075-15	Water		Sampled: 04/01/09 00:00	F0095435 015
1668 Coplanar PCBs - SUE	3 ug/l	04/16/09	09/28/09 00:00	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (A)				

Sample Condition Upon Receipt Client Name: Tost Aucros Project # (092316 Courier: Fed Ex UPS USPS Client Commercial Pace Other Tracking #: 9796 8712 3088 4796 8712 3099 Proj. Due Date: Custody Seal on Cooler/Box Present: yes no Proj. Name: Seals intact: yes Packing Waterial: Bubble Wrap ☐Bubble Bags ☐ None ☐ Other Temp Blank: Yes No Thermometer Used 80344042/179425 Type of Ice: / Wet Blue None Samples on ice, cooling process has begun Cooler Temperature Date and initials of person examining Biological Tissue is Frozen: Yes No 3.0 Temp should be above freezing to 6°C contents: 43.09 Comments: Chain of Custody Present: DYes □No □NA 1. Chain of Custody Filled Out: □Xes □No □N/A 2 Chain of Custody Relinquished: DYES DNO []N/A 3. Sampler Name & Signature on COC: ☐Yes ☑No □N/A Samples Arrived within Hold Time: ₩es □No □N/A | 5. Short Hold Time Analysis (<72hr): □Yes □Wo □N/A Rush Turn Around Time Requested: DYGS DNO DNA 7. Sufficient Volume: THES ONO ONIA 8. Correct Containers Used: DYes DNo DNA 9. -Pace Containers Used: ☐Yes DK6 □N/A Containers Intact: DIES DNO DNA 10. Filtered volume received for Dissolved tests □Yes □Mo □N/A 11. Sample Labels match COC: ☑Yes □No DNA 12. -Includes date/time/ID/Analysis Matrix: All containers needing acid/base preservation have been checked. Noncompliance are noted in 13. □Yes □No DIVA All containers needing preservation are found to be in □Yes □No ŰΝΑ compliance with EPA recommendation. Initial when Lot # of added Exceptions: VOA,Collform, TOC, Oil and Grease, WI-DRO (water) □Yes □No completed preservative Samples checked for dechlorination: □Yes □No ☑NA 14. Headspace in VOA Vials (>6mm): ☐Yes ☐No **□N/A** Trip Blank Present: ĎN/A 116. ☐Yes ☐No Trip Blank Custody Seals Present □Yes □No □N/A Pace Trip Blank Lot # (if purchased): Client Notification/ Resolution: Fleid Data Required? Person Contacted: Comments/ Resolution:

Project Manager Review:

(b)

Date: 04(03/09)

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp. incorrect containers)

Report No. 310092316_1668A

Appendix B

Sample Analysis Summary



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID Filename

Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted **ICAL ID**

CCal Filename(s) Method Blank ID

PSD0075-01;FO 095421

1092316001 U90404A_11

BAL 1010 mL NA

NA U90404A02 U90404A 01 BLANK-19539

Water Matrix Dilution NA

Collected 04/01/2009 Received 04/03/2009 Extracted 04/03/2009 Analyzed 04/04/2009 20:34

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1			2.0	ND	
13C-4-MoCB	3	9.427	2.74	2.0	0.00645	0 P
13C-2,2'-DiCB	4	9.750	1.57	2.0	0.00435	0 P
13C-4,4'-DiCB	15	17.681	1.54	2.0	0.484	24 P
13C-2,2',6-TrCB	19	13.979	1.02	2.0	0.102	24 P 5 P
13C-3,4,4'-TrCB	37	26.193	1.02	2.0	1.55	78
13C-2,2',6,6'-TeCB	54	17.978	0.83	2.0	0.384	19 P
13C-3,4,4',5-TeCB	81	33.822	0.81	2.0	1.83	91
13C-3,3',4,4'-TeCB	77	34.442	0.81	2.0	1.85	93
13C-2,2',4,6,6'-PeCB	104	24.718	1.67	2.0	0.823	41
13C-2,3,3',4,4'-PeCB	105	38.231	1.62	2.0	1.98	99
13C-2,3,4,4',5-PeCB	114	37.544	1.58	2.0	1.92	96
13C-2,3',4,4',5-PeCB	118	36.991	1.61	2.0	2.01	100
13C-2,3',4,4',5'-PeCB	123	36.639	1.56	2.0	1.95	98
13C-3,3',4,4',5-PeCB	126	41.585	1.56	2.0	1.94	97
13C-2,2',4,4',6,6'-HxCB	155	31.257	1.28	2.0	1.07	53
13C-HxCB (156/157)	156/157	44.804	1.26	4.0	3.71	93
13C-2,3',4,4',5,5'-HxĆB	167	43.597	1.26	2.0	1.90	95
13C-3,3',4,4',5,5'-HxCB	169	48.274	1.27	2.0	1.79	89
13C-2,2',3,4',5,6,6'-HpCB	188	37.527	1.04	2.0	1.42	71
13C-2.3.3'.4.4'.5.5'-HpCB	189	50.923	1.05	2.0	2.11	106
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.278	0.90	2.0	1.51	76
13C-2,3,3',4,4',5,5',6-OcCB	205	53.638	0.89	2.0	1.54	77
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.427	0.75	2.0	1.39	70
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.363	0.78	2.0	1.47	73
13CDeCB	209	57.087	0.72	2.0	1.23	62
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.466	1.06	2.0	1.24	62
13C-2,3,3',5,5'-PeCB	111	34.543	1.56	2.0	1.66	83
13C-2,2',3,3',5,5',6-HpCB	178	40.830	1.09	2.0	1.49	75
13C-2,2 ,3,3 ,3,5 ,0-1 IPCB	170	40.030	1.09	2.0	1.49	75
Recovery Standards	_					
13C-2,5-DiCB	_9	12.518	1.60	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.662	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.525	1.62	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.327	1.30	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.121	0.94	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-01;FO 095421 1092316001 U90404A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.247
2				ND		0.247
3				ND		0.247
4		9.762	1.05 I		2.45	0.247
5				ND		0.247
6				ND		0.247
7				ND		0.247
8				ND		0.247
9				ND		0.247
10				ND		0.247
11				ND		1.48
12	12/13			ND		0.495
13	12/13			ND		0.495
14	12/13			ND		0.247
15		17.705	1.59	1.39		0.247
16		17.705	1.07	0.554		0.247
17		17.034	1.07	0.408		0.247
18	18/30	16.507	1.10	0.720		0.495
19	10/30			0.720 ND		0.495
20	20/28	 21.482	1.04	6.64		0.495
21	21/33	21.751	0.99	2.01		0.495
22		22.237	1.01	3.27		0.247
23				ND		0.247
24				ND		0.247
25	00/00	20.745	1.00	0.336		0.247
26	26/29	20.460	0.99	0.754		0.495
27				ND		0.247
28	20/28	21.482	1.04	(6.64)		0.495
29	26/29	20.460	0.99	(0.754)		0.495
30	18/30	16.507	1.10	(0.720)		0.495
31		21.147	1.03	3.90		0.247
32		18.280	0.99	0.546		0.247
33	21/33	21.751	0.99	(2.01)		0.495
34				NĎ		0.247
35		25.774	0.93	0.332		0.247
36				ND		0.247
37		26.210	1.01	5.04		0.247
38				ND		0.247
39				ND		0.247
40	40/41/71	25.976	0.79	5.29		1.48
41	40/41/71	25.976	0.79	(5.29)		1.48
42		25.422	0.82	2.14		0.495
43				ND		0.495
44	44/47/65	24.819	0.79	6.36		1.48
45	45/51			ND		0.989
46				ND		0.495
47	44/47/65	24.819	0.79	(6.36)		1.48
48		24.567	0.79	`1.39́		0.495

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-01;FO 095421 1092316001 U90404A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	24.265	0.80	3.48		0.989
50	50/53			ND		0.989
51	45/51			ND		0.989
52		23.695	0.80	5.80		0.495
53	50/53			ND		0.989
54				ND		0.495
55				ND		0.495
56		30.301	0.76	5.21		0.495
57				ND		0.495
58				ND		0.495
59	59/62/75			ND		1.48
60	00/02/10	30.553	0.75	2.69		0.495
61	61/70/74/76	29.228	0.76	15.7		1.98
62	59/62/75			ND		1.48
63	39/02/13			ND		0.495
64		26.261	0.81	3.73		0.495
65	44/47/65	24.819	0.79	(6.36)		1.48
66	44/47/05	29.597	0.79	9.06		0.495
67		29.597	0.77	9.06 ND		0.495
68				ND ND		0.495
	40/00					
69	49/69	24.265	0.80	(3.48)		0.989
70	61/70/74/76	29.228	0.76	(15.7)		1.98
71	40/41/71	25.976	0.79	(5.29)		1.48
72				ND		0.495
73	0.4 /= 0 /= 4 /= 0			ND		0.495
74	61/70/74/76	29.228	0.76	(15.7)		1.98
75	59/62/75			ND		1.48
76	61/70/74/76	29.228	0.76	(15.7)		1.98
77		34.459	0.76	1.76		0.495
78				ND		0.495
79		32.782	0.75	0.545		0.495
80				ND		0.495
81				ND		0.495
82		34.006	1.63	1.87		0.495
83		32.061	1.63	0.968		0.495
84		29.379	1.61	2.24		0.495
85	85/116/117			ND		1.48
86	86/87/97/108/119/125	32.782	1.60	8.65		2.97
87	86/87/97/108/119/125	32.782	1.60	(8.65)		2.97
88	88/91	29.178	1.63	1.27		0.989
89				ND		0.495
90	90/101/113	31.558	1.62	9.62		1.48
91	88/91	29.178	1.63	(1.27)		0.989
92		30.905	1.59	`1.63		0.495
93	93/98/100/102			ND		1.98
94				ND		0.495
95		28.205	1.62	5.82		0.495
96				ND		0.495

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-01;FO 095421 1092316001 U90404A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	32.782	1.60	(8.65)		2.97
98	93/98/100/102			NĎ		1.98
99		32.196	1.64	4.61		0.495
100	93/98/100/102			ND		1.98
101	90/101/113	31.558	1.62	(9.62)		1.48
102	93/98/100/102			ND		1.98
103	00/00/100/102			ND		0.495
104				ND		0.495
105		38.248	1.54	8.77		0.495
106				ND		0.495
107	107/124			ND		0.989
108	86/87/97/108/119/125	32.782	1.60	(8.65)		2.97
109	00/07/97/100/119/123	36.538	1.52	1.15		0.495
110	110/115	33.688	1.62	19.4		0.495
-	110/115	33.000	1.02	ND		0.969
111 112				ND ND		
	00/404/442					0.495
113	90/101/113	31.558	1.62	(9.62)		1.48
114	440/445			ND (10.4)		0.495
115	110/115	33.688	1.62	(19.4)		0.989
116	85/116/117			NĎ		1.48
117	85/116/117			ND		1.48
118		37.024	1.56	17.8		0.495
119	86/87/97/108/119/125	32.782	1.60	(8.65)		2.97
120				ND		0.495
121				ND		0.495
122				ND		0.495
123				ND		0.495
124	107/124			ND		0.989
125	86/87/97/108/119/125	32.782	1.60	(8.65)		2.97
126				ND		0.495
127				ND		0.495
128	128/166	41.669	1.27	3.98		0.989
129	129/138/163	40.361	1.29	24.0		1.48
130		39.673	1.32	1.46		0.495
131				ND		0.495
132		37.058	1.31	7.24		0.495
133				ND		0.495
134	134/143			ND		0.989
135	135/151	34.727	1.25	4.87		0.989
136	100/101	32.011	1.27	1.48		0.495
137		39.908	1.28	1.21		0.495
138	129/138/163	40.361	1.29	(24.0)		1.48
139	139/140		1.23	ND		0.989
140	139/140			ND		0.989
140	100/170	39.237	1.26	3.48		0.495
141		39.237	1.20	3.46 ND		0.495
142	134/143					
-	134/143			ND 0.727		0.989
144		35.347	1.25	0.727		0.495

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*= See Discussion
! = Outside QC Limits
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ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-01;FO 095421 1092316001 U90404A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.495
146		38.399	1.28	2.42		0.495
147	147/149	35.733	1.31	13.8		0.989
148				ND		0.495
149	147/149	35.733	1.31	(13.8)		0.989
150				` NĎ		0.495
151	135/151	34.727	1.25	(4.87)		0.989
152				` NĎ		0.495
153	153/168	39.053	1.29	17.4		0.989
154				ND		0.495
155				ND		0.495
156	156/157	44.804	1.24	3.20		0.989
157	156/157	44.804	1.24	(3.20)		0.989
158		40.780	1.31	`2.48		0.495
159		42.708	1.27	0.535		0.495
160				ND		0.495
161				ND		0.495
162				ND		0.495
163	129/138/163	40.361	1.29	(24.0)		1.48
164		40.042	1.25	`1.45		0.495
165				ND		0.495
166	128/166	41.669	1.27	(3.98)		0.989
167		43.630	1.19	1.20		0.495
168	153/168	39.053	1.29	(17.4)		0.989
169				` NĎ		0.495
170		47.604	1.06	6.18		0.495
171	171/173	43.831	1.17	1.76		0.989
172		45.608	1.07	1.05		0.495
173	171/173	43.831	1.17	(1.76)		0.989
174		42.708	1.07	6.13		0.495
175				ND		0.495
176		38.835	1.08	0.613		0.495
177		43.161	1.05	3.43		0.495
178		40.864	1.06	1.00		0.495
179		37.879	1.05	1.92		0.495
180	180/193	46.313	1.05	13.6		0.989
181				ND		0.495
182				ND		0.495
183	183/185	42.490	1.04	4.27		0.989
184				ND		0.495
185	183/185	42.490	1.04	(4.27)		0.989
186				` NĎ		0.495
187		41.836	1.05	6.51		0.495
188				ND		0.495
189				ND		0.495
190		48.174	1.09	1.22		0.495
191				ND		0.495
192				ND		0.495

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-01;FO 095421 1092316001 U90404A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.313	1.05	(13.6)		0.989
194		53.143	0.89	2.44		0.742
195		50.643	0.99	0.967		0.742
196		49.062	0.92	1.27		0.742
197	197/200			ND		1.48
198	198/199	48.358	0.89	2.83		1.48
199	198/199	48.358	0.89	(2.83)		1.48
200	197/200			` NĎ		1.48
201				ND		0.742
202				ND		0.742
203		49.263	0.91	1.57		0.742
204				ND		0.742
205				ND		0.742
206				ND		0.742
207				ND		0.742
208				ND		0.742
209				ND		0.742

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-01;FO 095421 1092316001 U90404A_11

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	1.39
Total Trichloro Biphenyls	24.5
Total Tetrachloro Biphenyls	63.1
Total Pentachloro Biphenyls	83.7
Total Hexachloro Biphenyls	90.8
Total Heptachloro Biphenyls	47.7
Total Octachloro Biphenyls	9.08
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	320

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID Filename

Filename Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted ICAL ID

CCal Filename(s) Method Blank ID PSD0075-02;FO 095422

1092316002 U90404A_12

BAL 1000 mL NA

NA U90404A02 U90404A_01 BLANK-19539 Matrix Water Dilution NA

Collected 04/01/2009
Received 04/03/2009
Extracted 04/03/2009
Analyzed 04/04/2009 21:38

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.564	3.35	2.0	0.244	12 P
13C-4-MoCB	3 4	9.451	2.86	2.0	0.577	29
13C-2,2'-DiCB	4	9.762	1.63	2.0	0.456	23 P
13C-4,4'-DiCB	15	17.729	1.57	2.0	1.28	64
13C-2,2',6-TrCB	19	14.015	1.00	2.0	0.751	38
13C-3,4,4'-TrCB	37	26.261	1.07	2.0	2.17	108
13C-2,2',6,6'-TeCB	54	18.029	0.83	2.0	1.14	57
13C-3,4,4',5-TeCB	81	33.889	0.79	2.0	2.17	109
13C-3,3',4,4'-TeCB	77	34.493	0.81	2.0	2.10	105
13C-2,2',4,6,6'-PeCB	104	24.785	1.60	2.0	1.25	63
13C-2,3,3',4,4'-PeCB	105	38.282	1.59	2.0	2.12	106
13C-2,3,4,4',5-PeCB	114	37.594	1.60	2.0	2.13	107
13C-2,3',4,4',5-PeCB	118	37.058	1.56	2.0	2.16	108
13C-2,3',4,4',5'-PeCB	123	36.689	1.57	2.0	2.24	112
13C-3,3',4,4',5-PeCB	126	41.652	1.57	2.0	2.03	102
13C-2,2',4,4',6,6'-HxCB	155	31.324	1.28	2.0	1.47	74
13C-HxCB (156/157)	156/157	44.854	1.27	4.0	4.06	101
13C-2,3',4,4',5,5'-HxCB	167	43.664	1.26	2.0	2.13	106
13C-3,3',4,4',5,5'-HxCB	169	48.342	1.27	2.0	1.91	95
13C-2,2',3,4',5,6,6'-HpCB	188	37.578	1.05	2.0	2.14	107
13C-2,3,3',4,4',5,5'-HpCB	189	50.988	1.00	2.0	2.59	130
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.329	0.91	2.0	1.99	100
13C-2,3,3',4,4',5,5',6-OcCB	205	53.682	0.91	2.0	1.77	88
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.492	0.80	2.0	1.60	80
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.406	0.79	2.0	1.78	89
13CDeCB	209	57.130	0.71	2.0	1.34	67
	_00	000	• • • • • • • • • • • • • • • • • • • •			•
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.533	1.01	2.0	2.16	108
13C-2,3,3',5,5'-PeCB	111	34.610	1.56	2.0	1.75	87
13C-2,2 ['] ,3,3 ['] ,5,5 ['] ,6-HpCB	178	40.881	1.08	2.0	1.65	82
Recovery Standards						
13C-2,5-DiCB	9	12.542	1.60	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.746	0.81	2.0	NA	ŇA
13C-2,2',4,5,5'-PeCB	101	31.592	1.63	2.0	NA NA	NA NA
13C-2,2',3,4,4',5'-HxCB	138	40.378	1.34	2.0	NA NA	NA NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.186	0.92	2.0	NA NA	NA NA
100-2,2,0,0,4,4,0,0-0000	134	55.100	0.32	2.0	INA	INA

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EML =Method Specified Reporting Limit (1668A)
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P = Recovery outside of Method 1668A control limits

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ND = Not Detected

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NC = Not Calculated

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! = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-02;FO 095422 1092316002 U90404A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
	OO-CIULIONS	17.1	itatio		iig/L	
1				ND		0.249
2				ND		0.249
3				ND		0.249
4				ND		0.249
5				ND		0.249
6				ND		0.249
7				ND		0.249
8				ND		0.249
9				ND		0.249
10				ND		0.249
11				ND		1.50
12	12/13			ND		0.499
13	12/13			ND		0.499
14				ND		0.249
15		17.753	1.34	0.261		0.249
16				ND		0.249
17				ND		0.249
18	18/30			ND		0.499
19	10,00			ND		0.249
20	20/28	21.549	1.02	0.911		0.499
21	21/33			ND		0.499
22	21/33	22.321	1.03	0.345		0.499
23		22.321	1.03	0.343 ND		0.249
23 24				ND ND		0.249
24 25				ND ND		0.249
25	20/20					
26	26/29			ND ND		0.499
27	00/00	04.540	4.00	ND (0.014)		0.249
28	20/28	21.549	1.02	(0.911)		0.499
29	26/29			ND		0.499
30	18/30			ND		0.499
31		21.214	1.05	0.570		0.249
32				ND		0.249
33	21/33			ND		0.499
34				ND		0.249
35				ND		0.249
36				ND		0.249
37		26.277	1.06	0.721		0.249
38				ND		0.249
39				ND		0.249
40	40/41/71			ND		1.50
41	40/41/71			ND		1.50
42				ND		0.499
43				ND		0.499
44	44/47/65			ND		1.50
45	45/51			ND		0.997
46	10,01			ND		0.499
47	44/47/65			ND		1.50
48	 ,,-,,00			ND		0.499
40				IND		0.433

Conc = Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-02;FO 095422 1092316002 U90404A_12

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69			ND		0.997
50	50/53			ND		0.997
51	45/51			ND		0.997
52		23.779	0.80	0.715		0.499
53	50/53			ND		0.997
54				ND		0.499
55				ND		0.499
56		30.368	0.83	0.699		0.499
57				ND		0.499
58				ND		0.499
59	59/62/75			ND		1.50
60				ND		0.499
61	61/70/74/76			ND		1.99
62	59/62/75			ND		1.50
63				ND		0.499
64				ND		0.499
65	44/47/65			ND		1.50
66		29.647	0.75	1.14		0.499
67				ND		0.499
68				ND		0.499
69	49/69			ND		0.997
70	61/70/74/76			ND		1.99
71	40/41/71			ND		1.50
72				ND		0.499
73				ND		0.499
74	61/70/74/76			ND		1.99
75	59/62/75			ND		1.50
76	61/70/74/76			ND		1.99
77				ND		0.499
78				ND		0.499
79				ND		0.499
80				ND		0.499
81				ND		0.499
82				ND		0.499
83				ND		0.499
84				ND		0.499
85	85/116/117			ND		1.50
86	86/87/97/108/119/125			ND		2.99
87	86/87/97/108/119/125			ND		2.99
88	88/91			ND		0.997
89				ND		0.499
90	90/101/113	31.626	1.58	1.53		1.50
91	88/91			ND		0.997
92				ND		0.499
93	93/98/100/102			ND		1.99
94				ND		0.499
95		28.256	1.65	1.27		0.499
96				ND		0.499

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-02;FO 095422 1092316002 U90404A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		2.99
98	93/98/100/102			ND		1.99
99		32.263	1.64	0.611		0.499
100	93/98/100/102			ND		1.99
101	90/101/113	31.626	1.58	(1.53)		1.50
102	93/98/100/102			` NĎ		1.99
103				ND		0.499
104				ND		0.499
105		38.315	1.62	0.849		0.499
106				ND		0.499
107	107/124			ND		0.997
108	86/87/97/108/119/125			ND		2.99
109				ND		0.499
110	110/115	33.755	1.63	2.73		0.997
111				ND		0.499
112				ND		0.499
113	90/101/113	31.626	1.58	(1.53)		1.50
114				` NĎ		0.499
115	110/115	33.755	1.63	(2.73)		0.997
116	85/116/117			NĎ		1.50
117	85/116/117			ND		1.50
118		37.075	1.51	1.84		0.499
119	86/87/97/108/119/125			ND		2.99
120				ND		0.499
121				ND		0.499
122				ND		0.499
123				ND		0.499
124	107/124			ND		0.997
125	86/87/97/108/119/125			ND		2.99
126				ND		0.499
127				ND		0.499
128	128/166			ND		0.997
129	129/138/163	40.411	1.29	5.12		1.50
130				ND		0.499
131				ND		0.499
132		37.108	1.28	1.88		0.499
133				ND		0.499
134	134/143			ND		0.997
135	135/151	34.778	1.28	2.36		0.997
136		32.062	1.24	0.637		0.499
137				ND		0.499
138	129/138/163	40.411	1.29	(5.12)		1.50
139	139/140			NĎ		0.997
140	139/140			ND		0.997
141		39.305	1.31	1.03		0.499
142				ND		0.499
143	134/143			ND		0.997
144				ND		0.499

Conc = Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-02;FO 095422 1092316002 U90404A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.499
146		38.450	1.32	0.686		0.499
147	147/149	35.784	1.29	5.47		0.997
148				ND		0.499
149	147/149	35.784	1.29	(5.47)		0.997
150				NĎ		0.499
151	135/151	34.778	1.28	(2.36)		0.997
152				ND		0.499
153	153/168	39.103	1.30	4.50		0.997
154				ND		0.499
155				ND		0.499
156	156/157			ND		0.997
157	156/157			ND		0.997
158				ND		0.499
159				ND		0.499
160				ND		0.499
161				ND		0.499
162				ND		0.499
163	129/138/163	40.411	1.29	(5.12)		1.50
164				` NĎ		0.499
165				ND		0.499
166	128/166			ND		0.997
167				ND		0.499
168	153/168	39.103	1.30	(4.50)		0.997
169				ND		0.499
170		47.654	1.07	2.16		0.499
171	171/173			ND		0.997
172				ND		0.499
173	171/173			ND		0.997
174		42.759	1.11	2.98		0.499
175				ND		0.499
176				ND		0.499
177		43.211	1.08	1.57		0.499
178		40.914	1.05	0.590		0.499
179		37.930	1.04	1.39		0.499
180	180/193	46.363	1.06	5.78		0.997
181	. 557 . 55			ND		0.499
182				ND		0.499
183	183/185	42.541	1.01	2.20		0.997
184	.00, .00			ND		0.499
185	183/185	42.541	1.01	(2.20)		0.997
186	. 55/ . 55			ND		0.499
187		41.887	1.07	3.79		0.499
188				ND		0.499
189				ND		0.499
190				ND		0.499
191				ND		0.499
192				ND		0.499
.02						3.100

Conc = Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-02;FO 095422 1092316002 U90404A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.363	1.06	(5.78)		0.997
194		53.208	0.99	1.28		0.748
195				ND		0.748
196				ND		0.748
197	197/200			ND		1.50
198	198/199	48.426	0.92	1.79		1.50
199	198/199	48.426	0.92	(1.79)		1.50
200	197/200			` NĎ		1.50
201				ND		0.748
202				ND		0.748
203		49.314	0.89	0.986		0.748
204				ND		0.748
205				ND		0.748
206				ND		0.748
207				ND		0.748
208				ND		0.748
209				ND		0.748

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-02;FO 095422 1092316002 U90404A_12

 Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	0.261	
Total Trichloro Biphenyls	2.55	
Total Tetrachloro Biphenyls	2.55	
Total Pentachloro Biphenyls	8.83	
Total Hexachloro Biphenyls	21.7	
Total Heptachloro Biphenyls	20.5	
Total Octachloro Biphenyls	4.06	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	60.4	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Water

NA

Client's Sample ID PSD0075-03;FO 095423 Lab Sample ID 1092316003

U90404B_05 Filename

Injected By BAL 990 mL Total Amount Extracted % Moisture NA

Dilution Dry Weight Extracted NA Collected 04/01/2009 **ICAL ID** U90404B02 Received 04/03/2009 CCal Filename(s) U90404B 01 Extracted 04/03/2009

Method Blank ID **BLANK-19539** Analyzed 04/05/2009 04:02

PCB Isomer IUPAC RT Ratio ng's Added ng's Found	70 INECOVERY
Labeled Analytes	
13C-2-MoCB 1 6.575 3.05 2.0 0.245	12 P
13C-4-MoCB 3 9.475 2.94 2.0 0.548	27
13C-2,2'-DiCB 4 9.786 1.56 2.0 0.430	22 P
13C-4,4'-DICB 15 17.765 1.54 2.0 1.11	55
13C-2,2',6-TrCB	36
13C-3,4,4'-TrCB 37 26.311 1.05 2.0 2.10	105
13C-2,2',6,6'-TeCB 54 18.062 0.82 2.0 1.08	54 100
13C-3,4,4',5-TeCB 81 33.956 0.80 2.0 2.17 13C-3,3',4,4'-TeCB 77 34.576 0.81 2.0 2.14	109 107
13C-2,2',4,6,6'-PeCB 104 24.835 1.63 2.0 1.25	62
13C-2,3,3',4,4'-PeCB 105 38.349 1.59 2.0 2.18	109
13C-2,3,4,4',5-PeCB 114 37.678 1.61 2.0 2.15	107
13C-2,3',4,4',5-PeCB 118 37.125 1.58 2.0 2.22	111
13C-2,3',4,4',5'-PeCB 123 36.773 1.59 2.0 2.24	112
13C-3,3',4,4',5-PeCB 126 41.735 1.58 2.0 2.09	104
13C-2,2',4,4',6,6'-HxCB 155 31.374 1.24 2.0 1.37	68
13C-HxCB (156/157)	99
13C-2,3',4,4',5,5'-HxCB 167 43.747 1.26 2.0 2.04	102
13C-3,3',4,4',5,5'-HxCB	94
13C-2,2',3,4',5,6,6'-HpCB 188 37.644 1.05 2.0 1.99	99
13C-2,3,3',4,4',5,5'-HpCB 189 51.074 1.04 2.0 2.42	121
13C-2,2',3,3',5,5',6,6'-OcCB 202 43.412 0.90 2.0 2.00	100
13C-2,3,3',4,4',5,5',6-OcCB 205 53.767 0.91 2.0 1.77	89
13C-2,2',3,3',4,4',5,5',6-NoCB 206 55.578 0.78 2.0 1.62 13C-2,2',3,3',4,5.5',6.6'-NoCB 208 50.492 0.78 2.0 1.81	81 90
13C-2,2',3,3',4,5,5',6,6'-NoCB 208 50.492 0.78 2.0 1.81 13CDeCB 209 57.216 0.77 2.0 1.44	90 72
130DeCB 209 37.210 0.77 2.0 1.44	12
Cleanup Standards	
13C-2,4,4'-TrCB 28 21.583 1.06 2.0 1.95	97
13C-2,3,3',5,5'-PeCB 111 34.677 1.57 2.0 1.80	90
13C-2,2',3,3',5,5',6-HpCB 178 40.964 1.05 2.0 1.66	83
Recovery Standards	
13C-2,5-DiCB 9 12.577 1.58 2.0 NA	NA
13C-2,2',5,5'-TeCB 52 23.813 0.80 2.0 NA	NA
13C-2,2',4,5,5'-PeCB 101 31.659 1.57 2.0 NA	NA
13C-2,2',3,4,4',5'-HxCB 138 40.461 1.28 2.0 NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB 194 53.272 0.91 2.0 NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion ! = Outside QC Limits RT = Retention Time I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSD0075-03;FO 095423 1092316003 U90404B 05

		- · · · · - · · - · · · - · · · · · · ·				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.252
2				ND		0.252
3				ND		0.252
4				ND		0.252
5				ND		0.252
5 6				ND		0.252
7				ND		0.252
8				ND		0.252
9				ND		0.252
10				ND		0.252
11				ND		1.51
12	12/13			ND		0.505
13	12/13			ND		0.505
14	12/10			ND		0.252
15		17.777	1.37	0.726		0.252
16		17.669	1.05	0.720		0.252
17		17.118	1.06	0.666		0.252
18	18/30	16.591	1.06	1.41		0.505
19	16/30	10.591	1.00	ND		0.303
	20/20	21.599				0.232
20	20/28		1.03	4.81 1.28		
21	21/33	21.868	1.03			0.505
22		22.354	1.03	2.33		0.252
23				ND		0.252
24				ND		0.252
25	00/00	20.862	1.06	0.272		0.252
26	26/29	20.560	1.04	0.559		0.505
27				ND		0.252
28	20/28	21.599	1.03	(4.81)		0.505
29	26/29	20.560	1.04	(0.559)		0.505
30	18/30	16.591	1.06	(1.41)		0.505
31		21.264	1.04	2.51		0.252
32		18.380	1.04	0.680		0.252
33	21/33	21.868	1.03	(1.28)		0.505
34				ND		0.252
35				ND		0.252
36				ND		0.252
37		26.344	1.02	3.64		0.252
38				ND		0.252
39				ND		0.252
40	40/41/71	26.093	0.81	4.81		1.51
41	40/41/71	26.093	0.81	(4.81)		1.51
42		25.539	0.86	`1.94		0.505
43				ND		0.505
44	44/47/65	24.953	0.82	5.60		1.51
45	45/51			ND		1.01
46	-: -			ND		0.505
47	44/47/65	24.953	0.82	(5.60)		1.51
48		24.701	0.84	1.30		0.505

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSD0075-03;FO 095423 1092316003 U90404B 05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	24.399	0.82	3.13		1.01
50	50/53			ND		1.01
51	45/51			ND		1.01
52		23.829	0.80	4.77		0.505
53	50/53			ND		1.01
54				ND		0.505
55				ND		0.505
56		30.435	0.75	3.55		0.505
57				ND		0.505
58				ND		0.505
59	59/62/75			ND		1.51
60		30.670	0.80	1.93		0.505
61	61/70/74/76	29.362	0.76	10.6		2.02
62	59/62/75			ND		1.51
63	00,02,10			ND		0.505
64		26.378	0.82	3.25		0.505
65	44/47/65	24.953	0.82	(5.60)		1.51
66	,,	29.714	0.77	6.41		0.505
67				ND		0.505
68				ND		0.505
69	49/69	24.399	0.82	(3.13)		1.01
70	61/70/74/76	29.362	0.76	(10.6)		2.02
70 71	40/41/71	26.093	0.81	(4.81)		1.51
72	40/41/11	20.033		ND		0.505
73				ND		0.505
73 74	61/70/74/76	29.362	0.76	(10.6)		2.02
7 4 75	59/62/75	29.302	0.76	ND		1.51
75 76	61/70/74/76	29.362	0.76	(10.6)		2.02
70 77	01/70/74/70	34.593	0.76	1.16		0.505
7 <i>1</i> 78		34.393	0.76	ND		0.505
78 79				ND ND		0.505
79 80				ND ND		0.505
81				ND ND		0.505
82		34.140	1.68	0.910		
						0.505
83		32.195	1.63	0.663		0.505
84	05/446/447	29.513	1.59	1.37		0.505
85	85/116/117	33.654	1.59	1.64		1.51
86	86/87/97/108/119/125	32.900	1.63	4.14		3.03
87	86/87/97/108/119/125	32.900	1.63	(4.14)		3.03
88	88/91			ND		1.01
89	00/404/442		4.04	ND		0.505
90	90/101/113	31.693	1.64	4.42		1.51
91	88/91		4.50	ND		1.01
92	00/00/400/400	31.022	1.58	0.813		0.505
93	93/98/100/102			ND		2.02
94				ND		0.505
95		28.323	1.61	3.68		0.505
96				ND		0.505

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-03;FO 095423 1092316003

U90404B_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	32.900	1.63	(4.14)		3.03
98	93/98/100/102			` NĎ		2.02
99		32.330	1.59	1.85		0.505
100	93/98/100/102			ND		2.02
101	90/101/113	31.693	1.64	(4.42)		1.51
102	93/98/100/102			ND		2.02
103				ND		0.505
104				ND		0.505
105		38.382	1.56	3.64		0.505
106				ND		0.505
107	107/124			ND		1.01
108	86/87/97/108/119/125	32.900	1.63	(4.14)		3.03
109				ND		0.505
110	110/115	33.838	1.60	7.29		1.01
111				ND		0.505
112				ND		0.505
113	90/101/113	31.693	1.64	(4.42)		1.51
114				NĎ		0.505
115	110/115	33.838	1.60	(7.29)		1.01
116	85/116/117	33.654	1.59	(1.64)		1.51
117	85/116/117	33.654	1.59	(1.64)		1.51
118		37.158	1.56	6.85		0.505
119	86/87/97/108/119/125	32.900	1.63	(4.14)		3.03
120				ND		0.505
121				ND		0.505
122				ND		0.505
123				ND		0.505
124	107/124			ND		1.01
125	86/87/97/108/119/125	32.900	1.63	(4.14)		3.03
126				ND		0.505
127				ND		0.505
128	128/166	41.802	1.27	1.65		1.01
129	129/138/163	40.495	1.28	9.25		1.51
130		39.807	1.35	0.617		0.505
131				ND		0.505
132		37.175	1.30	3.14		0.505
133				ND		0.505
134	134/143			ND		1.01
135	135/151	34.861	1.25	2.27		1.01
136		32.128	1.20	0.763		0.505
137		40.042	1.23	0.532		0.505
138	129/138/163	40.495	1.28	(9.25)		1.51
139	139/140			ND		1.01
140	139/140			ND		1.01
141		39.371	1.33	1.34		0.505
142	10.1/1.10			ND		0.505
143	134/143			ND		1.01
144				ND		0.505

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-03;FO 095423 1092316003 U90404B 05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.505
146		38.533	1.27	0.922		0.505
147	147/149	35.867	1.30	6.16		1.01
148				ND		0.505
149	147/149	35.867	1.30	(6.16)		1.01
150				ND		0.505
151	135/151	34.861	1.25	(2.27)		1.01
152	450/400			ND		0.505
153	153/168	39.187	1.31	6.14		1.01
154				ND		0.505
155	450/457		4.00	ND		0.505
156	156/157	44.938	1.26	1.18		1.01
157	156/157	44.938	1.26	(1.18)		1.01
158		40.914	1.27	0.929		0.505
159 160				ND ND		0.505 0.505
161				ND ND		0.505
162				ND ND		0.505
163	129/138/163	40.495	1.28	(9.25)		1.51
164	129/130/103	40.176	1.32	0.594		0.505
165				ND		0.505
166	128/166	41.802	1.27	(1.65)		1.01
167	120/100			ND		0.505
168	153/168	39.187	1.31	(6.14)		1.01
169				ND		0.505
170		47.738	1.12	2.04		0.505
171	171/173			ND		1.01
172				ND		0.505
173	171/173			ND		1.01
174		42.825	1.05	2.33		0.505
175				ND		0.505
176				ND		0.505
177		43.295	1.04	1.16		0.505
178				ND		0.505
179		37.997	1.02	0.739		0.505
180	180/193	46.447	1.06	4.33		1.01
181				ND		0.505
182	400/405	40.004	4.00	ND		0.505
183	183/185	42.624	1.09	1.40		1.01
184	183/185	42.624	1.00	ND (4.40)		0.505
185 186	163/165	42.024	1.09	(1.40) ND		1.01 0.505
187		41.953	1.02	2.46		0.505
188		41.900	1.02	ND		0.505
189				ND ND		0.505
190				ND		0.505
191				ND		0.505
192				ND		0.505
				=		0.000

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! = Outside QC Limits
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-03;FO 095423 1092316003 U90404B_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.447	1.06	(4.33)		1.01
194		53.293	0.93	0.759		0.757
195				ND		0.757
196				ND		0.757
197	197/200			ND		1.51
198	198/199			ND		1.51
199	198/199			ND		1.51
200	197/200			ND		1.51
201				ND		0.757
202				ND		0.757
203				ND		0.757
204				ND		0.757
205				ND		0.757
206				ND		0.757
207				ND		0.757
208				ND		0.757
209				ND		0.757

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-03;FO 095423 1092316003 U90404B_05

	Concentration	
Congener Group	ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	0.726	
Total Trichloro Biphenyls	19.0	
Total Tetrachloro Biphenyls	48.4	
Total Pentachloro Biphenyls	37.3	
Total Hexachloro Biphenyls	35.5	
Total Heptachloro Biphenyls	14.5	
Total Octachloro Biphenyls	0.759	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	156	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Water

NA

PSD0075-04;FO 095424 Client's Sample ID Lab Sample ID 1092316004

U90404B_06 Filename

Injected By BAL 967 mL Total Amount Extracted % Moisture NA

Dilution Dry Weight Extracted NA Collected 04/01/2009 **ICAL ID** U90404B02 Received 04/03/2009 CCal Filename(s) U90404B 01 Extracted 04/03/2009

Method Blank ID BLANK-19539 Analyzed 04/05/2009 05:07

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.564	3.19	2.0	0.303	15 P
13C-4-MoCB	3	9.439	3.37	2.0	0.387	19 P
13C-2,2'-DiCB	4	9.750	1.55	2.0	0.328	16 P
13C-4,4'-DiCB	15	17.693	1.60	2.0	0.854	43
13C-2,2',6-TrCB	19	13.991	1.08	2.0	0.483	24 P
13C-3,4,4'-TrCB	37	26.210	1.02	2.0	1.77	89
13C-2,2',6,6'-TeCB	54	17.978	0.77	2.0	0.720	36
13C-3,4,4',5-TeCB	81	33.839	0.80	2.0	1.99	100
13C-3,3',4,4'-TeCB	77	34.459	0.80	2.0	2.04	102
13C-2,2',4,6,6'-PeCB	104	24.735	1.61	2.0	1.03	51
13C-2,3,3',4,4'-PeCB	105	38.248	1.57	2.0	2.12	106
13C-2,3,4,4',5-PeCB	114	37.561	1.57	2.0	2.05	102
13C-2,3',4,4',5-PeCB	118	37.007	1.56	2.0	2.14	107
13C-2,3',4,4',5'-PeCB	123	36.655	1.57	2.0	2.17	108
13C-3,3',4,4',5-PeCB	126	41.618	1.58	2.0	2.00	100
13C-2,2',4,4',6,6'-HxCB	155	31.274	1.28	2.0	1.33	67
13C-HxCB (156/157)	156/157	44.821	1.25	4.0	3.88	97
13C-2,3',4,4',5,5'-HxĆB	167	43.630	1.26	2.0	2.06	103
13C-3,3',4,4',5,5'-HxCB	169	48.325	1.23	2.0	1.83	92
13C-2,2',3,4',5,6,6'-HpCB	188	37.544	1.07	2.0	1.93	97
13C-2,3,3',4,4',5,5'-HpCB	189	50.966	1.03	2.0	2.40	120
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.312	0.90	2.0	1.94	97
13C-2,3,3',4,4',5,5',6-OcCB	205	53.660	0.91	2.0	1.72	86
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.470	0.79	2.0	1.54	77
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.384	0.81	2.0	1.72	86
13CDeCB	209	57.129	0.71	2.0	1.43	72
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.482	1.10	2.0	1.52	76
13C-2,3,3',5,5'-PeCB	111	34.560	1.59	2.0	1.75	88
13C-2,2',3,3',5,5',6-HpCB	178	40.864	1.07	2.0	1.58	79
100 2,2 ,0,0 ,0,0 ,0 11p0b	170	40.004	1.07	2.0	1.00	7.5
Recovery Standards						
13C-2,5-DiCB	9	12.530	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.695	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.542	1.58	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.361	1.29	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.164	0.91	2.0	NA	NA

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-04;FO 095424 1092316004 U90404B_06

NPAC Co-elutions					Concentration	EMPC	EML
2	IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
2	1				ND		0.259
3					ND		0.259
4	3						0.259
5							0.259
6							
8	6				ND		
8	7						0.259
9							0.259
10	9						0.259
11							
12							
13		12/13					
14	13	12/13					
15		12/13					0.317
16							
17	16				ND		0.259
18 18/30	10						0.259
19	17	10/20					0.239
20 20/28		16/30					
21 21/33 ND 0.517 22 ND 0.259 23 ND 0.259 24 ND 0.259 25 ND 0.517 26 26/29 ND 0.517 27 ND 0.517 28 20/28 ND 0.517 29 26/29 ND 0.517 30 18/30 ND 0.517 31 ND 0.517 31 ND 0.517 31 ND 0.517 33 21/33 ND 0.259 35 ND	19	00/00					
22 ND 0.259 23 ND 0.259 24 ND 0.259 25 ND 0.259 26 26/29 ND 0.517 27 ND 0.517 28 20/28 ND 0.517 29 26/29 ND 0.517 30 18/30 ND 0.517 31 ND 0.517 31 ND 0.517 32 ND 0.259 33 21/33 ND 0.259 35 ND 0.259 36 ND 0.259	20						
23 24		21/33					
24 ND 0.259 25 ND 0.259 26 26/29 ND 0.517 27 ND 0.259 28 20/28 ND 0.517 29 26/29 ND 0.517 30 18/30 ND 0.517 31 ND 0.259 32 ND 0.259 33 21/33 ND 0.259 34 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259	22						0.259
25							
26 26/29 ND 0.517 27 ND 0.259 28 20/28 ND 0.517 29 26/29 ND 0.517 30 18/30 ND 0.517 31 ND 0.259 32 ND 0.259 33 21/33 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 39 ND 0.259 40 40/41/71 ND 0.517 43 ND 0.517 44 44/47/	24						0.259
27 ND 0.259 28 20/28 ND 0.517 29 26/29 ND 0.517 30 18/30 ND 0.517 31 ND 0.259 32 ND 0.259 33 21/33 ND 0.517 34 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 42	25						0.259
28 20/28 ND 0.517 29 26/29 ND 0.517 30 18/30 ND 0.517 31 ND 0.259 32 ND 0.259 33 21/33 ND 0.517 34 ND 0.259 35 ND 0.259 36 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 0.517 43 ND 0.517 44 44/4	26	26/29					
29 26/29 ND 0.517 30 18/30 ND 0.517 31 ND 0.259 32 ND 0.259 33 21/33 ND 0.517 34 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 0.557 41 40/41/71 ND 0.517 43 ND 0.517 44 44/47/65	27						0.259
30 18/30 ND 0.517 31 ND 0.259 32 ND 0.259 33 21/33 ND 0.517 34 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
31 ND 0.259 32 ND 0.259 33 21/33 ND 0.517 34 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 ND 1.55 47 44/47/65	29	26/29			ND		0.517
32 ND 0.259 33 21/33 ND 0.517 34 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 ND 0.517 47 44/47/65	30	18/30			ND		
33 21/33 ND 0.517 34 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 0.259 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55					ND		0.259
33 21/33 ND 0.517 34 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55	32				ND		0.259
34 ND 0.259 35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 0.259 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 ND 0.517 47 44/47/65 ND 0.517 47 44/47/65 ND 1.55	33	21/33			ND		0.517
35 ND 0.259 36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55					ND		
36 ND 0.259 37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.03 46 ND 0.517 47 44/47/65 ND 0.517 47 44/47/65 ND 1.55	35						0.259
37 ND 0.259 38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55	36						0.259
38 ND 0.259 39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.03 45 45/51 ND 0.517 47 44/47/65 ND 0.517 47 44/47/65 ND 1.55	37						0.259
39 ND 0.259 40 40/41/71 ND 1.55 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.03 45 45/51 ND 0.517 47 44/47/65 ND 1.55	38						0.259
40 40/41/71 ND 1.55 41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.03 45 45/51 ND 0.517 47 44/47/65 ND 1.55							
41 40/41/71 ND 1.55 42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55	40	40/41/71					
42 ND 0.517 43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55	40 41						1.55
43 ND 0.517 44 44/47/65 ND 1.55 45 45/51 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55		TUIT III I					0.517
44 44/47/65 ND 1.55 45 45/51 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55	13 1 ∠						0.517
45 45/51 ND 1.03 46 ND 0.517 47 44/47/65 ND 1.55		11/17/65					
46 ND 0.517 47 44/47/65 ND 1.55							
47 44/47/65 ND 1.55		4 0/0 I					1.03
47 44/47/05 ND 1.55 48 ND 0.517		44/47/05					
48 ND 0.517	4/	44/47/65					1.55
	48				ND		0.517

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
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P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference

ng's = Nanograms

ND = Not Detected



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSD0075-04;FO 095424 1092316004 U90404B_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69			ND		1.03
50	50/53			ND		1.03
51	45/51			ND		1.03
52				ND		0.517
53	50/53			ND		1.03
54				ND		0.517
55				ND		0.517
56				ND		0.517
57				ND		0.517
58				ND		0.517
59	59/62/75			ND		1.55
60				ND		0.517
61	61/70/74/76			ND		2.07
62	59/62/75			ND		1.55
63				ND		0.517
64				ND		0.517
65	44/47/65			ND		1.55
66				ND		0.517
67				ND		0.517
68				ND		0.517
69	49/69			ND		1.03
70	61/70/74/76			ND		2.07
71	40/41/71			ND		1.55
72				ND		0.517
73				ND		0.517
74	61/70/74/76			ND		2.07
75	59/62/75			ND		1.55
<u>76</u>	61/70/74/76			ND		2.07
77				ND		0.517
78				ND		0.517
79				ND		0.517
80				ND		0.517
81				ND		0.517
82				ND		0.517
83 84				ND ND		0.517
85	85/116/117			ND ND		0.517 1.55
86	86/87/97/108/119/125			ND ND		3.10
87	86/87/97/108/119/125			ND ND		3.10
88	88/91			ND ND		1.03
89	00/91			ND ND		0.517
90	90/101/113			ND		1.55
91	88/91			ND		1.03
92	33/31			ND		0.517
93	93/98/100/102			ND		2.07
94	30,00,100,102			ND		0.517
95		28.205	1.61	0.746		0.517
96				ND		0.517
- •				-		

Conc = Concentration

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ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-04;FO 095424 1092316004

U90404B_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		3.10
98	93/98/100/102			ND		2.07
99	30,00,100,100			ND		0.517
100	93/98/100/102			ND		2.07
101	90/101/113			ND		1.55
102	93/98/100/102			ND		2.07
103				ND		0.517
104				ND		0.517
105				ND		0.517
106				ND		0.517
107	107/124			ND		1.03
108	86/87/97/108/119/125			ND		3.10
109				ND		0.517
110	110/115	33.721	1.62	1.39		1.03
111				ND		0.517
112				ND		0.517
113	90/101/113			ND		1.55
114				ND		0.517
115	110/115	33.721	1.62	(1.39)		1.03
116	85/116/117			NĎ		1.55
117	85/116/117			ND		1.55
118		37.041	1.58	1.04		0.517
119	86/87/97/108/119/125			ND		3.10
120				ND		0.517
121				ND		0.517
122				ND		0.517
123				ND		0.517
124	107/124			ND		1.03
125	86/87/97/108/119/125			ND		3.10
126				ND		0.517
127				ND		0.517
128	128/166			ND		1.03
129	129/138/163	40.394	1.33	2.15		1.55
130				ND		0.517
131				ND		0.517
132		37.075	1.31	0.781		0.517
133				ND		0.517
134	134/143			ND		1.03
135	135/151	34.744	1.31	1.07		1.03
136				ND		0.517
137				ND		0.517
138	129/138/163	40.394	1.33	(2.15)		1.55
139	139/140			ND		1.03
140	139/140			ND		1.03
141				ND		0.517
142	101/110			ND		0.517
143	134/143			ND		1.03
144				ND		0.517

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-04;FO 095424 1092316004 U90404B 06

		000.0.2_00				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.517
146				ND		0.517
147	147/149	35.750	1.32	2.29		1.03
148				ND		0.517
149	147/149	35.750	1.32	(2.29)		1.03
150				NĎ		0.517
151	135/151	34.744	1.31	(1.07)		1.03
152				` NĎ		0.517
153	153/168	39.086	1.31	1.98		1.03
154				ND		0.517
155				ND		0.517
156	156/157			ND		1.03
157	156/157			ND		1.03
158				ND		0.517
159				ND		0.517
160				ND		0.517
161				ND		0.517
162				ND		0.517
163	129/138/163	40.394	1.33	(2.15)		1.55
164				` NĎ		0.517
165				ND		0.517
166	128/166			ND		1.03
167				ND		0.517
168	153/168	39.086	1.31	(1.98)		1.03
169				ND		0.517
170		47.637	1.01	0.536		0.517
171	171/173			ND		1.03
172				ND		0.517
173	171/173			ND		1.03
174		42.725	1.08	0.862		0.517
175				ND		0.517
176				ND		0.517
177				ND		0.517
178				ND		0.517
179		37.896	1.03	0.525		0.517
180	180/193	46.329	1.05	1.35		1.03
181				ND		0.517
182				ND		0.517
183	183/185			ND		1.03
184				ND		0.517
185	183/185			ND		1.03
186				ND		0.517
187		41.853	1.06	1.14		0.517
188				ND		0.517
189				ND		0.517
190				ND		0.517
191				ND		0.517
192				ND		0.517

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I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-04;FO 095424 1092316004 U90404B_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.329	1.05	(1.35)		1.03
194				` NĎ		0.776
195				ND		0.776
196				ND		0.776
197	197/200			ND		1.55
198	198/199			ND		1.55
199	198/199			ND		1.55
200	197/200			ND		1.55
201				ND		0.776
202				ND		0.776
203				ND		0.776
204				ND		0.776
205				ND		0.776
206				ND		0.776
207				ND		0.776
208				ND		0.776
209				ND		0.776

Conc = Concentration

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ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-04;FO 095424 1092316004 U90404B_06

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	3.17	
Total Hexachloro Biphenyls	8.27	
Total Heptachloro Biphenyls	4.41	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	15.9	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

PSD0075-05;FO 095425 Client's Sample ID Lab Sample ID 1092316005

U90404B_07 Filename

Injected By BAL

1010 mL Matrix Water Total Amount Extracted % Moisture NA Dilution NA Dry Weight Extracted NA Collected 04/01/2009

ICAL ID U90404B02 Received 04/03/2009 CCal Filename(s) U90404B 01 Extracted 04/03/2009

Method Blank ID **BLANK-19539** Analyzed 04/05/2009 06:11

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes 13C-2-MoCB 13C-4-MoCB 13C-2,2'-DiCB 13C-2,2',-DiCB 13C-2,2',6-TrCB 13C-2,2',6-TrCB 13C-2,2',6,6'-TeCB 13C-3,4,4'-5-TeCB 13C-3,3',4,4'-TeCB 13C-2,2',4,6,6'-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,2',4,4',6,6'-HxCB 13C-3,3',4,4',5,5'-HxCB 13C-2,3',4,4',5,5'-HxCB 13C-2,2',3,4',5,6,6'-HpCB 13C-2,2',3,4',5,6,6'-HpCB 13C-2,2',3,4',5,6,6'-OcCB 13C-2,3',4,4',5,5',6,6'-OcCB	1 3 4 15 19 37 54 81 77 104 105 114 118 123 126 155 156/157 167 169 188 189 202 205	6.576 9.451 9.762 17.693 14.003 26.227 17.995 33.855 34.459 24.752 38.248 37.561 37.024 36.655 41.635 31.290 44.820 43.630 48.308 37.544 50.966 43.311 53.660	3.03 3.49 1.67 1.58 1.00 1.08 0.81 0.80 0.80 1.59 1.59 1.58 1.59 1.61 1.27 1.26 1.27 1.28 1.08 1.05 0.90	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	0.0603 0.230 0.194 0.957 0.478 1.95 0.833 2.11 2.11 1.11 2.18 2.16 2.20 2.17 2.11 1.32 4.01 2.09 1.92 1.87 2.46 1.90 1.77	3 P 12 P 10 P 48 24 P 97 42 105 105 55 109 108 110 109 105 66 100 105 96 94 123 95 88
13C-2,2',3,3',4,4',5,5',6-NoCB 13C-2,2',3,3',4,5,5',6,6'-NoCB 13CDeCB	206 208 209	55.470 50.384 57.108	0.78 0.78 0.71	2.0 2.0 2.0	1.59 1.76 1.45	80 88 73
Cleanup Standards 13C-2,4,4'-TrCB 13C-2,3,3',5,5'-PeCB 13C-2,2',3,3',5,5',6-HpCB	28 111 178	21.499 34.576 40.864	1.07 1.56 1.09	2.0 2.0 2.0	1.67 1.78 1.61	83 89 80
Recovery Standards 13C-2,5-DiCB 13C-2,2',5,5'-TeCB 13C-2,2',4,5,5'-PeCB 13C-2,2',3,4,4',5'-HxCB 13C-2,2',3,3',4,4',5,5'-OcCB	9 52 101 138 194	12.541 23.695 31.558 40.361 53.164	1.58 0.79 1.62 1.31 0.95	2.0 2.0 2.0 2.0 2.0	NA NA NA NA	NA NA NA NA

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-05;FO 095425 1092316005 U90404B 07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.248
2				ND		0.248
3				ND		0.248
4				ND		0.248
5				ND		0.248
6				ND		0.248
7				ND		0.248
8				ND		0.248
9				ND		0.248
10				ND		0.248
11				ND		1.49
12	12/13			ND		0.495
13	12/13			ND		0.495
14	12/13			ND		0.493
15				ND ND		0.248
16				ND ND		0.248
17				ND ND		0.248
18	18/30			ND ND		0.495
19	16/30					0.495
	00/00			ND		
20	20/28			ND		0.495
21	21/33			ND		0.495
22				ND		0.248
23				ND		0.248
24				ND		0.248
25				ND		0.248
26	26/29			ND		0.495
27				ND		0.248
28	20/28			ND		0.495
29	26/29			ND		0.495
30	18/30			ND		0.495
31				ND		0.248
32				ND		0.248
33	21/33			ND		0.495
34				ND		0.248
35				ND		0.248
36				ND		0.248
37				ND		0.248
38				ND		0.248
39				ND		0.248
40	40/41/71			ND		1.49
41	40/41/71			ND		1.49
42				ND		0.495
43				ND		0.495
44	44/47/65			ND		1.49
45	45/51			ND		0.990
46				ND		0.495
47	44/47/65			ND		1.49
48				ND		0.495
				·		

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-05;FO 095425 1092316005 U90404B 07

	• • • • • • • • • • • • • • • • • • • •					
IUPAC	Co-elutions	RT	Ratio	Concentration	EMPC	EML
IUPAC	Co-elutions	K I	Ratio	ng/L	ng/L	ng/L
49	49/69			ND		0.990
50	50/53			ND		0.990
51	45/51			ND		0.990
52	. 5, 5 .			ND		0.495
53	50/53			ND		0.990
54	33,33			ND		0.495
55				ND		0.495
56				ND		0.495
57				ND		0.495
58				ND		0.495
59	59/62/75			ND		1.49
60	00,02,10			ND		0.495
61	61/70/74/76			ND		1.98
62	59/62/75			ND		1.49
63	00,02,10			ND		0.495
64				ND		0.495
65	44/47/65			ND		1.49
66	11/11/00			ND		0.495
67				ND		0.495
68				ND		0.495
69	49/69			ND		0.990
70	61/70/74/76			ND		1.98
71	40/41/71			ND		1.49
72	10/11//1			ND		0.495
73				ND		0.495
74	61/70/74/76			ND		1.98
75	59/62/75			ND		1.49
76	61/70/74/76			ND		1.98
77	01/10/11/10			ND		0.495
78				ND		0.495
79				ND		0.495
80				ND		0.495
81				ND		0.495
82				ND		0.495
83				ND		0.495
84				ND		0.495
85	85/116/117			ND		1.49
86	86/87/97/108/119/125			ND		2.97
87	86/87/97/108/119/125			ND		2.97
88	88/91			ND		0.990
89	00/91			ND		0.495
90	90/101/113			ND		1.49
91	88/91			ND		0.990
92	30/31			ND		0.495
93	93/98/100/102			ND		1.98
94	30/30/100/102			ND ND		0.495
9 4 95				ND ND		0.495
96				ND ND		0.495
90				ND		0.433

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RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-05;FO 095425 1092316005 U90404B_07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
97	86/87/97/108/119/125			ND		2.97
98	93/98/100/102			ND		1.98
99				ND		0.495
100	93/98/100/102			ND		1.98
101	90/101/113			ND		1.49
102	93/98/100/102			ND		1.98
103				ND		0.495
104				ND		0.495
105				ND		0.495
106				ND		0.495
107	107/124			ND		0.990
108	86/87/97/108/119/125			ND		2.97
109				ND		0.495
110	110/115			ND		0.990
111				ND		0.495
112				ND		0.495
113	90/101/113			ND		1.49
114				ND		0.495
115	110/115			ND		0.990
116	85/116/117			ND		1.49
117	85/116/117			ND		1.49
118		37.041	1.48	0.825		0.495
119	86/87/97/108/119/125			ND		2.97
120				ND		0.495
121				ND		0.495
122				ND		0.495
123				ND		0.495
124	107/124			ND		0.990
125	86/87/97/108/119/125			ND		2.97
126				ND		0.495
127				ND		0.495
128	128/166			ND		0.990
129	129/138/163			ND		1.49
130				ND		0.495
131				ND		0.495
132				ND		0.495
133	10.1/1.10			ND		0.495
134	134/143			ND		0.990
135	135/151			ND		0.990
136				ND		0.495
137	400/400/400			ND		0.495
138	129/138/163			ND		1.49
139	139/140			ND		0.990
140	139/140			ND		0.990
141				ND		0.495
142	404/440			ND		0.495
143	134/143			ND		0.990
144				ND		0.495

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-05;FO 095425 1092316005 U90404B 07

		000.0.2_0.				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.495
146				ND		0.495
147	147/149	35.767	1.25	1.10		0.990
148				ND		0.495
149	147/149	35.767	1.25	(1.10)		0.990
150				NĎ		0.495
151	135/151			ND		0.990
152				ND		0.495
153	153/168	39.086	1.28	1.02		0.990
154				ND		0.495
155				ND		0.495
156	156/157			ND		0.990
157	156/157			ND		0.990
158				ND		0.495
159				ND		0.495
160				ND		0.495
161				ND		0.495
162				ND		0.495
163	129/138/163			ND		1.49
164	,,			ND		0.495
165				ND		0.495
166	128/166			ND		0.990
167				ND		0.495
168	153/168	39.086	1.28	(1.02)		0.990
169				ND		0.495
170				ND		0.495
171	171/173			ND		0.990
172				ND		0.495
173	171/173			ND		0.990
174				ND		0.495
175				ND		0.495
176				ND		0.495
177				ND		0.495
178				ND		0.495
179				ND		0.495
180	180/193			ND		0.990
181				ND		0.495
182				ND		0.495
183	183/185			ND		0.990
184				ND		0.495
185	183/185			ND		0.990
186				ND		0.495
187		41.870	1.04	0.509		0.495
188				ND		0.495
189				ND		0.495
190				ND		0.495
191				ND		0.495
192				ND		0.495

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
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A = Limit of Detection based on signal to noise

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-05;FO 095425 1092316005 U90404B 07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		0.990
194				ND		0.743
195				ND		0.743
196				ND		0.743
197	197/200			ND		1.49
198	198/199			ND		1.49
199	198/199			ND		1.49
200	197/200			ND		1.49
201				ND		0.743
202				ND		0.743
203				ND		0.743
204				ND		0.743
205				ND		0.743
206				ND		0.743
207				ND		0.743
208				ND		0.743
209				ND		0.743

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-05;FO 095425 1092316005 U90404B_07

Congener Group	Concentration ng/L	
Total Monochloro Big	iphenyls ND	
Total Dichloro Biphe		
Total Trichloro Biphe	enyls ND	
Total Tetrachloro Bip	phenyls	
Total Pentachloro Bi	iphenyls 0.825	
Total Hexachloro Bip	phenyls 2.12	
Total Heptachloro Bi	siphenyls 0.509	
Total Octachloro Bip	ohenyls ND	
Total Nonachloro Bip	phenyls	
Decachloro Bipheny	vls ND	
Total PCBs	3.46	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Water

Client's Sample ID PSD0075-06;FO 095426 Lab Sample ID 1092316006

Filename U90404B_08

Injected By BAL
Total Amount Extracted 978 mL

% Moisture NA Dilution NA
Dry Weight Extracted NA Collected 04/01/2009
ICAL ID U90404B02 Received 04/03/2009

 CCal Filename(s)
 U90404B_01
 Extracted
 04/03/2009

 Method Blank ID
 BLANK-19539
 Analyzed
 04/05/2009 07:15

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.588	1.40	2.0	0.0182	1 IP
13C-4-MoCB	3	9.463	3.02	2.0	0.139	7 P
13C-2,2'-DiCB	4	9.774	1.57	2.0	0.112	6 P
13C-4,4'-DiCB	15	17.705	1.60	2.0	0.819	41
13C-2,2',6-TrCB	19	14.015	0.95	2.0	0.342	17 P
13C-3,4,4'-TrCB	37	26.210	1.07	2.0	1.70	85
13C-2,2',6,6'-TeCB	54	17.995	0.82	2.0	0.642	32
13C-3,4,4',5-TeCB	81	33.839	0.77	2.0	1.89	95
13C-3,3',4,4'-TeCB	77	34.459	0.82	2.0	1.93	97
13C-2,2',4,6,6'-PeCB	104	24.735	1.59	2.0	0.940	47
13C-2,3,3',4,4'-PeCB	105	38.232	1.63	2.0	1.93	96
13C-2,3,4,4',5-PeCB	114	37.544	1.60	2.0	1.94	97
13C-2,3',4,4',5-PeCB	118	36.991	1.58	2.0	1.94	97
13C-2,3',4,4',5'-PeCB	123	36.639	1.57	2.0	1.99	99
13C-3,3',4,4',5-PeCB	126	41.601	1.59	2.0	1.89	94
13C-2,2',4,4',6,6'-HxCB	155	31.274	1.24	2.0	1.19	60
13C-HxCB (156/157)	156/157	44.787	1.27	4.0	3.58	90
13C-2,3',4,4',5,5'-HxCB	167	43.597	1.29	2.0	1.86	93
13C-3,3',4,4',5,5'-HxCB	169	48.274	1.27	2.0	1.71	85
13C-2,2',3,4',5,6,6'-HpCB	188	37.527	1.02	2.0	1.65	83
13C-2,3,3',4,4',5,5'-HpCB	189	50.902	1.05	2.0	2.31	115
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.278	0.94	2.0	1.72	86
13C-2,3,3',4,4',5,5',6-OcCB	205	53.617	0.91	2.0	1.56	78
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.427	0.76	2.0	1.38	69
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.341	0.76	2.0	1.58	79
13CDeCB	209	57.065	0.72	2.0	1.22	61
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.499	1.01	2.0	1.55	78
13C-2,3,3',5,5'-PeCB	111	34.560	1.57	2.0	1.77	89
13C-2,2',3,3',5,5',6-HpCB	178	40.830	1.06	2.0	1.58	79
Recovery Standards						
13C-2,5-DiCB	9	12.542	1.54	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.696	0.77	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.542	1.57	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.327	1.29	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.121	0.91	2.0	NA	NA
· · · · · · ·						

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ND = Not Detected

NA = Not Applicable

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! = Outside QC Limits

RT = Retention Time

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-06;FO 095426 1092316006 U90404B_08

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1		6.599	3.38	0.277		0.256
2				ND		0.256
3				ND		0.256
4				ND		0.256
5				ND		0.256
6				ND		0.256
7				ND		0.256
8				ND		0.256
9				ND ND		0.256
10				ND ND		0.256
11				ND ND		1.53
	40/40					1.55
12	12/13			ND		0.511
13	12/13			ND		0.511
14				ND		0.256
15				ND		0.256
16				ND		0.256
17				ND		0.256
18	18/30			ND		0.511
19				ND		0.256
20	20/28			ND		0.511
21	21/33			ND		0.511
22				ND		0.256
23				ND		0.256
24				ND		0.256
25				ND		0.256
26	26/29			ND		0.511
27				ND		0.256
28	20/28			ND		0.511
29	26/29			ND		0.511
30	18/30			ND		0.511
31	. 3, 3 3			ND		0.256
32				ND		0.256
33	21/33			ND		0.511
34	21/00			ND		0.256
35				ND		0.256
36				ND		0.256
37				ND		0.256
38				ND ND		0.256
36 39				ND ND		0.256
39	40/41/71					
40				ND ND		1.53
41	40/41/71			ND ND		1.53
42				ND		0.511
43	4.4.4.7.10.5			ND		0.511
44	44/47/65			ND		1.53
45	45/51			ND		1.02
46				ND		0.511
47	44/47/65			ND		1.53
48				ND		0.511

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-06;FO 095426 1092316006 U90404B 08

	•					
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69			ND		1.02
50	50/53			ND		1.02
51	45/51			ND		1.02
52	40/01			ND		0.511
53	50/53			ND		1.02
54	30/33			ND		0.511
55				ND		0.511
56				ND		0.511
57				ND		0.511
58				ND		0.511
59	59/62/75			ND ND		1.53
60	39/02/13			ND ND		0.511
61	61/70/74/76			ND ND		2.05
62						2.05 1.53
63	59/62/75			ND ND		0.511
64						
65	44/47/65			ND ND		0.511 1.53
	44/47/00					
66				ND		0.511
67				ND		0.511
68	40/00			ND		0.511
69	49/69			ND		1.02
70	61/70/74/76			ND		2.05
71	40/41/71			ND		1.53
72				ND		0.511
73	0.4 /7.0 /7.4 /7.0			ND		0.511
74	61/70/74/76			ND		2.05
75	59/62/75			ND		1.53
76	61/70/74/76			ND		2.05
77				ND		0.511
78				ND		0.511
79				ND		0.511
80				ND		0.511
81				ND		0.511
82				ND		0.511
83				ND		0.511
84				ND		0.511
85	85/116/117			ND		1.53
86	86/87/97/108/119/125			ND		3.07
87	86/87/97/108/119/125			ND		3.07
88	88/91			ND		1.02
89				ND		0.511
90	90/101/113			ND		1.53
91	88/91			ND		1.02
92				ND		0.511
93	93/98/100/102			ND		2.05
94				ND		0.511
95		28.206	1.58	0.560		0.511
96				ND		0.511

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-06;FO 095426 1092316006 U90404B 08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		3.07
98	93/98/100/102			ND		2.05
99	33/33/132/132			ND		0.511
100	93/98/100/102			ND		2.05
101	90/101/113			ND		1.53
102	93/98/100/102			ND		2.05
103	00/00/100/102			ND		0.511
104				ND		0.511
105				ND		0.511
106				ND		0.511
107	107/124			ND		1.02
108	86/87/97/108/119/125			ND		3.07
109	33/31/31/133/113/123			ND		0.511
110	110/115			ND		1.02
111	110/110			ND		0.511
112				ND		0.511
113	90/101/113			ND		1.53
114	30, 101, 110			ND		0.511
115	110/115			ND		1.02
116	85/116/117			ND		1.53
117	85/116/117			ND		1.53
118		37.025	1.57	0.561		0.511
119	86/87/97/108/119/125			ND		3.07
120				ND		0.511
121				ND		0.511
122				ND		0.511
123				ND		0.511
124	107/124			ND		1.02
125	86/87/97/108/119/125			ND		3.07
126				ND		0.511
127				ND		0.511
128	128/166			ND		1.02
129	129/138/163	40.378	1.29	2.61		1.53
130				ND		0.511
131				ND		0.511
132		37.075	1.24	1.16		0.511
133				ND		0.511
134	134/143			ND		1.02
135	135/151	34.744	1.28	1.77		1.02
136				ND		0.511
137				ND		0.511
138	129/138/163	40.378	1.29	(2.61)		1.53
139	139/140			NĎ		1.02
140	139/140			ND		1.02
141				ND		0.511
142				ND		0.511
143	134/143			ND		1.02
144				ND		0.511

Conc = Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-06;FO 095426 1092316006 U90404B 08

		000.0.2_00				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.511
146				ND		0.511
147	147/149	35.750	1.30	3.91		1.02
148	1 177 1 10			ND		0.511
149	147/149	35.750	1.30	(3.91)		1.02
150	147/140			ND		0.511
151	135/151	34.744	1.28	(1.77)		1.02
152	100/101			ND		0.511
153	153/168	39.053	1.31	1.72		1.02
154	133/100			ND		0.511
155				ND		0.511
156	156/157			ND		1.02
157	156/157			ND		1.02
158	130/137			ND		0.511
159				ND		0.511
160				ND ND		0.511
161				ND		0.511
162				ND		0.511
163	129/138/163	40.378	1.29	(2.61)		1.53
164	129/130/103	40.376	1.29	(2.01) ND		0.511
165				ND ND		0.511
166	128/166			ND ND		1.02
167	120/100			ND ND		0.511
168	153/168	39.053	1.31			
169	133/100	39.US3 	1.31	(1.72)		1.02
170		47.604	1.06	ND 1.70		0.511 0.511
170	171/173		1.06	1.79 ND		
171	171/173			ND ND		1.02 0.511
172	171/173			ND ND		0.511
173	1/1/1/3	 40.700	4.00			1.02
174		42.708	1.06 	2.60		0.511
175				ND ND		0.511
176			4.07	ND		0.511
177		43.161	1.07	1.27		0.511
178		 27.000		ND 0.033		0.511
179	180/193	37.880	0.98	0.932		0.511
180	180/193	46.296	1.06	4.20		1.02
181				ND ND		0.511
182	400/405	40.400		ND		0.511
183	183/185	42.490	1.11	1.53		1.02
184	400/405	40.400	 1.11	ND		0.511
185	183/185	42.490		(1.53)		1.02
186			4.00	NĎ		0.511
187		41.836	1.06	2.82		0.511
188				ND ND		0.511
189				ND ND		0.511
190				ND		0.511
191				ND		0.511
192				ND		0.511

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-06;FO 095426 1092316006 U90404B 08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.296	1.06	(4.20)		1.02
194		53.143	0.98	Ò.99Ś		0.767
195				ND		0.767
196				ND		0.767
197	197/200			ND		1.53
198	198/199			ND		1.53
199	198/199			ND		1.53
200	197/200			ND		1.53
201				ND		0.767
202				ND		0.767
203				ND		0.767
204				ND		0.767
205				ND		0.767
206				ND		0.767
207				ND		0.767
208				ND		0.767
209				ND		0.767

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-06;FO 095426 1092316006 U90404B_08

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	0.277	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	1.12	
Total Hexachloro Biphenyls	11.2	
Total Heptachloro Biphenyls	15.2	
Total Octachloro Biphenyls	0.995	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	28.7	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Water

PSD0075-07;FO 095427 Client's Sample ID Lab Sample ID 1092316007

U90404B_09 Filename

Injected By BAL 1050 mL Total Amount Extracted

% Moisture NA Dilution NA Dry Weight Extracted NA Collected 04/01/2009 **ICAL ID** U90404B02 Received 04/03/2009

CCal Filename(s) U90404B 01 Extracted 04/03/2009 Method Blank ID **BLANK-19539** Analyzed 04/05/2009 08:19

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1			2.0	ND	
13C-4-MoCB	3	9.427	3.26	2.0	0.0149	1 P
13C-2,2'-DiCB	4	9.738	1.53	2.0	0.0139	1 P
13C-4,4'-DiCB	15	17.681	1.55	2.0	0.575	29
13C-2,2',6-TrCB	19	13.991	1.09	2.0	0.181	9 P
13C-3,4,4'-TrCB	37	26.194	1.01	2.0	1.53	77
13C-2,2',6,6'-TeCB	54	17.978	0.79	2.0	0.436	22 P
13C-3,4,4',5-TeCB	81	33.822	0.81	2.0	1.87	93
13C-3,3',4,4'-TeCB	77	34.442	0.82	2.0	1.93	96
13C-2,2',4,6,6'-PeCB	104	24.718	1.61	2.0	0.891	45
13C-2,3,3',4,4'-PeCB	105	38.232	1.57	2.0	1.98	99
13C-2,3,4,4',5-PeCB	114	37.527	1.61	2.0	1.96	98
13C-2,3',4,4',5-PeCB	118	36.991	1.60	2.0	1.99	100
13C-2,3',4,4',5'-PeCB	123	36.639	1.61	2.0	1.97	99
13C-3,3',4,4',5-PeCB	126	41.585	1.59	2.0	1.90	95
13C-2,2',4,4',6,6'-HxCB	155	31.257	1.26	2.0	1.16	58
13C-HxCB (156/157)	156/157	44.787	1.26	4.0	3.64	91
13C-2,3',4,4',5,5'-HxCB	167	43.597	1.27	2.0	1.93	96
13C-3,3',4,4',5,5'-HxCB	169	48.275	1.30	2.0	1.76	88
13C-2,2',3,4',5,6,6'-HpCB	188	37.511	1.05	2.0	1.62	81
13C-2,3,3',4,4',5,5'-HpCB	189	50.923	1.07	2.0	2.28	114
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.278	0.90	2.0	1.72	86
13C-2,3,3',4,4',5,5',6-OcCB	205	53.617	0.92	2.0	1.53	77
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.406	0.80	2.0	1.40	70
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.341	0.81	2.0	1.59	80
13CDeCB	209	57.065	0.69	2.0	1.24	62
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.466	1.01	2.0	1.29	64
13C-2,3,3',5,5'-PeCB	111	34.543	1.61	2.0	1.70	85
13C-2,2',3,3',5,5',6-HpCB	178	40.830	1.05	2.0	1.52	76
Recovery Standards						
13C-2,5-DiCB	9	12.518	1.60	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.679	0.81	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.525	1.62	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.327	1.32	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.100	0.92	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-07;FO 095427 1092316007 U90404B 09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.238
2				ND		0.238
3				ND		0.238
4		9.762	0.81 I		0.968	0.238
5				ND		0.238
6				ND		0.238
7				ND		0.238
8				ND		0.238
9				ND		0.238
10				ND		0.238
11				ND		1.43
12	12/13			ND		0.476
13	12/13			ND		0.476
14	12, 10			ND		0.238
15				ND		0.238
16				ND		0.238
17				ND		0.238
18	18/30			ND		0.476
19	10/30			ND ND		0.238
20	20/28			ND		0.236
21	21/33			ND ND		0.476
22	21/33			ND ND		0.476
22						0.238
23				ND		0.238
24				ND		0.238
25	00/00			ND		0.238
26	26/29			ND		0.476
27	00/00			ND		0.238
28	20/28			ND		0.476
29	26/29			ND		0.476
30	18/30			ND		0.476
31				ND		0.238
32				ND		0.238
33	21/33			ND		0.476
34				ND		0.238
35				ND		0.238
36				ND		0.238
37				ND		0.238
38				ND		0.238
39				ND		0.238
40	40/41/71			ND		1.43
41	40/41/71			ND		1.43
42				ND		0.476
43				ND		0.476
44	44/47/65			ND		1.43
45	45/51			ND		0.952
46	.0,0 .			ND		0.476
47	44/47/65			ND		1.43
48	17/71/00			ND		0.476
70				ND		0.770

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
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P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-07;FO 095427 1092316007 U90404B 09

	•••					
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69			ND		0.952
50	50/53			ND		0.952
51	45/51			ND		0.952
52	10/01			ND		0.476
53	50/53			ND		0.952
54	00/00			ND		0.476
55				ND		0.476
56				ND		0.476
57				ND		0.476
58				ND		0.476
59	59/62/75			ND		1.43
60	33,32,13			ND		0.476
61	61/70/74/76			ND		1.90
62	59/62/75			ND		1.43
63	00,02,10			ND		0.476
64				ND		0.476
65	44/47/65			ND		1.43
66				ND		0.476
67				ND		0.476
68				ND		0.476
69	49/69			ND		0.952
70	61/70/74/76			ND		1.90
71	40/41/71			ND		1.43
72				ND		0.476
73				ND		0.476
74	61/70/74/76			ND		1.90
75	59/62/75			ND		1.43
76	61/70/74/76			ND		1.90
77				ND		0.476
78				ND		0.476
79				ND		0.476
80				ND		0.476
81				ND		0.476
82				ND		0.476
83				ND		0.476
84	05/440/447			ND		0.476
85	85/116/117			ND		1.43
86 87	86/87/97/108/119/125			ND		2.86 2.86
	86/87/97/108/119/125			ND		
88	88/91			ND ND		0.952
89 90	90/101/113	31.559	1.56	ND 1.61		0.476
90	88/91	31.559	1.56	ND		1.43 0.952
91	00/31			ND ND		0.952
93	93/98/100/102			ND ND		1.90
94	30/30/100/102			ND ND		0.476
95		28.189	1.59	1.15		0.476
96		20.103		ND		0.476
				110		0

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*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-07;FO 095427 1092316007 U90404B 09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		2.86
98	93/98/100/102			ND		1.90
99				ND		0.476
100	93/98/100/102			ND		1.90
101	90/101/113	31.559	1.56	(1.61)		1.43
102	93/98/100/102			` NĎ		1.90
103				ND		0.476
104				ND		0.476
105				ND		0.476
106				ND		0.476
107	107/124			ND		0.952
108	86/87/97/108/119/125			ND		2.86
109				ND		0.476
110	110/115	33.705	1.65	1.94		0.952
111	110,110			ND		0.476
112				ND		0.476
113	90/101/113	31.559	1.56	(1.61)		1.43
114	30/101/110			ND		0.476
115	110/115	33.705	1.65	(1.94)		0.952
116	85/116/117			ND		1.43
117	85/116/117			ND		1.43
118	03/110/117	37.024	1.57	1.09		0.476
119	86/87/97/108/119/125	37.024	1.57	ND		2.86
120	00/07/97/100/119/123			ND ND		0.476
120				ND ND		0.476
121				ND ND		0.476
122				ND ND		0.476
123	107/124			ND ND		0.476
124	86/87/97/108/119/125			ND ND		2.86
125	00/07/97/100/119/125			ND ND		0.476
-				ND ND		
127	128/166					0.476
128 129	129/138/163	 40.361	1.29	ND 6.57		0.952 1.43
	129/136/163					
130				ND		0.476
131			4.07	ND		0.476
132		37.058	1.27	1.96		0.476
133	404/440			ND		0.476
134	134/143			ND		0.952
135	135/151	34.727	1.26	4.12		0.952
136		32.011	1.28	0.962		0.476
137	400/400/400	40.004	4.00	ND		0.476
138	129/138/163	40.361	1.29	(6.57)		1.43
139	139/140			ND		0.952
140	139/140			ND		0.952
141		39.238	1.31	1.88		0.476
142	10.1/1.10			ND		0.476
143	134/143			ND		0.952
144				ND		0.476

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-07;FO 095427 1092316007 U90404B 09

		000.0.2_00				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.476
146		38.399	1.33	0.843		0.476
147	147/149	35.733	1.29	8.00		0.952
148	1 177 1 10			ND		0.476
149	147/149	35.733	1.29	(8.00)		0.952
150	1 177 1 10			ND		0.476
151	135/151	34.727	1.26	(4.12)		0.952
152	100/101			ND		0.476
153	153/168	39.053	1.31	8.96		0.952
154	100/100			ND		0.476
155				ND		0.476
156	156/157			ND		0.952
157	156/157			ND		0.952
158	100/101	40.797	1.27	0.622		0.476
159		42.708	1.17	0.608		0.476
160		42.700		ND		0.476
161				ND		0.476
162				ND		0.476
163	129/138/163	40.361	1.29	(6.57)		1.43
164	123/130/103	- 0.501		ND		0.476
165				ND		0.476
166	128/166			ND		0.952
167	120/100			ND		0.476
168	153/168	39.053	1.31	(8.96)		0.952
169	133/100	39.033	1.51	(0.90) ND		0.476
170		47.587	1.06	3.71		0.476
170	171/173	43.832	1.06	1.19		0.952
172	17 1/173	45.609	1.06	0.808		0.476
173	171/173	43.832	1.06	(1.19)		0.952
173	17 1/173	42.691	1.06	7.80		0.476
175		42.091	1.00	ND		0.476
175		38.835	1.07	0.814		0.476
177		43.161	1.07	3.30		0.476
177		40.864	1.07	1.50		0.476
178			1.04	3.48		0.476
180	180/193	37.879 46.296	1.03	3.40 14.4		0.476
181	100/193		1.07	ND		0.476
182				ND ND		
183	102/105	42.490		4.86		0.476
	183/185		1.05 	4.66 ND		0.952
184 185	183/185	42.490	1.05			0.476 0.952
	103/103	42.490		(4.86)		
186		41.820	1.04	ND 10.6		0.476
187 188		41.820	1.04 	10.6 ND		0.476
100						0.476
189		 40 157	1.02	ND		0.476
190		48.157	1.03	0.944		0.476
191				ND ND		0.476
192				ND		0.476

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*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-07;FO 095427 1092316007 U90404B 09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.296	1.07	(14.4)		0.952
194		53.143	0.93	4.93		0.714
195		50.622	0.90	1.86		0.714
196		49.046	0.89	2.51		0.714
197	197/200			ND		1.43
198	198/199	48.358	0.89	7.21		1.43
199	198/199	48.358	0.89	(7.21)		1.43
200	197/200			` NĎ		1.43
201		44.284	0.94	0.871		0.714
202		43.295	0.87	1.36		0.714
203		49.247	0.88	4.15		0.714
204				ND		0.714
205				ND		0.714
206		55.427	0.82	2.19		0.714
207				ND		0.714
208				ND		0.714
209				ND		0.714

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-07;FO 095427 1092316007 U90404B_09

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	5.78	
Total Hexachloro Biphenyls	34.5	
Total Heptachloro Biphenyls	53.4	
Total Octachloro Biphenyls	22.9	
Total Nonachloro Biphenyls	2.19	
Decachloro Biphenyls	ND	
Total PCBs	119	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Water

Client's Sample ID PSD0075-08;FO 095428 Lab Sample ID 1092316008

Filename U90404B_10

Injected By BAL
Total Amount Extracted 1010 mL
% Moisture NA

 % Moisture
 NA
 Dilution
 NA

 Dry Weight Extracted
 NA
 Collected
 04/01/2009

 ICAL ID
 U90404B02
 Received
 04/03/2009

 CCal Filename(s)
 U90404B_01
 Extracted
 04/03/2009

Method Blank ID BLANK-19539 Analyzed 04/05/2009 09:23

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.563	2.82	2.0	0.113	6 P
13C-4-MoCB	3 4	9.451	3.06	2.0	0.374	19 P
13C-2,2'-DiCB	4	9.762	1.54	2.0	0.307	15 P
13C-4,4'-DiCB	15	17.705	1.59	2.0	1.19	60
13C-2,2',6-TrCB	19	14.003	0.99	2.0	0.613	31
13C-3,4,4'-TrCB	37	26.244	1.06	2.0	2.15	107
13C-2,2',6,6'-TeCB	54	17.995	0.81	2.0	1.00	50
13C-3,4,4',5-TeCB	81	33.889	0.80	2.0	2.08	104
13C-3,3',4,4'-TeCB	77	34.493	0.80	2.0	2.14	107
13C-2,2',4,6,6'-PeCB	104	24.752	1.64	2.0	1.29	65
13C-2,3,3',4,4'-PeCB	105	38.299	1.56	2.0	2.13	107
13C-2,3,4,4',5-PeCB	114	37.611	1.58	2.0	2.15	108
13C-2,3',4,4',5-PeCB	118	37.058	1.60	2.0	2.18	109
13C-2,3',4,4',5'-PeCB	123	36.706	1.55	2.0	2.22	111
13C-3,3',4,4',5-PeCB	126	41.685	1.56	2.0	1.99	99
13C-2,2',4,4',6,6'-HxCB	155	31.307	1.24	2.0	1.54	77
13C-HxCB (156/157)	156/157	44.904	1.25	4.0	3.91	98
13C-2,3',4,4',5,5'-HxCB	167	43.697	1.30	2.0	2.08	104
13C-3,3',4,4',5,5'-HxCB	169	48.409	1.28	2.0	1.86	93
13C-2,2',3,4',5,6,6'-HpCB	188	37.578	1.08	2.0	2.16	108
13C-2,3,3',4,4',5,5'-HpCB	189	51.052	1.00	2.0	2.68	134
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.362	0.91	2.0	2.12	106
13C-2,3,3',4,4',5,5',6-OcCB	205	53.768	0.87	2.0	1.78	89
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.556	0.78	2.0	1.70	85
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.471	0.79	2.0	1.96	98
13CDeCB	209	57.194	0.69	2.0	1.60	80
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.499	1.05	2.0	2.00	100
13C-2,3,3',5,5'-PeCB	111	34.610	1.59	2.0	1.84	92
13C-2,2',3,3',5,5',6-HpCB	178	40.914	1.08	2.0	1.70	85
Recovery Standards						
13C-2,5-DiCB	9	12.542	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.712	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.575	1.60	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.411	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.251	0.92	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-08;FO 095428 1092316008 U90404B_10

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.248
2				ND		0.248
3				ND		0.248
4				ND		0.248
5				ND		0.248
6				ND		0.248
7				ND		0.248
8				ND		0.248
9				ND		0.248
10				ND		0.248
11				ND		1.49
12	12/13			ND		0.496
13	12/13			ND		0.496
14	12/13			ND		0.490
15				ND ND		0.248
16				ND ND		0.248
17				ND ND		0.248
18	18/30			ND ND		0.496
19	10/30			ND ND		0.496
20	20/28			ND ND		
						0.496
21	21/33			ND		0.496
22				ND		0.248
23				ND		0.248
24				ND		0.248
25	00/00			ND		0.248
26	26/29			ND		0.496
27	00/00			ND		0.248
28	20/28			ND		0.496
29	26/29			ND		0.496
30	18/30			ND		0.496
31		21.181	1.03	0.280		0.248
32				ND		0.248
33	21/33			ND		0.496
34				ND		0.248
35				ND		0.248
36				ND		0.248
37				ND		0.248
38				ND		0.248
39				ND		0.248
40	40/41/71			ND		1.49
41	40/41/71			ND		1.49
42				ND		0.496
43				ND		0.496
44	44/47/65			ND		1.49
45	45/51			ND		0.993
46				ND		0.496
47	44/47/65			ND		1.49
48				ND		0.496

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-08;FO 095428 1092316008 U90404B_10

	•					
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69			ND		0.993
50	50/53			ND		0.993
51	45/51			ND		0.993
52	10/01			ND		0.496
53	50/53			ND		0.993
54	00/00			ND		0.496
55				ND		0.496
56				ND		0.496
57				ND		0.496
58				ND		0.496
59	59/62/75			ND		1.49
60	33,32,13			ND		0.496
61	61/70/74/76			ND		1.99
62	59/62/75			ND		1.49
63	00,02,10			ND		0.496
64				ND		0.496
65	44/47/65			ND		1.49
66		29.631	0.78	0.528		0.496
67				ND		0.496
68				ND		0.496
69	49/69			ND		0.993
70	61/70/74/76			ND		1.99
71	40/41/71			ND		1.49
72				ND		0.496
73				ND		0.496
74	61/70/74/76			ND		1.99
75	59/62/75			ND		1.49
76	61/70/74/76			ND		1.99
77				ND		0.496
78				ND		0.496
79				ND		0.496
80				ND		0.496
81				ND		0.496
82				ND		0.496
83				ND		0.496
84	05/446/447			ND ND		0.496
85 86	85/116/117 86/87/97/108/119/125			ND ND		1.49
87				ND ND		2.98 2.98
88	86/87/97/108/119/125 88/91			ND ND		2.96 0.993
89	00/91			ND ND		0.993 0.496
90	90/101/113			ND ND		1.49
90	88/91			ND ND		0.993
92	00/31			ND ND		0.496
93	93/98/100/102			ND ND		1.99
94	33/33/100/102			ND		0.496
95		28.239	1.62	0.636		0.496
96				ND		0.496

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-08;FO 095428 1092316008 U90404B_10

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
97	86/87/97/108/119/125			ND		2.98
98	93/98/100/102			ND		1.99
99				ND		0.496
100	93/98/100/102			ND		1.99
101	90/101/113			ND		1.49
102	93/98/100/102			ND		1.99
103				ND		0.496
104				ND		0.496
105		38.332	1.50	0.553		0.496
106				ND		0.496
107	107/124			ND		0.993
107	86/87/97/108/119/125			ND		2.98
109	00/07/97/100/119/125			ND		0.496
110	110/115	33.755	1.58	1.36		0.490
111	110/115	33.733	1.30	ND		0.496
112				ND ND		0.496
	90/101/113					
113	90/101/113			ND ND		1.49
114	440/445		4.50			0.496
115	110/115	33.755	1.58	(1.36)		0.993
116	85/116/117			ND		1.49
117	85/116/117			ND		1.49
118		37.091	1.51	1.20		0.496
119	86/87/97/108/119/125			ND		2.98
120				ND		0.496
121				ND		0.496
122				ND		0.496
123				ND		0.496
124	107/124			ND		0.993
125	86/87/97/108/119/125			ND		2.98
126				ND		0.496
127				ND		0.496
128	128/166			ND		0.993
129	129/138/163	40.445	1.32	1.74		1.49
130				ND		0.496
131				ND		0.496
132		37.125	1.24	0.610		0.496
133				ND		0.496
134	134/143			ND		0.993
135	135/151			ND		0.993
136	199/191			ND		0.496
137				ND ND		0.496
137	129/138/163	40.445	1.32	(1.74)		1.49
130	139/140	40.445	_			0.993
				ND ND		
140	139/140			ND		0.993
141				ND		0.496
142	40.4/4.40			ND		0.496
143	134/143			ND		0.993
144				ND		0.496

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
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*= See Discussion
! = Outside QC Limits
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-08;FO 095428 1092316008 U90404B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.496
146				ND		0.496
147	147/149	35.800	1.32	1.26		0.993
148				ND		0.496
149	147/149	35.800	1.32	(1.26)		0.993
150				NĎ		0.496
151	135/151			ND		0.993
152				ND		0.496
153	153/168	39.137	1.32	1.26		0.993
154				ND		0.496
155				ND		0.496
156	156/157			ND		0.993
157	156/157			ND		0.993
158				ND		0.496
159				ND		0.496
160				ND		0.496
161				ND		0.496
162				ND		0.496
163	129/138/163	40.445	1.32	(1.74)		1.49
164				` NĎ		0.496
165				ND		0.496
166	128/166			ND		0.993
167				ND		0.496
168	153/168	39.137	1.32	(1.26)		0.993
169				NĎ		0.496
170				ND		0.496
171	171/173			ND		0.993
172				ND		0.496
173	171/173			ND		0.993
174				ND		0.496
175				ND		0.496
176				ND		0.496
177				ND		0.496
178				ND		0.496
179				ND		0.496
180	180/193			ND		0.993
181				ND		0.496
182				ND		0.496
183	183/185			ND		0.993
184	100,100			ND		0.496
185	183/185			ND		0.993
186				ND		0.496
187				ND		0.496
188				ND		0.496
189				ND		0.496
190				ND		0.496
191				ND		0.496
192				ND		0.496
						000

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NA = Not Applicable
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*= See Discussion
! = Outside QC Limits
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ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-08;FO 095428 1092316008 U90404B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		0.993
194				ND		0.744
195				ND		0.744
196				ND		0.744
197	197/200			ND		1.49
198	198/199			ND		1.49
199	198/199			ND		1.49
200	197/200			ND		1.49
201				ND		0.744
202				ND		0.744
203				ND		0.744
204				ND		0.744
205				ND		0.744
206				ND		0.744
207				ND		0.744
208				ND		0.744
209				ND		0.744

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-08;FO 095428 1092316008 U90404B_10

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	0.280	
Total Tetrachloro Biphenyls	0.528	
Total Pentachloro Biphenyls	3.75	
Total Hexachloro Biphenyls	4.86	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	9.43	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Dilution

Water

NA

Client's Sample ID PSD0075-09;FO 095429 Lab Sample ID 1092316009

Filename U90404B_11 Injected By BAL

Total Amount Extracted 1030 mL
% Moisture NA

 Dry Weight Extracted
 NA
 Collected
 04/01/2009

 ICAL ID
 U90404B02
 Received
 04/03/2009

 CCal Filename(s)
 U90404B_01
 Extracted
 04/03/2009

Method Blank ID BLANK-19539 Analyzed 04/05/2009 10:27

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.576	2.73	2.0	0.143	7 P
13C-4-MoCB	3	9.463	3.40	2.0	0.438	22 P
13C-2,2'-DiCB	4	9.786	1.60	2.0	0.363	18 P
13C-4,4'-DiCB	15	17.741	1.58	2.0	1.23	61
13C-2,2',6-TrCB	19	14.039	1.04	2.0	0.689	34
13C-3,4,4'-TrCB	37	26.278	1.11	2.0	2.20	110
13C-2,2',6,6'-TeCB	54	18.045	0.81	2.0	1.14	57
13C-3,4,4',5-TeCB	81	33.923	0.78	2.0	2.19	110
13C-3,3',4,4'-TeCB	77	34.543	0.78	2.0	2.14	107
13C-2,2',4,6,6'-PeCB	104	24.802	1.64	2.0	1.30	65
13C-2,3,3',4,4'-PeCB	105	38.332	1.58	2.0	2.22	111
13C-2,3,4,4',5-PeCB	114	37.645	1.58	2.0	2.15	108
13C-2,3',4,4',5-PeCB	118	37.092	1.62	2.0	2.21	111
13C-2,3',4,4',5'-PeCB	123	36.740	1.58	2.0	2.22	111
13C-3,3',4,4',5-PeCB	126	41.702	1.58	2.0	2.09	105
13C-2,2',4,4',6,6'-HxCB	155	31.341	1.29	2.0	1.43	71
13C-HxCB (156/157)	156/157	44.905	1.26	4.0	4.07	102
13C-2,3',4,4',5,5'-HxCB	167	43.714	1.26	2.0	2.12	106
13C-3,3',4,4',5,5'-HxCB	169	48.409	1.24	2.0	1.96	98
13C-2,2',3,4',5,6,6'-HpCB	188	37.611	1.04	2.0	1.91	96
13C-2,3,3',4,4',5,5'-HpCB	189	51.053	1.05	2.0	2.48	124
13C-2,2',3,3',5,5',6,6'-OcCB	202 205	43.379	0.91	2.0	1.95 1.76	98 88
13C-2,3,3',4,4',5,5',6-OcCB	206	53.746 55.557	0.94 0.77	2.0 2.0	1.64	82
13C-2,2',3,3',4,4',5,5',6-NoCB 13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.471	0.77	2.0	1.82	91
13C2,2,3,3,4,5,5,6,6-NOCB	208	57.194	0.78	2.0	1.50	75
I3CDeCB	209	37.194	0.70	2.0	1.50	75
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.549	1.04	2.0	2.13	107
13C-2,3,3',5,5'-PeCB	111	34.644	1.60	2.0	1.85	93
13C-2,2',3,3',5,5',6-HpCB	178	40.931	1.10	2.0	1.71	85
Recovery Standards						
13C-2,5-DiCB	9	12.566	1.59	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.763	0.78	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.626	1.58	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.428	1.33	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.251	0.90	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

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! = Outside QC Limits

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Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSD0075-09;FO 095429 1092316009 U90404B_11

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.242
2				ND		0.242
3				ND		0.242
4				ND		0.242
5				ND		0.242
6				ND		0.242
7				ND		0.242
8				ND		0.242
9				ND		0.242
10				ND		0.242
11				ND		1.45
12	12/13			ND		0.485
13	12/13			ND		0.485
14	12/10			ND		0.242
15				ND		0.242
16				ND		0.242
17				ND		0.242
18	18/30			ND		0.485
19	10/30			ND		0.242
20	20/28	21.583	1.04	2.10		0.485
21	21/33	21.505	1.04	ND		0.485
22	21/33	22.338	1.05	1.02		0.465
23				ND		0.242
23 24				ND ND		0.242
2 4 25				ND ND		0.242
25 26	26/20					0.242
20 27	26/29			ND ND		0.465
27 28	20/28	21.583				0.242
			1.04	(2.10)		
29	26/29			ND		0.485
30	18/30			ND		0.485
31		21.248	1.03	1.14		0.242
32	04/00	18.347	1.01	0.275		0.242
33	21/33			ND		0.485
34				ND		0.242
35				ND		0.242
36				ND		0.242
37		26.311	1.04	0.835		0.242
38				ND		0.242
39				ND		0.242
40	40/41/71	26.060	0.79	1.79		1.45
41	40/41/71	26.060	0.79	(1.79)		1.45
42		25.506	0.79	0.749		0.485
43				ND		0.485
44	44/47/65	24.920	0.80	2.06		1.45
45	45/51			ND		0.970
46				ND		0.485
47	44/47/65	24.920	0.80	(2.06)		1.45
48		24.668	0.87	0.494		0.485

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-09;FO 095429 1092316009 U90404B_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	24.349	0.83	1.20		0.970
50	50/53			ND		0.970
51	45/51			ND		0.970
52		23.796	0.81	1.92		0.485
53	50/53			ND		0.970
54				ND		0.485
55				ND		0.485
56		30.402	0.76	1.18		0.485
57				ND		0.485
58				ND		0.485
59	59/62/75			ND		1.45
60	30/32/13	30.637	0.74	0.595		0.485
61	61/70/74/76	29.329	0.77	3.86		1.94
62	59/62/75			ND		1.45
63	00/02/10			ND		0.485
64		26.345	0.81	1.22		0.485
65	44/47/65	24.920	0.80	(2.06)		1.45
66	44/41/00	29.681	0.79	2.14		0.485
67		23.001	0.73	ND		0.485
68				ND		0.485
69	49/69	24.349	0.83	(1.20)		0.403
70	61/70/74/76	29.329	0.83	(3.86)		1.94
70 71	40/41/71	26.060	0.79	(3.86)		1.45
72	40/41/71	20.000	0.79	(1.79) ND		0.485
73				ND ND		0.485
73 74	61/70/74/76	29.329	0.77	(3.86)		1.94
7 4 75	59/62/75	29.329	0.77	(3.66) ND		
75 76	61/70/74/76	29.329	0.77			1.45 1.94
	61/70/74/76		-	(3.86)		
77 78				ND ND		0.485 0.485
79				ND ND		0.485
80				ND		0.485
81				ND		0.485
82		34.107	1.45	0.522		0.485
83				ND		0.485
84	05/440/447	29.463	1.69	0.947		0.485
85	85/116/117			ND		1.45
86	86/87/97/108/119/125			ND		2.91
87	86/87/97/108/119/125			ND		2.91
88	88/91			ND		0.970
89	00/404/440			ND		0.485
90	90/101/113	31.660	1.60	3.12		1.45
91	88/91			ND		0.970
92		31.006	1.53	0.617		0.485
93	93/98/100/102			ND		1.94
94				ND		0.485
95		28.290	1.61	2.84		0.485
96				ND		0.485

Conc = Concentration

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P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected
NA = Not Applicable
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*= See Discussion
! = Outside QC Limits
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ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-09;FO 095429 1092316009 U90404B_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		2.91
98	93/98/100/102			ND		1.94
99		32.297	1.56	1.10		0.485
100	93/98/100/102			ND		1.94
101	90/101/113	31.660	1.60	(3.12)		1.45
102	93/98/100/102			` NĎ		1.94
103				ND		0.485
104				ND		0.485
105		38.349	1.58	2.00		0.485
106				ND		0.485
107	107/124			ND		0.970
108	86/87/97/108/119/125			ND		2.91
109	00/01/01/100/110/120			ND		0.485
110	110/115	33.805	1.61	5.50		0.970
111	110/110			ND		0.485
112				ND		0.485
113	90/101/113	31.660	1.60	(3.12)		1.45
114	30/101/110			ND		0.485
115	110/115	33.805	1.61	(5.50)		0.970
116	85/116/117			ND		1.45
117	85/116/117			ND		1.45
118	03/110/117	37.125	1.54	4.35		0.485
119	86/87/97/108/119/125	37.123	1.54	ND		2.91
120	86/87/97/106/119/123			ND ND		0.485
121				ND ND		0.485
121				ND ND		0.485
122				ND ND		0.485
123	107/124			ND ND		0.465
124	86/87/97/108/119/125			ND		2.91
	00/07/97/100/119/125					
126				ND		0.485
127	100/100			ND		0.485
128	128/166	41.786	1.31	1.43		0.970
129	129/138/163	40.462	1.29	9.13		1.45
130		39.774	1.33	0.562		0.485
131			4.00	ND		0.485
132		37.159	1.29	3.22		0.485
133	40.4/4.40			ND		0.485
134	134/143			ND		0.970
135	135/151	34.828	1.23	2.91		0.970
136		32.095	1.25	0.960		0.485
137	400/400/400			ND (2.42)		0.485
138	129/138/163	40.462	1.29	(9.13)		1.45
139	139/140			ND		0.970
140	139/140			ND		0.970
141		39.338	1.25	1.41		0.485
142				ND		0.485
143	134/143			ND		0.970
144				ND		0.485

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-09;FO 095429 1092316009 U90404B_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.485
146		38.483	1.26	1.00		0.485
147	147/149	35.834	1.27	7.18		0.970
148				ND		0.485
149	147/149	35.834	1.27	(7.18)		0.970
150				NĎ		0.485
151	135/151	34.828	1.23	(2.91)		0.970
152				ND		0.485
153	153/168	39.154	1.30	6.16		0.970
154				ND		0.485
155				ND		0.485
156	156/157			ND		0.970
157	156/157			ND		0.970
158		40.898	1.27	0.944		0.485
159				ND		0.485
160				ND		0.485
161				ND		0.485
162				ND		0.485
163	129/138/163	40.462	1.29	(9.13)		1.45
164		40.143	1.31	Ò.619		0.485
165				ND		0.485
166	128/166	41.786	1.31	(1.43)		0.970
167				` NĎ		0.485
168	153/168	39.154	1.30	(6.16)		0.970
169				` NĎ		0.485
170		47.721	1.08	2.75		0.485
171	171/173			ND		0.970
172				ND		0.485
173	171/173			ND		0.970
174		42.809	1.05	3.10		0.485
175				ND		0.485
176				ND		0.485
177		43.262	1.07	1.61		0.485
178		40.965	0.96	0.510		0.485
179		37.963	1.02	1.08		0.485
180	180/193	46.413	1.06	5.80		0.970
181				ND		0.485
182				ND		0.485
183	183/185	42.591	1.07	1.98		0.970
184				ND		0.485
185	183/185	42.591	1.07	(1.98)		0.970
186				NĎ		0.485
187		41.937	1.05	3.39		0.485
188				ND		0.485
189				ND		0.485
190		48.291	1.05	0.554		0.485
191				ND		0.485
192				ND		0.485

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-09;FO 095429 1092316009 U90404B_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.413	1.06	(5.80)		0.970
194		53.272	0.89	1.06		0.727
195				ND		0.727
196				ND		0.727
197	197/200			ND		1.45
198	198/199			ND		1.45
199	198/199			ND		1.45
200	197/200			ND		1.45
201				ND		0.727
202				ND		0.727
203		49.381	0.92	0.818		0.727
204				ND		0.727
205				ND		0.727
206				ND		0.727
207				ND		0.727
208				ND		0.727
209				ND		0.727

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-09;FO 095429 1092316009 U90404B_11

 Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	5.36	
Total Tetrachloro Biphenyls	17.2	
Total Pentachloro Biphenyls	21.0	
Total Hexachloro Biphenyls	35.5	
Total Heptachloro Biphenyls	20.8	
Total Octachloro Biphenyls	1.88	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	102	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID

Filename Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted

ICAL ID

CCal Filename(s) Method Blank ID

PSD0075-10;FO 095430

1092316010

U90404B_12 BAL

1000 mL NA NA

U90404B02 U90404B 01 **BLANK-19539** Matrix Water Dilution NA

Collected 04/01/2009 Received 04/03/2009 Extracted 04/03/2009

Analyzed 04/05/2009 11:31

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.576	2.95	2.0	0.0575	3 P
13C-4-MoCB	3	9.451	3.17	2.0	0.257	13 P
13C-2,2'-DiCB	4	9.762	1.56	2.0	0.207	10 P
13C-4,4'-DiCB	15	17.705	1.58	2.0	0.996	50 55 B
13C-2,2',6-TrCB	19	14.015	1.09	2.0	0.496	25 P
13C-3,4,4'-TrCB	37	26.244	1.05	2.0	1.92	96
13C-2,2',6,6'-TeCB 13C-3,4,4',5-TeCB	54 81	18.012 33.873	0.84 0.80	2.0 2.0	0.796 2.10	40 105
13C-3,4,4,5-1eCB 13C-3,3',4,4'-TeCB	77	34.493	0.80	2.0	2.10	103
13C-2,2',4,6,6'-PeCB	104	24.769	1.62	2.0	1.09	55
13C-2,3,3',4,4'-PeCB	105	38.265	1.59	2.0	2.15	107
13C-2,3,4,4',5-PeCB	114	37.578	1.56	2.0	2.08	104
13C-2,3',4,4',5-PeCB	118	37.042	1.60	2.0	2.18	109
13C-2,3',4,4',5'-PeCB	123	36.673	1.55	2.0	2.16	108
13C-3,3',4,4',5-PeCB	126	41.652	1.58	2.0	2.05	103
13C-2,2',4,4',6,6'-HxCB	155	31.291	1.24	2.0	1.30	65
13C-HxCB (156/157)	156/157	44.838	1.27	4.0	3.81	95
13C-2,3',4,4',5,5'-HxCB	167	43.647	1.29	2.0	1.97	98
13C-3,3',4,4',5,5'-HxCB	169	48.325	1.30	2.0	1.78	89
13C-2,2',3,4',5,6,6'-HpCB	188	37.561	1.07	2.0	1.80	90
13C-2,3,3',4,4',5,5'-HpCB	189 202	50.971 43.312	1.03 0.91	2.0 2.0	2.50 1.85	125 93
13C-2,2',3,3',5,5',6,6'-OcCB 13C-2,3,3',4,4',5,5',6-OcCB	202	53.665	0.91	2.0	1.64	82
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.476	0.76	2.0	1.50	75
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.390	0.78	2.0	1.71	86
13CDeCB	209	57.113	0.72	2.0	1.34	67
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.499	1.01	2.0	1.73	86
13C-2,3,3',5,5'-PeCB	111	34.594	1.61	2.0	1.76	88
13C-2,2',3,3',5,5',6-HpCB	178	40.881	1.03	2.0	1.56	78
Recovery Standards						
13C-2,5-DiCB	9	12.542	1.60	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.713	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.576	1.55	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.378	1.33	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.170	0.95	2.0	NA	NA

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-10;FO 095430 1092316010 U90404B_12

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.249
2				ND		0.249
3				ND		0.249
4				ND		0.249
5				ND		0.249
6				ND		0.249
7				ND		0.249
8				ND		0.249
9				ND		0.249
10				ND		0.249
11				ND		1.49
12	12/13			ND ND		0.498
	12/13			ND ND		0.498
13	12/13					0.498
14		47.700	4.00	ND		
15		17.729	1.60	2.18		0.249
16		17.609	1.04	1.26		0.249
17	40/00	17.070	1.08	0.870		0.249
18	18/30	16.543	1.10	1.61		0.498
19	00/00			ND		0.249
20	20/28	21.533	1.03	9.99		0.498
21	21/33	21.801	1.02	3.05		0.498
22		22.287	1.03	5.00		0.249
23				ND		0.249
24				ND		0.249
25		20.779	1.07	0.520		0.249
26	26/29	20.510	1.00	1.15		0.498
27				ND		0.249
28	20/28	21.533	1.03	(9.99)		0.498
29	26/29	20.510	1.00	(1.15)		0.498
30	18/30	16.543	1.10	(1.61)		0.498
31		21.198	1.02	5.80		0.249
32		18.314	1.04	1.05		0.249
33	21/33	21.801	1.02	(3.05)		0.498
34				NĎ		0.249
35		25.808	1.07	0.526		0.249
36				ND		0.249
37		26.261	1.02	9.50		0.249
38				ND		0.249
39				ND		0.249
40	40/41/71	26.026	0.80	10.4		1.49
41	40/41/71	26.026	0.80	(10.4)		1.49
42		25.473	0.80	4.20		0.498
43				ND		0.498
44	44/47/65	24.869	0.81	11.9		1.49
45	45/51	21.583	0.81	1.45		0.996
46		21.935	0.87	0.555		0.498
47	44/47/65	24.869	0.81	(11.9)		1.49
48		24.618	0.80	2.62		0.498

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-10;FO 095430 1092316010 U90404B_12

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69	24.299	0.80	6.29		0.996
50	50/53			ND		0.996
51	45/51	21.583	0.81	(1.45)		0.996
52	10/01	23.746	0.80	10.6		0.498
53	50/53			ND		0.996
54	00/00			ND		0.498
55				ND		0.498
56		30.352	0.77	11.7		0.498
57		28.223	0.75	0.791		0.498
58				ND		0.498
59	59/62/75			ND ND		1.49
60	39/02/13	30.586	0.76	5.66		0.498
61	61/70/74/76	29.279	0.76	32.3		1.99
62				ND		1.49
	59/62/75					
63		28.893	0.79	0.616		0.498
64	44/47/05	26.311	0.80	6.80		0.498
65	44/47/65	24.869	0.81	(11.9)		1.49
66		29.631	0.77	19.0		0.498
67		28.591	0.76	0.648		0.498
68	40/00			ND (2.22)		0.498
69	49/69	24.299	0.80	(6.29)		0.996
70	61/70/74/76	29.279	0.76	(32.3)		1.99
71	40/41/71	26.026	0.80	(10.4)		1.49
72				ND		0.498
73				ND		0.498
74	61/70/74/76	29.279	0.76	(32.3)		1.99
75	59/62/75			ND		1.49
76	61/70/74/76	29.279	0.76	(32.3)		1.99
77		34.510	0.75	5.22		0.498
78				ND		0.498
79		32.867	0.76	0.674		0.498
80				ND		0.498
81				ND		0.498
82		34.057	1.62	5.21		0.498
83		32.112	1.59	2.53		0.498
84		29.430	1.62	5.93		0.498
85	85/116/117	33.537	1.58	5.85		1.49
86	86/87/97/108/119/125	32.833	1.63	23.5		2.99
87	86/87/97/108/119/125	32.833	1.63	(23.5)		2.99
88	88/91	29.212	1.60	3.21		0.996
89				ND		0.498
90	90/101/113	31.609	1.61	24.5		1.49
91	88/91	29.212	1.60	(3.21)		0.996
92		30.955	1.62	4.14		0.498
93	93/98/100/102			ND		1.99
94	· · · · · · · · · · · · · · · · · · ·			ND		0.498
95		28.239	1.61	14.4		0.498
96				ND		0.498

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-10;FO 095430 1092316010 U90404B_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	32.833	1.63	(23.5)		2.99
98	93/98/100/102			` NĎ		1.99
99		32.246	1.62	10.6		0.498
100	93/98/100/102			ND		1.99
101	90/101/113	31.609	1.61	(24.5)		1.49
102	93/98/100/102			ND		1.99
103				ND		0.498
104				ND		0.498
105		38.299	1.56	23.1		0.498
106				ND		0.498
107	107/124	36.321	1.54	1.96		0.996
108	86/87/97/108/119/125	32.833	1.63	(23.5)		2.99
109	00/01/01/100/110/120	36.589	1.57	2.52		0.498
110	110/115	33.738	1.61	45.6		0.996
111	110/110			ND		0.498
112				ND		0.498
113	90/101/113	31.609	1.61	(24.5)		1.49
114	30/101/110	37.612	1.57	1.04		0.498
115	110/115	33.738	1.61	(45.6)		0.996
116	85/116/117	33.537	1.58	(5.85)		1.49
117	85/116/117	33.537	1.58	(5.85)		1.49
118	03/110/117	37.058	1.55	45.5		0.498
119	86/87/97/108/119/125	32.833	1.63	(23.5)		2.99
120	00/07/97/100/119/123	JZ.033 	1.03	(23.3) ND		0.498
120				ND ND		0.498
122		37.394	1.54	0.770		0.498
123		36.706	1.49	0.794		0.498
123	107/124	36.321	1.54	(1.96)		0.496
125	86/87/97/108/119/125	32.833	1.63	(23.5)		2.99
126	86/87/97/106/119/123	41.669	2.12 I	(23.5)	0.526	0.498
120		41.009	Z. 1Z 1 	ND	0.526	0.498
	128/166	41.719	1.29	11.2		0.496
128 129	129/138/163	40.412	1.30	63.9		1.49
130	129/136/103	39.707	1.28	3.86		0.498
130		36.622	1.26	0.604		0.498
		37.092	1.27			
132				19.4		0.498
133	404/440	37.746	1.30	0.576		0.498
134	134/143	35.968	1.31	1.96		0.996
135	135/151	34.778	1.25	11.9 3.69		0.996
136		32.045	1.29			0.498
137	120/129/162	39.959	1.26	3.64		0.498
138	129/138/163	40.412	1.30	(63.9)		1.49
139	139/140			ND ND		0.996
140	139/140			ND		0.996
141		39.288	1.27	8.79		0.498
142	40.4/4.40		4.04	ND (4.00)		0.498
143	134/143	35.968	1.31	(1.96)		0.996
144		35.382	1.28	1.83		0.498

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-10;FO 095430 1092316010 U90404B_12

		000.0				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.498
146		38.433	1.30	5.68		0.498
147	147/149	35.784	1.29	35.1		0.996
148	1117110			ND		0.498
149	147/149	35.784	1.29	(35.1)		0.996
150	1117110			ND		0.498
151	135/151	34.778	1.25	(11.9)		0.996
152	100/101			ND		0.498
153	153/168	39.104	1.31	42.4		0.996
154	100/100			ND		0.498
155				ND		0.498
156	156/157	44.855	1.25	8.77		0.996
157	156/157	44.855	1.25	(8.77)		0.996
158	100/101	40.831	1.30	6.42		0.498
159				ND		0.498
160				ND		0.498
161				ND		0.498
162		43.195	1.30	0.866		0.498
163	129/138/163	40.412	1.30	(63.9)		1.49
164	123/130/103	40.076	1.30	3.74		0.498
165				ND		0.498
166	128/166	41.719	1.29	(11.2)		0.996
167	120/100	43.664	1.29	3.31		0.498
168	153/168	39.104	1.27	(42.4)		0.498
169	155/100	39.104	1.31	(42.4) ND		0.498
170		47.654	1.06	13.7		0.498
170	171/173	43.882	1.08	3.91		0.496
	171/173		1.08	2.12		
172 173	171/173	45.659 43.882	1.07			0.498 0.996
	171/173	43.00Z		(3.91)		0.498
174		42.742	1.05	`13.9		
175		41.585	1.06	0.510		0.498
176		38.869	1.03	1.27 7.20		0.498
177		43.212	1.05			0.498
178		40.898	1.01	2.10		0.498
179	400/400	37.913	1.03	3.88		0.498
180	180/193	46.347	1.06	27.4		0.996
181				ND		0.498
182	400/405	40.504	4.00	ND		0.498
183	183/185	42.524	1.03	8.13		0.996
184	400/405	40.504	4.00	ND (0.40)		0.498
185	183/185	42.524	1.03	(8.13)		0.996
186				ND		0.498
187		41.870	1.04	13.7		0.498
188			4.00	ND 0.540		0.498
189		50.993	1.02	0.512		0.498
190		48.208	1.08	2.60		0.498
191		46.716	1.12	0.528		0.498
192				ND		0.498

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-10;FO 095430 1092316010 U90404B_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.347	1.06	(27.4)		0.996
194		53.191	0.91	4.96		0.747
195		50.670	0.91	2.25		0.747
196		49.096	0.91	2.69		0.747
197	197/200			ND		1.49
198	198/199	48.409	0.90	5.79		1.49
199	198/199	48.409	0.90	(5.79)		1.49
200	197/200			` NĎ		1.49
201				ND		0.747
202		43.346	0.94	0.756		0.747
203		49.314	0.90	3.27		0.747
204				ND		0.747
205				ND		0.747
206		55.497	0.77	1.21		0.747
207				ND		0.747
208				ND		0.747
209				ND		0.747

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

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Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-10;FO 095430 1092316010 U90404B_12

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	2.18	
Total Trichloro Biphenyls	40.3	
Total Tetrachloro Biphenyls	131	
Total Pentachloro Biphenyls	221	
Total Hexachloro Biphenyls	238	
Total Heptachloro Biphenyls	102	
Total Octachloro Biphenyls	19.7	
Total Nonachloro Biphenyls	1.21	
Decachloro Biphenyls	ND	
Total PCBs	755	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID Filename

Injected By

% Moisture Dry Weight Extracted

Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID

PSD0075-11;FO 095431

1092316011 U90405A_07

BAL 1040 mL NA

NA U90405A02 U90405A 01 BLANK-19539 Matrix Water Dilution NA

Collected 04/01/2009 Received 04/03/2009 Extracted 04/03/2009

Analyzed 04/05/2009 20:04

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.576	2.90	2.0	0.214	11 P
13C-4-MoCB	3	9.451	2.96	2.0	0.478	24 P
13C-2,2'-DiCB	4	9.762	1.62	2.0	0.422	21 P
13C-4,4'-DiCB	15	17.705	1.56	2.0	1.14	57
13C-2,2',6-TrCB	19	14.003	1.00	2.0	0.676	34
13C-3,4,4'-TrCB	37	26.225	1.07	2.0	1.94	97
13C-2,2',6,6'-TeCB	54	17.993	0.83	2.0	0.905	45
13C-3,4,4',5-TeCB	81	33.853	0.80	2.0	1.94	97
13C-3,3',4,4'-TeCB	77	34.473	0.80	2.0	1.99	99
13C-2,2',4,6,6'-PeCB	104	24.749	1.64	2.0	1.17	59
13C-2,3,3',4,4'-PeCB	105	38.263	1.60	2.0	1.97	98
13C-2,3,4,4',5-PeCB	114	37.575	1.58	2.0	1.93	96
13C-2,3',4,4',5-PeCB	118	37.022	1.56	2.0	2.01	100
13C-2,3',4,4',5'-PeCB	123	36.670	1.57	2.0	1.99	100
13C-3,3',4,4',5-PeCB	126	41.649	1.58	2.0	1.84	92
13C-2,2',4,4',6,6'-HxCB	155	31.288	1.30	2.0	1.42	71
13C-HxCB (156/157)	156/157	44.852	1.26	4.0	3.71	93
13C-2,3',4,4',5,5'-HxCB	167	43.645	1.25	2.0	1.93	97
13C-3,3',4,4',5,5'-HxCB	169	48.339	1.27	2.0	1.80	90
13C-2,2',3,4',5,6,6'-HpCB	188	37.558	1.05	2.0	1.95	97
13C-2,3,3',4,4',5,5'-HpCB	189	50.985	1.03	2.0	2.26	113
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.326	0.90	2.0	1.95	97
13C-2,3,3',4,4',5,5',6-OcCB	205	53.679	0.89	2.0	1.72	86
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.490	0.75	2.0	1.60	80
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.404	0.78	2.0	1.74	87
13CDeCB	209	57.149	0.73	2.0	1.49	74
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.497	1.08	2.0	1.79	90
13C-2,3,3',5,5'-PeCB	111	34.574	1.56	2.0	1.73	86
13C-2,2',3,3',5,5',6-HpCB	178	40.878	1.05	2.0	1.66	83
Recovery Standards						
13C-2,5-DiCB	_9	12.530	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.693	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.556	1.57	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.375	1.30	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.184	0.98	2.0	NA	NA

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* = See Discussion

! = Outside QC Limits RT = Retention Time

I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSD0075-11;FO 095431 1092316011 U90405A_07

UPAC Co-elutions RT Ratio ng/L ng/L ng/L					Concentration	EMPC	EML
2	IUPAC	Co-elutions	RT	Ratio			
2	1				ND		0.241
3							
4	3						
5	4						0.241
6	5						
7	6						0.241
8	7						
9					ND		
11	9				ND		0.241
12 12/13 ND 0.483 13 12/13 ND 0.483 14 ND 0.241 15 ND 0.241 16 ND 0.241 17 ND 0.241 18 18/30 ND 0.241 18 18/30 ND 0.241 20 20/28 21.513 1.00 0.822 0.483 21 21/33 ND 0.483 22 2 22.268 1.02 0.433 0.241 24 ND 0.241 25 ND 0.241 26 26/29 ND 0.241 26 26/29 ND 0.241 26 26/29 ND 0.241 27 ND 0.241 28 20/28 21.513 1.00 (0.822) 0.483 27 ND 0.241 28 20/28 21.513 1.00 (0.822) 0.483 29 26/29 ND 0.241 31 21.178 1.00 (0.822) 0.483 30 18/30 ND 0.483 31 21.178 1.07 0.500 0.483 31 21.178 1.07 0.500 0.241 32 ND 0.483 34 ND 0.483 34 ND 0.241 36 ND 0.241 37 26.258 1.04 0.700 0.241 38 ND 0.241 39 34 ND 0.241 39 34 ND 0.241 36 ND 0.241 37 26.258 1.04 0.700 0.241 38 ND 0.241 39 40 40/41/71 ND 0.241 30 40/41/71 ND 0.241 31 40 40/41/71 ND 0.241 32 ND 0.241 34 44 40/41/71 ND 0.241 35 ND 0.241 36 ND 0.241 37 26.258 1.04 0.700 0.241 38 ND 0.241 39 44 40/41/71 ND 0.241 40 40/41/71 ND 0.241 41 40/41/71 ND 0.241 42 ND 0.241 44 44/47/65 ND 0.483 44 44/47/65 ND 0.483 44 44/47/65 ND 0.483 45 45/51 ND 0.483 46 45/51 ND 0.483 47 44/47/65 ND 0.483							
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14					ND		
15	13	12/13			ND		0.483
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18 18/30 ND 0.483 19 20/28 21.513 1.00 0.822 0.483 21 21/33 ND 0.483 22 22.268 1.02 0.433 0.241 23 ND 0.241 24 ND 0.241 25 ND 0.241 25 ND 0.241 26 26/29 ND 0.483 27 ND 0.483 29 26/29 ND 0.483 30 18/30 ND 0.483 31 21/178 1.07 0.500 0.483 31 21/178 1.07 0.500 0.241 33 21/33 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>							
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22 22.268 1.02 0.433 0.241 23 ND 0.241 24 ND 0.241 25 ND 0.241 26 26/29 ND 0.483 27 ND 0.483 29 26/29 ND 0.483 30 18/30 ND 0.483 31 21.178 1.07 0.500 0.241 32 ND 0.241 32 ND 0.241 33 21/33 ND 0.241 35 ND 0.241 36 ND 0.241 37 26.258 1.04			21.513	1.00			
23	21	21/33					0.483
24 ND 0.241 25 ND 0.241 26 26/29 ND 0.483 27 ND 0.241 28 20/28 21.513 1.00 (0.822) 0.483 29 26/29 ND 0.483 30 18/30 ND 0.483 31 21.178 1.07 0.500 0.241 32 ND 0.241 33 21/33 ND 0.241 34 ND 0.241 35 ND 0.241 36 ND 0.241 37 26.258 1.04 0.700 0.241 38 <td>22</td> <td></td> <td>22.268</td> <td>1.02</td> <td></td> <td></td> <td>0.241</td>	22		22.268	1.02			0.241
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27 ND 0.241 28 20/28 21.513 1.00 (0.822) 0.483 29 26/29 ND 0.483 30 18/30 ND 0.483 31 21.178 1.07 0.500 0.241 32 ND 0.241 32 ND 0.241 33 21/33 ND 0.241 34 ND 0.241 35 ND 0.241 36 ND 0.241 37 26.258 1.04 0.700 0.241 39 ND 0.241 40 40/	25						0.241
28 20/28 21.513 1.00 (0.822) 0.483 29 26/29 ND 0.483 30 18/30 ND 0.241 31 21.178 1.07 0.500 0.241 32 ND 0.241 33 21/33 ND 0.483 34 ND 0.241 35 ND 0.241 36 ND 0.241 37 26.258 1.04 0.700 0.241 39 ND 0.241 40 40/41/71 ND 0.241 41 40/41/71 ND 0.483 43 ND 0.483 <t< td=""><td>26</td><td>26/29</td><td></td><td></td><td></td><td></td><td></td></t<>	26	26/29					
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36 ND 0.241 37 26.258 1.04 0.700 0.241 38 ND 0.241 39 ND 0.241 40 40/41/71 ND 1.45 41 40/41/71 ND 0.483 42 ND 0.483 43 ND 0.483 44 44/47/65 ND 0.965 46 ND 0.483 47 44/47/65 ND 0.483 47 44/47/65 ND 1.45	34						0.241
37 26.258 1.04 0.700 0.241 38 ND 0.241 39 ND 0.241 40 40/41/71 ND 1.45 41 40/41/71 ND 0.483 42 ND 0.483 43 ND 0.483 44 44/47/65 ND 0.965 45 45/51 ND 0.483 47 44/47/65 ND 0.483 47 44/47/65 ND 1.45	35						0.241
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40 40/41/71 ND 1.45 41 40/41/71 ND 1.45 42 ND 0.483 43 ND 0.483 44 44/47/65 ND 0.965 45 45/51 ND 0.483 47 44/47/65 ND 1.45	30 30						
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45 45/51 ND 0.965 46 ND 0.483 47 44/47/65 ND 1.45		11/17/65					
46 ND 0.483 47 44/47/65 ND 1.45							
47 44/47/65 ND 1.45		1 3/3 I					0.900
		44/47/65					
	48	11/4//00			ND		0.483

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSD0075-11;FO 095431 1092316011 U90405A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69			ND		0.965
50	50/53			ND		0.965
51	45/51			ND		0.965
52		23.727	0.82	1.02		0.483
53	50/53			ND		0.965
54				ND		0.483
55				ND		0.483
56		30.332	0.76	0.819		0.483
57				ND		0.483
58				ND		0.483
59	59/62/75			ND		1.45
60				ND		0.483
61	61/70/74/76	29.259	0.74	2.58		1.93
62	59/62/75			ND		1.45
63	00,02,10			ND		0.483
64		26.292	0.80	0.642		0.483
65	44/47/65			ND		1.45
66	, 66	29.611	0.76	1.36		0.483
67				ND		0.483
68				ND		0.483
69	49/69			ND		0.965
70	61/70/74/76	29.259	0.74	(2.58)		1.93
71	40/41/71			ND		1.45
72	10/11//1			ND		0.483
73				ND		0.483
74	61/70/74/76	29.259	0.74	(2.58)		1.93
75	59/62/75			ND		1.45
76	61/70/74/76	29.259	0.74	(2.58)		1.93
77	01/10/1-4/10			ND		0.483
78				ND		0.483
79				ND		0.483
80				ND		0.483
81				ND		0.483
82				ND		0.483
83				ND		0.483
84		29.410	1.58	0.569		0.483
85	85/116/117	20.110		ND		1.45
86	86/87/97/108/119/125			ND		2.90
87	86/87/97/108/119/125			ND		2.90
88	88/91			ND		0.965
89	00/91			ND		0.483
90	90/101/113	31.590	1.60	2.22		1.45
91	88/91			ND		0.965
92	33/31			ND		0.483
93	93/98/100/102			ND		1.93
94	33/33/100/102			ND		0.483
95		28.220	1.58	1.42		0.483
96		20.220		ND		0.483
						500

Conc = Concentration

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P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-11;FO 095431 1092316011

1092316011 U90405A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		2.90
98	93/98/100/102			ND		1.93
99		32.244	1.62	0.902		0.483
100	93/98/100/102			ND		1.93
101	90/101/113	31.590	1.60	(2.22)		1.45
102	93/98/100/102			NĎ		1.93
103				ND		0.483
104				ND		0.483
105		38.296	1.58	1.64		0.483
106				ND		0.483
107	107/124			ND		0.965
108	86/87/97/108/119/125			ND		2.90
109				ND		0.483
110	110/115	33.736	1.56	3.73		0.965
111				ND		0.483
112				ND		0.483
113	90/101/113	31.590	1.60	(2.22)		1.45
114				NĎ		0.483
115	110/115	33.736	1.56	(3.73)		0.965
116	85/116/117			` NĎ		1.45
117	85/116/117			ND		1.45
118		37.055	1.58	3.41		0.483
119	86/87/97/108/119/125			ND		2.90
120				ND		0.483
121				ND		0.483
122				ND		0.483
123				ND		0.483
124	107/124			ND		0.965
125	86/87/97/108/119/125			ND		2.90
126				ND		0.483
127				ND		0.483
128	128/166			ND		0.965
129	129/138/163	40.409	1.29	4.97		1.45
130				ND		0.483
131				ND		0.483
132		37.089	1.30	1.63		0.483
133				ND		0.483
134	134/143			ND		0.965
135	135/151	34.758	1.24	1.19		0.965
136				ND		0.483
137				ND		0.483
138	129/138/163	40.409	1.29	(4.97)		1.45
139	139/140			NĎ		0.965
140	139/140			ND		0.965
141		39.285	1.30	0.755		0.483
142				ND		0.483
143	134/143			ND		0.965
144				ND		0.483

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses

*= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-11;FO 095431 1092316011 U90405A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.483
146		38.430	1.43	0.532		0.483
147	147/149	35.764	1.30	3.04		0.965
148				ND		0.483
149	147/149	35.764	1.30	(3.04)		0.965
150				` NĎ		0.483
151	135/151	34.758	1.24	(1.19)		0.965
152				` NĎ		0.483
153	153/168	39.101	1.32	3.44		0.965
154				ND		0.483
155				ND		0.483
156	156/157			ND		0.965
157	156/157			ND		0.965
158				ND		0.483
159				ND		0.483
160				ND		0.483
161				ND		0.483
162				ND		0.483
163	129/138/163	40.409	1.29	(4.97)		1.45
164				NĎ		0.483
165				ND		0.483
166	128/166			ND		0.965
167	. = 0/ . 0 0			ND		0.483
168	153/168	39.101	1.32	(3.44)		0.965
169	. 55/ . 55			ND		0.483
170		47.652	1.08	1.13		0.483
171	171/173			ND		0.965
172				ND		0.483
173	171/173			ND		0.965
174		42.739	1.09	1.18		0.483
175				ND		0.483
176				ND		0.483
177		43.209	1.06	0.659		0.483
178				ND		0.483
179				ND		0.483
180	180/193	46.361	1.05	2.45		0.965
181	. 557 . 55			ND		0.483
182				ND		0.483
183	183/185			ND		0.965
184	100, 100			ND		0.483
185	183/185			ND		0.965
186	. 55/ . 55			ND		0.483
187		41.867	1.05	1.32		0.483
188				ND		0.483
189				ND		0.483
190				ND		0.483
191				ND		0.483
192				ND		0.483
						0.100

Conc = Concentration

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! = Outside QC Limits
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-11;FO 095431 1092316011 U90405A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.361	1.05	(2.45)		0.965
194				ND		0.724
195				ND		0.724
196				ND		0.724
197	197/200			ND		1.45
198	198/199			ND		1.45
199	198/199			ND		1.45
200	197/200			ND		1.45
201				ND		0.724
202				ND		0.724
203				ND		0.724
204				ND		0.724
205				ND		0.724
206				ND		0.724
207				ND		0.724
208				ND		0.724
209				ND		0.724

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-11;FO 095431 1092316011 U90405A_07

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	2.45	
Total Tetrachloro Biphenyls	6.42	
Total Pentachloro Biphenyls	13.9	
Total Hexachloro Biphenyls	15.6	
Total Heptachloro Biphenyls	6.75	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	45.1	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID Filename

Filename Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted

Dry Weight Extracted ICAL ID

CCal Filename(s)
Method Blank ID

PSD0075-12;FO 095432

1092316012 U90405A_08

BAL 1000 mL

NA NA U90405A02 U90405A 01

BLANK-19539

Matrix Water
Dilution NA

Collected 04/01/2009 Received 04/03/2009 Extracted 04/03/2009

Analyzed 04/05/2009 21:08

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.564	3.26	2.0	0.207	10 P
13C-4-MoCB	3	9.439	3.57	2.0	0.430	10 P 22 P 20 P
13C-2,2'-DiCB	3 4	9.750	1.58	2.0	0.398	20 P
13C-4,4'-DiCB	15	17.693	1.57	2.0	1.15	58
13C-2,2',6-TrCB	19	13.991	1.09	2.0	0.673	34
13C-3,4,4'-TrCB	37	26.208	1.09	2.0	1.86	93
13C-2,2',6,6'-TeCB	54	17.993	0.80	2.0	0.869	43
13C-3,4,4',5-TeCB	81	33.820	0.79	2.0	1.94	97
13C-3,3',4,4'-TeCB	77	34.440	0.80	2.0	1.99	100
13C-2,2',4,6,6'-PeCB	104	24.733	1.61	2.0	1.19	59
13C-2,3,3',4,4'-PeCB	105	38.229	1.61	2.0	2.02	101
13C-2,3,4,4',5-PeCB	114	37.542	1.61	2.0	1.96	98
13C-2,3',4,4',5-PeCB	118	36.989	1.57	2.0	2.04	102
13C-2,3',4,4',5'-PeCB	123	36.637	1.57	2.0	2.06	103
13C-3,3',4,4',5-PeCB	126	41.599	1.57	2.0	1.91	96
13C-2,2',4,4',6,6'-HxCB	155	31.255	1.27	2.0	1.42	71
13C-HxCB (156/157)	156/157	44.785	1.25	4.0	3.72	93
13C-2,3',4,4 [`] ,5,5'-HxĆB	167	43.594	1.27	2.0	1.94	97
13C-3,3',4,4',5,5'-HxCB	169	48.272	1.27	2.0	1.73	87
13C-2,2',3,4',5,6,6'-HpCB	188	37.525	1.05	2.0	1.97	98
13C-2,3,3',4,4',5,5'-HpCB	189	50.921	1.04	2.0	2.29	114
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.276	0.90	2.0	1.95	97
13C-2,3,3',4,4',5,5',6-OcCB	205	53.615	0.91	2.0	1.64	82
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.425	0.81	2.0	1.48	74
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.339	0.80	2.0	1.74	87
13CDeCB	209	57.063	0.72	2.0	1.42	71
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.480	1.06	2.0	1.80	90
13C-2,3,3',5,5'-PeCB	111	34.541	1.59	2.0	1.72	86
13C-2,2',3,3',5,5',6-HpCB	178	40.828	1.05	2.0	1.62	81
Recovery Standards						
13C-2,5-DiCB	9	12.518	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.676	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.540	1.58	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.325	1.33	2.0	NA	NA NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.119	0.92	2.0	NA	ŇÁ
.55 2,2,5,5,1,1,5,5 5000	101	55.115	0.02	2.0	14/1	1 1/1

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-12;FO 095432 1092316012 U90405A_08

		•••••				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.249
2				ND		0.249
3				ND		0.249
4				ND		0.249
5				ND		0.249
5 6				ND		0.249
7				ND		0.249
8				ND		0.249
9				ND		0.249
10				ND		0.249
11				ND		1.49
12	12/13			ND		0.498
13	12/13			ND		0.498
14	, . 0			ND		0.249
15				ND		0.249
16				ND		0.249
17				ND		0.249
18	18/30			ND		0.498
19	. 3, 33			ND		0.249
20	20/28			ND		0.498
21	21/33			ND		0.498
22	21/00			ND		0.249
23				ND		0.249
24				ND		0.249
25				ND		0.249
26	26/29			ND		0.498
27	20/20			ND		0.249
28	20/28			ND		0.498
29	26/29			ND		0.498
30	18/30			ND		0.498
31	10/00			ND		0.249
32				ND		0.249
33	21/33			ND		0.498
34	21/00			ND		0.249
35				ND		0.249
36				ND		0.249
37				ND		0.249
38				ND		0.249
39				ND		0.249
40	40/41/71			ND		1.49
41	40/41/71			ND ND		1.49
42	70/71/11			ND		0.498
43				ND		0.498
44	44/47/65			ND ND		1.49
45	45/51			ND		0.996
46	75/51			ND ND		0.498
47	44/47/65			ND ND		1.49
48	77/41/03			ND ND		0.498
40				שאו		0.430

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-12;FO 095432 1092316012 U90405A_08

	• • • • • • • • • • • • • • • • • • • •					
IUPAC	Co-elutions	RT	Ratio	Concentration	EMPC	EML
IUPAC	Co-elutions	K I	Katio	ng/L	ng/L	ng/L
49	49/69			ND		0.996
50	50/53			ND		0.996
51	45/51			ND		0.996
52	. 5, 5 .			ND		0.498
53	50/53			ND		0.996
54	33,33			ND		0.498
55				ND		0.498
56				ND		0.498
57				ND		0.498
58				ND		0.498
59	59/62/75			ND		1.49
60	33,32,13			ND		0.498
61	61/70/74/76			ND		1.99
62	59/62/75			ND		1.49
63	00,02,10			ND		0.498
64				ND		0.498
65	44/47/65			ND		1.49
66	11/11/00			ND		0.498
67				ND		0.498
68				ND		0.498
69	49/69			ND		0.996
70	61/70/74/76			ND		1.99
71	40/41/71			ND		1.49
72	10/11//1			ND		0.498
73				ND		0.498
74	61/70/74/76			ND		1.99
75	59/62/75			ND		1.49
76	61/70/74/76			ND		1.99
77	01/10/11/10			ND		0.498
78				ND		0.498
79				ND		0.498
80				ND		0.498
81				ND		0.498
82				ND		0.498
83				ND		0.498
84				ND		0.498
85	85/116/117			ND		1.49
86	86/87/97/108/119/125			ND		2.99
87	86/87/97/108/119/125			ND		2.99
88	88/91			ND		0.996
89	00/01			ND		0.498
90	90/101/113			ND		1.49
91	88/91			ND		0.996
92	33/01			ND		0.498
93	93/98/100/102			ND		1.99
94	33/33/133/132			ND		0.498
95				ND		0.498
96				ND		0.498
30				ND		0.400

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Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSD0075-12;FO 095432 1092316012 U90405A_08

	•••					
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		2.99
98	93/98/100/102			ND		1.99
99	00,00,100,102			ND		0.498
100	93/98/100/102			ND		1.99
101	90/101/113			ND		1.49
102	93/98/100/102			ND		1.99
103	00/00/100/102			ND		0.498
104				ND		0.498
105				ND		0.498
106				ND		0.498
107	107/124			ND		0.996
108	86/87/97/108/119/125			ND		2.99
109	00/01/01/100/110/120			ND		0.498
110	110/115			ND		0.996
111	110/110			ND		0.498
112				ND		0.498
113	90/101/113			ND		1.49
114	33/131/113			ND		0.498
115	110/115			ND		0.996
116	85/116/117			ND		1.49
117	85/116/117			ND		1.49
118	33/113/111			ND		0.498
119	86/87/97/108/119/125			ND		2.99
120	00/01/01/100/110/120			ND		0.498
121				ND		0.498
122				ND		0.498
123				ND		0.498
124	107/124			ND		0.996
125	86/87/97/108/119/125			ND		2.99
126	33,31,31,133,113,123			ND		0.498
127				ND		0.498
128	128/166			ND		0.996
129	129/138/163			ND		1.49
130	0, .00, .00			ND		0.498
131				ND		0.498
132				ND		0.498
133				ND		0.498
134	134/143			ND		0.996
135	135/151			ND		0.996
136				ND		0.498
137				ND		0.498
138	129/138/163			ND		1.49
139	139/140			ND		0.996
140	139/140			ND		0.996
141				ND		0.498
142				ND		0.498
143	134/143			ND		0.996
144				ND		0.498

Conc = Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-12;FO 095432 1092316012 U90405A_08

		••••				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.498
146				ND		0.498
147	147/149			ND		0.996
148	1 177 1 10			ND		0.498
149	147/149			ND		0.996
150	147/143			ND		0.498
151	135/151			ND		0.996
152	133/131			ND		0.498
153	153/168			ND		0.996
153	155/106			ND ND		0.498
154				ND ND		0.498
155	450/457					0.496
156	156/157			ND		0.996
157	156/157			ND		0.996
158				ND		0.498
159				ND		0.498
160				ND		0.498
161				ND		0.498
162				ND		0.498
163	129/138/163			ND		1.49
164				ND		0.498
165				ND		0.498
166	128/166			ND		0.996
167				ND		0.498
168	153/168			ND		0.996
169				ND		0.498
170				ND		0.498
171	171/173			ND		0.996
172				ND		0.498
173	171/173			ND		0.996
174				ND		0.498
175				ND		0.498
176				ND		0.498
177				ND		0.498
178				ND		0.498
179				ND		0.498
180	180/193			ND		0.996
181	100/100			ND		0.498
182				ND		0.498
183	183/185			ND		0.996
184	100/100			ND ND		0.498
185	183/185			ND ND		0.496
186	100/100			ND ND		0.498
187				ND ND		0.498
107						0.490
188				ND ND		0.498
189				ND ND		0.498
190				ND		0.498
191				ND		0.498
192				ND		0.498

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
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P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected
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ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-12;FO 095432 1092316012 U90405A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		0.996
194				ND		0.747
195				ND		0.747
196				ND		0.747
197	197/200			ND		1.49
198	198/199			ND		1.49
199	198/199			ND		1.49
200	197/200			ND		1.49
201				ND		0.747
202				ND		0.747
203				ND		0.747
204				ND		0.747
205				ND		0.747
206				ND		0.747
207				ND		0.747
208				ND		0.747
209				ND		0.747

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-12;FO 095432 1092316012 U90405A_08

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID Lab Sample ID Filename

Injected By

Total Amount Extracted % Moisture

Dry Weight Extracted ICAL ID

CCal Filename(s) Method Blank ID PSD0075-13;FO 095433

1092316013 U90405A_09

BAL 1020 mL NA

NA NA U90405A02 U90405A_01 BLANK-19539 Matrix Water Dilution NA

Collected 04/01/2009
Received 04/03/2009
Extracted 04/03/2009
Analyzed 04/05/2009 22:12

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.576	3.23	2.0	0.513	26
13C-4-MoCB	3	9.451	3.37	2.0	0.830	42
13C-2,2'-DiCB	4	9.762	1.63	2.0	0.755	38
13C-4,4'-DiCB	15	17.693	1.60	2.0	1.47	73
13C-2,2',6-TrCB	19	14.003	1.02	2.0	1.01	50
13C-3,4,4'-TrCB	37	26.225	1.05	2.0	2.11	105
13C-2,2',6,6'-TeCB	54	17.993	0.80	2.0	1.24	62
13C-3,4,4',5-TeCB	81	33.887	0.81	2.0	2.03	102
13C-3,3',4,4'-TeCB	77	34.490	0.79	2.0	2.04	102
13C-2,2',4,6,6'-PeCB	104	24.749	1.64	2.0	1.40	70
13C-2,3,3',4,4'-PeCB	105	38.296	1.59	2.0	2.15	108
13C-2,3,4,4',5-PeCB	114	37.592	1.61	2.0	2.17	108
13C-2,3',4,4',5-PeCB	118	37.056	1.56	2.0	2.19	109
13C-2,3',4,4',5'-PeCB	123	36.704	1.53	2.0	2.23	112
13C-3,3',4,4',5-PeCB	126	41.666	1.56	2.0	2.08	104
13C-2,2',4,4',6,6'-HxCB	155	31.305	1.26 1.25	2.0	1.54 4.04	77 101
13C-HxCB (156/157) 13C-2,3',4,4',5,5'-HxCB	156/157 167	44.869 43.678	1.25	4.0 2.0	4.04 2.06	101
13C-2,3,4,4,5,5-HxCB 13C-3,3',4,4',5,5'-HxCB	169	48.356	1.23	2.0	2.06 1.95	97
13C-2,2',3,4',5,6,6'-HpCB	188	37.575	1.06	2.0	1.86	93
13C-2,3,3',4,4',5,5'-HpCB	189	50.986	1.02	2.0	2.49	124
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.343	0.89	2.0	1.91	95
13C-2,3,3',4,4',5,5',6-OcCB	205	53.701	0.90	2.0	1.75	87
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.490	0.79	2.0	1.68	84
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.426	0.79	2.0	1.81	91
13CDeCB	209	57.128	0.70	2.0	1.60	80
				-		
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.497	1.04	2.0	2.07	104
13C-2,3,3',5,5'-PeCB	111	34.608	1.59	2.0	1.84	92
13C-2,2',3,3',5,5',6-HpCB	178	40.895	1.04	2.0	1.71	86
Recovery Standards						
13C-2,5-DiCB	9	12.530	1.61	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.710	0.81	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.590	1.57	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.392	1.33	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.184	0.89	2.0	NA	NA

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* = See Discussion

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I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-13;FO 095433 1092316013 U90405A_09

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.246
2				ND		0.246
3				ND		0.246
4				ND		0.246
5				ND		0.246
6				ND		0.246
7				ND		0.246
8				ND		0.246
9				ND		0.246
10				ND		0.246
11				ND		1.48
12	12/13			ND		0.492
13	12/13			ND		0.492
14				ND		0.246
15				ND		0.246
16				ND		0.246
17				ND		0.246
18	18/30			ND		0.492
19				ND		0.246
20	20/28			ND		0.492
21	21/33			ND		0.492
22				ND		0.246
23				ND		0.246
24				ND		0.246
25				ND		0.246
26	26/29			ND		0.492
27				ND		0.246
28	20/28			ND		0.492
29	26/29			ND		0.492
30	18/30			ND		0.492
31		21.178	1.07	0.275		0.246
32				ND		0.246
33	21/33			ND		0.492
34	_,,,,			ND		0.246
35				ND		0.246
36				ND		0.246
37		26.258	1.04	0.276		0.246
38				ND		0.246
39				ND		0.246
40	40/41/71			ND		1.48
41	40/41/71			ND		1.48
42				ND		0.492
43				ND		0.492
44	44/47/65			ND		1.48
45	45/51			ND		0.984
46	. 5, 6 1			ND		0.492
47	44/47/65			ND		1.48
48	, .,, .,			ND		0.492
.0				110		0.102

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P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-13;FO 095433 1092316013 U90405A_09

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
49	49/69			ND		0.984
50	50/53			ND		0.984
51	45/51			ND		0.984
52		23.727	0.81	0.624		0.492
53	50/53			ND		0.984
54				ND		0.492
55				ND		0.492
56				ND		0.492
57				ND		0.492
58				ND		0.492
59	59/62/75			ND		1.48
60				ND		0.492
61	61/70/74/76			ND		1.97
62	59/62/75			ND		1.48
63				ND		0.492
64				ND		0.492
65	44/47/65			ND		1.48
66		29.628	0.77	0.631		0.492
67				ND		0.492
68				ND		0.492
69	49/69			ND		0.984
70	61/70/74/76			ND		1.97
71	40/41/71			ND		1.48
72				ND		0.492
73				ND		0.492
74	61/70/74/76			ND		1.97
75	59/62/75			ND		1.48
76	61/70/74/76			ND		1.97
77				ND		0.492
78				ND		0.492
79				ND		0.492
80				ND		0.492
81				ND		0.492
82				ND		0.492
83				ND		0.492
84		29.427	1.63	0.604		0.492
85	85/116/117			ND		1.48
86	86/87/97/108/119/125			ND		2.95
87	86/87/97/108/119/125			ND		2.95
88	88/91			ND		0.984
89				ND		0.492
90	90/101/113	31.607	1.57	1.88		1.48
91	88/91			ND		0.984
92	00/00/400/400			ND		0.492
93	93/98/100/102			ND		1.97
94				ND		0.492
95		28.237	1.60	1.57		0.492
96				ND		0.492

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-13;FO 095433 1092316013 U90405A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		2.95
98	93/98/100/102			ND		1.97
99		32.261	1.64	0.881		0.492
100	93/98/100/102			ND		1.97
101	90/101/113	31.607	1.57	(1.88)		1.48
102	93/98/100/102			` NĎ		1.97
103				ND		0.492
104				ND		0.492
105		38.313	1.58	1.19		0.492
106				ND		0.492
107	107/124			ND		0.984
108	86/87/97/108/119/125			ND		2.95
109	33,31,31,133,113,123			ND		0.492
110	110/115	33.753	1.65	3.87		0.984
111	110,110			ND		0.492
112				ND		0.492
113	90/101/113	31.607	1.57	(1.88)		1.48
114	30/101/110			ND		0.492
115	110/115	33.753	1.65	(3.87)		0.984
116	85/116/117			ND		1.48
117	85/116/117			ND		1.48
118	03/110/117	37.072	1.62	2.36		0.492
119	86/87/97/108/119/125			ND		2.95
120	00/07/97/100/119/123			ND ND		0.492
121				ND		0.492
122				ND ND		0.492
123				ND ND		0.492
124	107/124			ND ND		0.984
125	86/87/97/108/119/125			ND		2.95
126	86/87/97/106/119/123			ND ND		0.492
127				ND ND		0.492
128	128/166	41.733	1.27	1.11		0.492
129	129/138/163	40.426	1.31	5.51		1.48
130	129/130/103	40.420	1.31	ND		0.492
131				ND ND		0.492
131		37.123	1.26	1.84		0.492
133		37.123	1.20	ND		0.492
133	134/143			ND		0.492
134	135/151	34.792	1.25	1.19		0.984
136	135/151		1.25	ND		
						0.492
137 138	129/138/163	 40.426		ND (5.51)		0.492
		40.426	1.31	(5.51)		1.48
139	139/140			ND ND		0.984
140	139/140			ND 0.074		0.984
141		39.302	1.34	0.674		0.492
142	404/440			ND		0.492
143	134/143			ND		0.984
144				ND		0.492

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-13;FO 095433 1092316013 U90405A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.492
146		38.464	1.27	0.582		0.492
147	147/149	35.798	1.29	3.18		0.984
148				ND		0.492
149	147/149	35.798	1.29	(3.18)		0.984
150				` NĎ		0.492
151	135/151	34.792	1.25	(1.19)		0.984
152				` NĎ		0.492
153	153/168	39.118	1.31	3.45		0.984
154				ND		0.492
155				ND		0.492
156	156/157			ND		0.984
157	156/157			ND		0.984
158		40.845	1.29	0.554		0.492
159				ND		0.492
160				ND		0.492
161				ND		0.492
162				ND		0.492
163	129/138/163	40.426	1.31	(5.51)		1.48
164				ND		0.492
165				ND		0.492
166	128/166	41.733	1.27	(1.11)		0.984
167	. = 5/ . 5 5			ND		0.492
168	153/168	39.118	1.31	(3.45)		0.984
169	. 55/ . 55			ND		0.492
170		47.669	1.06	1.11		0.492
171	171/173			ND		0.984
172				ND		0.492
173	171/173			ND		0.984
174		42.773	1.07	0.989		0.492
175				ND		0.492
176				ND		0.492
177		43.226	1.01	0.581		0.492
178				ND		0.492
179				ND		0.492
180	180/193	46.378	1.05	2.15		0.984
181	. 55/ . 55			ND		0.492
182				ND		0.492
183	183/185			ND		0.984
184	100, 100			ND		0.492
185	183/185			ND		0.984
186	. 55/ . 55			ND		0.492
187		41.901	1.00	1.14		0.492
188				ND		0.492
189				ND		0.492
190				ND		0.492
191				ND		0.492
192				ND		0.492
				. 10		0.102

Conc = Concentration

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Nn = Value obtained from additional analyses

ND = Not Detected
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NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-13;FO 095433 1092316013 U90405A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.378	1.05	(2.15)		0.984
194				ND		0.738
195				ND		0.738
196				ND		0.738
197	197/200			ND		1.48
198	198/199			ND		1.48
199	198/199			ND		1.48
200	197/200			ND		1.48
201				ND		0.738
202				ND		0.738
203				ND		0.738
204				ND		0.738
205				ND		0.738
206				ND		0.738
207				ND		0.738
208				ND		0.738
209				ND		0.738

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-13;FO 095433 1092316013 U90405A_09

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	0.551	
Total Tetrachloro Biphenyls	1.25	
Total Pentachloro Biphenyls	12.3	
Total Hexachloro Biphenyls	18.1	
Total Heptachloro Biphenyls	5.97	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	38.2	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Dilution

Water

NA

PSD0075-14;FO 095434 Client's Sample ID Lab Sample ID 1092316014

Filename U90405A_10 Injected By

BAL Total Amount Extracted 979 mL % Moisture NA

Dry Weight Extracted NA Collected 04/01/2009 ICAL ID U90405A02 Received 04/03/2009 CCal Filename(s) U90405A 01 Extracted 04/03/2009

Method Blank ID BLANK-19539 Analyzed 04/05/2009 23:16

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.576	2.96	2.0	0.0545	3 P
13C-4-MoCB	3	9.439	3.11	2.0	0.170	8 P
13C-2,2'-DiCB	4	9.762	1.61	2.0	0.150	. <u>8</u> P
13C-4,4'-DiCB	15	17.681	1.59	2.0	0.908	45
13C-2,2',6-TrCB	19	13.991	1.05	2.0	0.414	21 P
13C-3,4,4'-TrCB	37	26.191	1.08	2.0	1.61	81 32
13C-2,2',6,6'-TeCB 13C-3,4,4',5-TeCB	54 81	17.993 33.803	0.83 0.80	2.0 2.0	0.648 1.84	32 92
13C-3,4,4,5-1eCB 13C-3,3',4,4'-TeCB	77	34.423	0.80	2.0	1.88	94
13C-2,2',4,6,6'-PeCB	104	24.716	1.62	2.0	0.973	49
13C-2,3,3',4,4'-PeCB	105	38.212	1.62	2.0	2.02	101
13C-2,3,4,4',5-PeCB	114	37.525	1.58	2.0	1.95	97
13C-2,3',4,4',5-PeCB	118	36.972	1.59	2.0	1.96	98
13C-2,3',4,4',5'-PeCB	123	36.619	1.57	2.0	2.00	100
13C-3,3',4,4',5-PeCB	126	41.565	1.57	2.0	1.99	99
13C-2,2',4,4',6,6'-HxCB	155	31.238	1.29	2.0	1.21	61
13C-HxCB (156/157)	156/157	44.751	1.25	4.0	3.91	98
13C-2,3',4,4',5,5'-HxCB	167	43.560	1.26	2.0	2.05	102
13C-3,3',4,4',5,5'-HxCB	169	48.238	1.26	2.0	1.80	90
13C-2,2',3,4',5,6,6'-HpCB	188 189	37.508 50.877	1.05 1.05	2.0 2.0	1.87 2.59	93 130
13C-2,3,3',4,4',5,5'-HpCB	202	43.242	0.92	2.0 2.0	2.59 1.98	99
13C-2,2',3,3',5,5',6,6'-OcCB 13C-2,3,3',4,4',5,5',6-OcCB	202	53.571	0.92	2.0	1.74	87
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.381	0.82	2.0	1.48	74
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.317	0.81	2.0	1.82	91
13CDeCB	209	57.019	0.70	2.0	1.33	67
				-		
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.463	1.03	2.0	1.44	72
13C-2,3,3',5,5'-PeCB	111	34.524	1.57	2.0	1.54	77
13C-2,2',3,3',5,5',6-HpCB	178	40.811	1.07	2.0	1.56	78
Recovery Standards						
13C-2,5-DiCB	9	12.530	1.59	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.659	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.523	1.57	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.308	1.28	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.075	0.90	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-14;FO 095434 1092316014 U90405A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1				ND		0.255
2				ND		0.255
3				ND		0.255
4				ND		0.255
				ND		0.255
5 6				ND ND		0.255
7				ND ND		0.255
8				ND ND		
0						0.255
9				ND		0.255
10				ND		0.255
11				ND		1.53
12	12/13			ND		0.511
13	12/13			ND		0.511
14				ND		0.255
15				ND		0.255
16				ND		0.255
17				ND		0.255
18	18/30			ND		0.511
19				ND		0.255
20	20/28			ND		0.511
21	21/33			ND		0.511
22	21/00			ND		0.255
23				ND		0.255
24				ND		0.255
2 4 25				ND ND		0.255
25 26	26/29			ND ND		0.255
20	26/29					
27	00/00			ND		0.255
28	20/28			ND		0.511
29	26/29			ND		0.511
30	18/30			ND		0.511
31				ND		0.255
32				ND		0.255
33	21/33			ND		0.511
34				ND		0.255
35				ND		0.255
36				ND		0.255
37				ND		0.255
38				ND		0.255
39				ND		0.255
40	40/41/71			ND		1.53
41	40/41/71			ND		1.53
42				ND		0.511
43				ND		0.511
44	44/47/65			ND		1.53
45	45/51			ND		1.02
45 46	4 0/0 I			ND ND		0.511
	44/47/65					0.511
47	44/47/65			ND		1.53
48				ND		0.511

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-14;FO 095434 1092316014 U90405A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69			ND		1.02
50	50/53			ND		1.02
51	45/51			ND		1.02
52				ND		0.511
53	50/53			ND		1.02
54				ND		0.511
55				ND		0.511
56				ND		0.511
57				ND		0.511
58				ND		0.511
59	59/62/75			ND		1.53
60				ND		0.511
61	61/70/74/76			ND		2.04
62	59/62/75			ND		1.53
63				ND		0.511
64				ND		0.511
65	44/47/65			ND		1.53
66				ND		0.511
67				ND		0.511
68				ND		0.511
69	49/69			ND		1.02
70	61/70/74/76			ND		2.04
71	40/41/71			ND		1.53
72				ND		0.511
73				ND		0.511
74	61/70/74/76			ND		2.04
75	59/62/75			ND		1.53
<u>76</u>	61/70/74/76			ND		2.04
77				ND		0.511
78				ND		0.511
79				ND		0.511
80				ND		0.511
81				ND		0.511
82				ND		0.511
83				ND		0.511
84	05/440/447			ND		0.511
85	85/116/117			ND		1.53
86	86/87/97/108/119/125			ND		3.06
87	86/87/97/108/119/125			ND		3.06
88	88/91			ND		1.02
89	90/101/113			ND ND		0.511
90				ND ND		1.53
91 92	88/91			ND ND		1.02
92 93	93/98/100/102			ND ND		0.511 2.04
93 94	33/30/100/102			ND ND		2.0 4 0.511
94 95				ND ND		0.511
95 96				ND ND		0.511
90				IND		0.511

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-14;FO 095434 1092316014 U90405A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		3.06
98	93/98/100/102			ND		2.04
99				ND		0.511
100	93/98/100/102			ND		2.04
101	90/101/113			ND		1.53
102	93/98/100/102			ND		2.04
103				ND		0.511
104				ND		0.511
105				ND		0.511
106				ND		0.511
107	107/124			ND		1.02
108	86/87/97/108/119/125			ND		3.06
109	00/01/01/100/110/120			ND		0.511
110	110/115			ND		1.02
111	110/110			ND		0.511
112				ND		0.511
113	90/101/113			ND		1.53
114	00/101/110			ND		0.511
115	110/115			ND		1.02
116	85/116/117			ND		1.53
117	85/116/117			ND		1.53
118	03/110/117			ND		0.511
119	86/87/97/108/119/125			ND		3.06
120	00/07/37/100/113/123			ND		0.511
121				ND		0.511
122				ND		0.511
123				ND		0.511
124	107/124			ND		1.02
125	86/87/97/108/119/125			ND		3.06
126	00/07/97/100/119/120			ND		0.511
127				ND		0.511
128	128/166			ND		1.02
129	129/138/163			ND		1.53
130	129/130/103			ND		0.511
131				ND		0.511
132				ND		0.511
133				ND		0.511
134	134/143			ND		1.02
135	135/151			ND ND		1.02
136	133/131			ND ND		0.511
137				ND ND		0.511
138	129/138/163			ND		1.53
139	139/140			ND		1.02
140	139/140			ND ND		1.02
140	133/140			ND ND		0.511
141				ND ND		0.511
142	134/143			ND ND		1.02
143	107/140			ND ND		0.511
144				ND		0.511

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename

PSD0075-14;FO 095434 1092316014 U90405A_10

		- -				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.511
146				ND		0.511
147	147/149			ND ND		1.02
148	147/143			ND		0.511
149	147/149			ND		1.02
150	147/145			ND		0.511
151	135/151			ND		1.02
152	100/101			ND		0.511
153	153/168			ND		1.02
154				ND		0.511
155				ND		0.511
156	156/157			ND		1.02
157	156/157			ND		1.02
158				ND		0.511
159				ND		0.511
160				ND		0.511
161				ND		0.511
162				ND		0.511
163	129/138/163			ND		1.53
164				ND		0.511
165				ND		0.511
166	128/166			ND		1.02
167				ND		0.511
168	153/168			ND		1.02
169				ND		0.511
170				ND		0.511
171	171/173			ND		1.02
172	474/470			ND		0.511
173	171/173			ND		1.02
174				ND ND		0.511
175						0.511
176 177				ND ND		0.511 0.511
177				ND ND		0.511
178				ND ND		0.511
180	180/193			ND ND		1.02
181	100/193			ND ND		0.511
182				ND ND		0.511
183	183/185			ND ND		1.02
184	103/103			ND		0.511
185	183/185			ND		1.02
186	. 50/ 100			ND		0.511
187				ND		0.511
188				ND		0.511
189				ND		0.511
190				ND		0.511
191				ND		0.511
192				ND		0.511
-						

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

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ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-14;FO 095434 1092316014 U90405A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		1.02
194				ND		0.766
195				ND		0.766
196				ND		0.766
197	197/200			ND		1.53
198	198/199			ND		1.53
199	198/199			ND		1.53
200	197/200			ND		1.53
201				ND		0.766
202				ND		0.766
203				ND		0.766
204				ND		0.766
205				ND		0.766
206				ND		0.766
207				ND		0.766
208				ND		0.766
209				ND		0.766

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-14;FO 095434 1092316014 U90405A_10

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Matrix

Dilution

Water

NA

Client's Sample ID PSD0075-15;FO 095435 Lab Sample ID 1092316015

Filename U90405A_11 Injected By BAL

Total Amount Extracted 975 mL NA

 Dry Weight Extracted
 NA
 Collected
 04/01/2009

 ICAL ID
 U90405A02
 Received
 04/03/2009

 CCal Filename(s)
 U90405A_01
 Extracted
 04/03/2009

Method Blank ID BLANK-19539 Analyzed 04/06/2009 00:20

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.564	2.96	2.0	0.302	15 P
13C-4-MoCB	3	9.451	3.35	2.0	0.669	33
13C-2,2'-DiCB	4	9.762	1.66	2.0	0.598	30
13C-4,4'-DiCB	15	17.705	1.58	2.0	1.41	70
13C-2,2',6-TrCB	19	14.003	1.05	2.0	0.881	44
13C-3,4,4'-TrCB	37	26.225	1.09	2.0	2.14	107
13C-2,2',6,6'-TeCB	54	18.009	0.81	2.0	1.12	56
13C-3,4,4',5-TeCB	81	33.870	0.80	2.0	2.19	109
13C-3,3',4,4'-TeCB	77	34.474	0.80	2.0	2.16	108
13C-2,2',4,6,6'-PeCB	104	24.749	1.62	2.0	1.35	68
13C-2,3,3',4,4'-PeCB	105 114	38.263 37.575	1.60 1.60	2.0	2.16	108 108
13C-2,3,4,4',5-PeCB 13C-2,3',4,4',5-PeCB	114	37.575 37.039	1.58	2.0 2.0	2.16 2.24	108
13C-2,3,4,4,5-PeCB 13C-2,3',4,4',5'-PeCB	123	36.670	1.57	2.0	2.24	110
13C-2,3,4,4,5-FeCB 13C-3,3',4,4',5-PeCB	126	41.649	1.56	2.0	2.20	105
13C-2,2',4,4',6,6'-HxCB	155	31.288	1.27	2.0	1.50	75
13C-HxCB (156/157)	156/157	44.835	1.27	4.0	4.05	101
13C-2,3',4,4',5,5'-HxCB	167	43.645	1.27	2.0	2.10	105
13C-3,3',4,4',5,5'-HxCB	169	48.339	1.29	2.0	2.01	100
13C-2,2',3,4',5,6,6'-HpCB	188	37.559	1.06	2.0	1.99	100
13C-2,3,3',4,4',5,5'-HpCB	189	50.985	1.05	2.0	2.71	136
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.309	0.89	2.0	2.04	102
13C-2,3,3',4,4',5,5',6-OcCB	205	53.679	0.91	2.0	1.90	95
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.468	0.80	2.0	1.73	86
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.404	0.78	2.0	1.98	99
13CDeCB	209	57.127	0.71	2.0	1.60	80
Cleanup Standards						
13C-2,4,4'-TrCB	28	21.497	1.05	2.0	2.09	104
13C-2,3,3',5,5'-PeCB	111	34.591	1.58	2.0	1.89	94
13C-2,2',3,3',5,5',6-HpCB	178	40.878	1.08	2.0	1.74	87
Recovery Standards						
13C-2,5-DiCB	9	12.542	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.710	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.573	1.58	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.375	1.28	2.0	NA	NA NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.162	0.94	2.0	NA	NA
.00 2,2,0,0,1,1,0,0 0000	101	30.102	0.0 1	2.0	1 10 1	1 1/1

Conc = Concentration

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-15;FO 095435 1092316015 U90405A_11

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.256
2				ND		0.256
3				ND		0.256
4				ND		0.256
5				ND		0.256
6				ND		0.256
7				ND		0.256
8		13.680	1.50	0.261 B		0.256
9		13.000		ND		0.256
10				ND		0.256
11				ND		1.54
12	12/13			ND		0.513
13	12/13			ND ND		0.513
14	12/13			ND ND		0.256
15		47 700		1.61		0.256
		17.729	1.57			0.256
16		17.609	1.07	1.29		0.256
17	40/20	17.058	1.05	0.945		0.256
18	18/30	16.531	1.06	1.80		0.513
19	00/00			ND		0.256
20	20/28	21.530	1.04	7.78		0.513
21	21/33	21.798	0.99	2.31		0.513
22		22.285	1.02	3.68		0.256
23				ND		0.256
24				ND		0.256
25		20.792	1.02	0.424		0.256
26	26/29	20.507	1.04	0.942		0.513
27				ND		0.256
28	20/28	21.530	1.04	(7.78)		0.513
29	26/29	20.507	1.04	(0.942)		0.513
30	18/30	16.531	1.06	(1.80)		0.513
31		21.195	1.02	4.50		0.256
32		18.311	1.05	0.987		0.256
33	21/33	21.798	0.99	(2.31)		0.513
34				ND		0.256
35		25.806	0.88	0.307		0.256
36				ND		0.256
37		26.258	1.02	5.82		0.256
38				ND		0.256
39				ND		0.256
40	40/41/71	26.007	0.80	7.30		1.54
41	40/41/71	26.007	0.80	(7.30)		1.54
42		25.470	0.79	2.99		0.513
43				ND		0.513
44	44/47/65	24.867	0.80	8.74		1.54
45	45/51	21.581	0.81	1.27		1.03
46	-			ND		0.513
47	44/47/65	24.867	0.80	(8.74)		1.54
48		24.615	0.77	2.00		0.513

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-15;FO 095435 1092316015 U90405A_11

49/89 49/89 24.297 0.81 4.87 1.03 50 50/53 ND 1.03 51 45/51 21.581 0.81 (1,27) 1.03 52 23.743 0.80 8.17 0.513 53 50/53 ND 0.513 54 ND 0.513 55 ND 0.513 56 30.349 0.76 5.67 0.513 57 ND 0.513 59 59/62/75 ND 0.513 59 59/62/75 ND 1.54 61 61/70/74/76 29.276 0.77 18.2 2.05 </th <th>IUPAC</th> <th>Co-elutions</th> <th>RT</th> <th>Ratio</th> <th>Concentration ng/L</th> <th>EMPC ng/L</th> <th>EML ng/L</th>	IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
51 45/51 21,581 0.81 (1,27) 1.03 52 23,743 0.80 8.17 0.513 53 50/53 ND 0.513 54 ND 0.513 55 ND 0.513 56 30.349 0.76 5.67 0.513 57 ND 0.513 59 59/62/75 ND 0.513 61 61/70/74/76 29.276 0.77 18.2 2.05 62 59/62/75 ND 1.54 63 ND 1.54 64 26.292 0.81 5.05 0.513 65 44/47/65 <t< td=""><td></td><td></td><td>24.297</td><td>0.81</td><td></td><td></td><td></td></t<>			24.297	0.81			
52							1.03
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96 ND 0.513				_			0.513
	96				ND		0.513

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-15;FO 095435 1092316015 U90405A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	32.831	1.60	(11.9)		3.08
98	93/98/100/102			NĎ		2.05
99		32.244	1.60	5.87		0.513
100	93/98/100/102			ND		2.05
101	90/101/113	31.607	1.61	(13.7)		1.54
102	93/98/100/102			` NĎ		2.05
103				ND		0.513
104				ND		0.513
105		38.296	1.56	10.7		0.513
106				ND		0.513
107	107/124			ND		1.03
108	86/87/97/108/119/125	32.831	1.60	(11.9)		3.08
109	00/07/01/100/110/120	36.586	1.58	1.27		0.513
110	110/115	33.753	1.59	20.7		1.03
111	110/110			ND		0.513
112				ND		0.513
113	90/101/113	31.607	1.61	(13.7)		1.54
114	30/101/113			ND		0.513
115	110/115	33.753	1.59	(20.7)		1.03
116	85/116/117	33.585	1.58	(5.65)		1.54
117	85/116/117	33.585	1.58	(5.65)		1.54
117	03/110/117	37.056	1.56	21.1		0.513
119	86/87/97/108/119/125	32.831	1.60	(11.9)		3.08
120	00/07/97/100/119/125	32.031	1.60	ND		0.513
120				ND ND		0.513
				ND ND		
122						0.513
123	407/404			ND		0.513
124	107/124		4.00	ND (44.0)		1.03
125	86/87/97/108/119/125	32.831	1.60	(11.9)		3.08
126				ND		0.513
127	100/100			ND		0.513
128	128/166	41.716	1.32	5.24		1.03
129	129/138/163	40.409	1.30	29.5		1.54
130		39.705	1.33	1.74		0.513
131				ND		0.513
132		37.089	1.29	9.27		0.513
133				ND		0.513
134	134/143	35.966	1.33	1.05		1.03
135	135/151	34.775	1.24	6.91		1.03
136		32.042	1.24	2.25		0.513
137		39.956	1.31	1.54		0.513
138	129/138/163	40.409	1.30	(29.5)		1.54
139	139/140			ND		1.03
140	139/140			ND		1.03
141		39.285	1.31	4.54		0.513
142				ND		0.513
143	134/143	35.966	1.33	(1.05)		1.03
144		35.379	1.27	1.05		0.513

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl **Sample Analysis Results**

Client Sample ID Lab Sample ID Filename

PSD0075-15;FO 095435 1092316015 U90405A_11

		••••				
IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.513
146		38.430	1.32	3.05		0.513
147	147/149	35.765	1.29	17.6		1.03
148	1 177 1 10			ND		0.513
149	147/149	35.765	1.29	(17.6)		1.03
150	1 117 1 10			ND		0.513
151	135/151	34.775	1.24	(6.91)		1.03
152	100/101			ND		0.513
153	153/168	39.101	1.28	20.6		1.03
154	100/100			ND		0.513
155				ND		0.513
156	156/157	44.852	1.23	3.82		1.03
157	156/157	44.852	1.23	(3.82)		1.03
158	100/107	40.828	1.29	3.02		0.513
159				ND		0.513
160				ND		0.513
161				ND		0.513
162				ND		0.513
163	129/138/163	40.409	1.30	(29.5)		1.54
164	120/100/100	40.090	1.30	1.79		0.513
165				ND		0.513
166	128/166	41.716	1.32	(5.24)		1.03
167	120/100	43.678	1.33	1.34		0.513
168	153/168	39.101	1.28	(20.6)		1.03
169	100/100			ND		0.513
170		47.652	1.06	6.76		0.513
171	171/173	43.879	1.09	1.97		1.03
172	17 17 17 0	45.657	1.03	1.08		0.513
173	171/173	43.879	1.09	(1.97)		1.03
174	11 17 17 0	42.739	1.05	6.67		0.513
175				ND		0.513
176		38.866	1.11	0.716		0.513
177		43.209	1.06	3.72		0.513
178		40.895	1.02	1.18		0.513
179		37.911	1.03	2.27		0.513
180	180/193	46.344	1.06	14.4		1.03
181	100/100			ND		0.513
182				ND		0.513
183	183/185	42.538	1.06	4.49		1.03
184				ND		0.513
185	183/185	42.538	1.06	(4.49)		1.03
186				ND		0.513
187		41.867	1.04	7.55		0.513
188				ND		0.513
189				ND		0.513
190		48.222	1.05	1.25		0.513
191				ND		0.513
192				ND		0.513

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-15;FO 095435 1092316015 U90405A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.344	1.06	(14.4)		1.03
194		53.205	0.90	2.59		0.769
195		50.684	0.89	1.20		0.769
196		49.093	0.92	1.53		0.769
197	197/200			ND		1.54
198	198/199	48.406	0.88	3.22		1.54
199	198/199	48.406	0.88	(3.22)		1.54
200	197/200			` NĎ		1.54
201				ND		0.769
202				ND		0.769
203		49.311	0.90	1.91		0.769
204				ND		0.769
205				ND		0.769
206				ND		0.769
207				ND		0.769
208				ND		0.769
209				ND		0.769

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSD0075-15;FO 095435 1092316015 U90405A_11

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	1.88	
Total Trichloro Biphenyls	30.8	
Total Tetrachloro Biphenyls	79.0	
Total Pentachloro Biphenyls	111	
Total Hexachloro Biphenyls	114	
Total Heptachloro Biphenyls	52.1	
Total Octachloro Biphenyls	10.4	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	400	

ND = Not Detected



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID BLANK-19539
Filename U90404A_10
Injected By BAL
Total Amount Extracted 1030 mL
ICAL ID U90404A02

 L
 Matrix
 Water

 30 mL
 Extracted
 04/03/2009

 0404A02
 Analyzed
 04/04/2009
 19:30

 0404A
 01
 Dilution
 NA

CCal Filename(s)	U90404A_	01		Dilution	NA		
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes 13C-2-MoCB 13C-4-MoCB 13C-2,2'-DiCB 13C-2,2'-DiCB 13C-2,2',6-TrCB 13C-2,2',6,6'-TeCB 13C-2,2',6,6'-TeCB 13C-3,4,4',5-TeCB 13C-3,3',4,4'-TeCB 13C-2,2',4,6,6'-PeCB 13C-2,2',4,6,6'-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,2',4,4',5,5'-HxCB 13C-2,2',4,4',5,5'-HxCB 13C-2,2',3,4,4',5,5'-HxCB 13C-2,2',3,4',5,6,6'-HpCB 13C-2,2',3,3',4,4',5,5'-HpCB 13C-2,2',3,3',4,4',5,5',6-OcCB 13C-2,2',3,3',4,4',5,5',6-NoCB 13C-2,2',3,3',4,4',5,5',6,6'-NoCB 13C-2,2',3,3',4,4',5,5',6,6'-NoCB 13C-2,2',3,3',4,5,5',6,6'-NoCB 13C-2,2',3,3',4,5,5',6,6'-NoCB	1 3 4 15 19 37 54 81 77 104 105 114 118 123 126 155 156/157 167 169 188 189 202 205 206 208 209	6.552 9.415 9.714 17.657 13.021 26.160 17.945 33.772 34.375 24.685 38.164 37.477 36.924 36.572 41.518 31.206 44.720 43.529 48.190 37.460 50.837 43.211 53.531 55.341 50.277 56.979	0.30 2.47 1.65 1.69 9.24 1.13 0.84 0.78 0.79 1.69 1.60 1.58 1.60 1.57 1.27 1.28 1.26 1.26 1.05 1.07 0.92 0.92 0.79 0.77	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	0.00151 0.00385 0.00187 0.0277 0.0126 0.530 0.0254 1.10 1.25 0.208 1.58 1.39 1.39 1.39 1.67 0.555 3.49 1.72 1.69 1.13 2.08 1.52 1.56 1.34 1.53	0 IF 0 IF 0 P 1 P 3 IF 26 1 P 555 62 10 P 70 69 70 83 28 87 86 85 57 104 76 78 67 77 56	
Cleanup Standards 13C-2,4,4'-TrCB 13C-2,3,3',5,5'-PeCB 13C-2,2',3,3',5,5',6-HpCB	28 111 178	21.432 34.476 40.763	1.06 1.59 1.05	2.0 2.0 2.0	0.192 1.15 1.29	10 P 57 65	כ
Recovery Standards 13C-2,5-DiCB 13C-2,2',5,5'-TeCB 13C-2,2',4,5,5'-PeCB 13C-2,2',3,4,4',5'-HxCB 13C-2,2',3,3',4,4',5,5'-OcCB	9 52 101 138 194	12.494 23.628 31.475 40.260 53.035	1.56 0.80 1.61 1.29 0.92	2.0 2.0 2.0 2.0 2.0	NA NA NA NA	NA NA NA NA	

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

! = Outside QC Limits

RT = Retention Time

I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19539 U90404A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		6.575	2.53 l		0.625	0.243
2		9.199	0.89 I		0.297	0.243
3		9.439	2.41 I		0.703	0.243
4		9.750	0.65 I		5.76	0.243
5				ND		0.243
6				ND		0.243
4 5 6 7				ND		0.243
8		13.632	1.38	1.77		0.243
9				ND		0.243
10				ND		0.243
11		16.902	1.80	3.15		1.46
12	12/13			ND		0.485
13	12/13			ND		0.485
14				ND		0.243
15				ND		0.243
16				ND		0.243
17				ND		0.243
18	18/30			ND		0.485
19				ND		0.243
20	20/28			ND		0.485
21	21/33			ND		0.485
22				ND		0.243
23				ND		0.243
24				ND		0.243
25				ND		0.243
26	26/29			ND		0.485
27				ND		0.243
28	20/28			ND		0.485
29	26/29			ND		0.485
30	18/30			ND		0.485
31				ND		0.243
32				ND		0.243
33	21/33			ND		0.485
34				ND		0.243
35				ND		0.243
36				ND		0.243
37				ND		0.243
38				ND		0.243
39				ND		0.243
40	40/41/71			ND		1.46
41	40/41/71			ND		1.46
42				ND		0.485
43				ND		0.485
44	44/47/65			ND		1.46
45	45/51			ND		0.971

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19539 U90404A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46				ND		0.485
47	44/47/65			ND ND		1.46
48	44/47/03			ND		0.485
49	49/69			ND ND		0.971
50	50/53			ND		0.971
51	45/51			ND		0.971
52	40/01			ND		0.485
53	50/53			ND		0.971
54	30/30			ND		0.485
55				ND		0.485
56				ND		0.485
57				ND		0.485
58				ND		0.485
59	59/62/75			ND		1.46
60	33/02/13			ND		0.485
61	61/70/74/76			ND		1.94
62	59/62/75			ND		1.46
63	39/02/13			ND		0.485
64				ND ND		0.485
65	44/47/65			ND ND		1.46
66	44/47/03			ND ND		0.485
67				ND		0.485
68				ND ND		0.485
69	49/69			ND ND		0.971
70	61/70/74/76			ND		1.94
70 71	40/41/71			ND ND		1.46
72	40/41/71			ND ND		0.485
73				ND ND		0.485
73 74	61/70/74/76			ND ND		1.94
7 4 75	59/62/75			ND ND		1.46
75 76	61/70/74/76			ND ND		1.94
70 77	01/10/14/10			ND ND		0.485
77 78				ND ND		0.485
78 79				ND ND		0.485
80				ND ND		0.485
81				ND ND		0.485
82				ND ND		0.485
83				ND ND		0.485
84				ND ND		0.485 0.485
	85/116/117					
85 86	86/87/97/108/119/125			ND ND		1.46 2.91
86 87				ND ND		
87 88	86/87/97/108/119/125					2.91
	88/91			ND		0.971
89	00/404/442			ND		0.485
90	90/101/113			ND		1.46

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

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P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19539 U90404A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91			ND		0.971
92				ND		0.485
93	93/98/100/102			ND		1.94
94	00,00,100,102			ND		0.485
95				ND		0.485
96				ND		0.485
97	86/87/97/108/119/125			ND		2.91
98	93/98/100/102			ND		1.94
99	33,33,133,132			ND		0.485
100	93/98/100/102			ND		1.94
101	90/101/113			ND		1.46
102	93/98/100/102			ND		1.94
103	00,00,100,102			ND		0.485
104				ND		0.485
105				ND		0.485
106				ND		0.485
107	107/124			ND		0.971
108	86/87/97/108/119/125			ND		2.91
109	00/01/31/100/113/123			ND		0.485
110	110/115			ND		0.971
111	110/119			ND		0.485
112				ND		0.485
113	90/101/113			ND		1.46
114	30/101/119			ND		0.485
115	110/115			ND		0.971
116	85/116/117			ND		1.46
117	85/116/117			ND		1.46
118	03/110/117			ND		0.485
119	86/87/97/108/119/125			ND		2.91
120	00/07/97/100/119/123			ND ND		0.485
121				ND ND		0.485
122				ND		0.485
123				ND		0.485
123	107/124			ND ND		0.403
125	86/87/97/108/119/125			ND ND		2.91
126	00/07/97/100/119/123			ND ND		0.485
120				ND ND		0.485
128	128/166			ND ND		0.403
129	129/138/163			ND ND		1.46
130	123/100/103			ND ND		0.485
130				ND ND		0.485
131				ND ND		0.485
132				ND ND		0.485
133	134/143			ND ND		0.465
134	135/151			ND ND		0.971
133	133/131			ואט		0.97 1

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19539 U90404A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136				ND		0.485
137				ND ND		0.485
138	129/138/163			ND ND		1.46
139	139/140			ND ND		0.971
140	139/140			ND ND		0.971
140	139/140			ND ND		0.485
141				ND ND		0.485
143	134/143			ND ND		0.465
143	134/143			ND ND		0.485
144				ND ND		0.485
145				ND ND		0.485
146	147/149			ND ND		0.465
147	147/149			ND ND		0.485
149	147/149			ND ND		0.465
150	147/149			ND ND		0.485
150	135/151			ND ND		0.465
	133/131			ND ND		0.485
152 153	150/160			ND ND		0.465 0.971
153	153/168			ND ND		0.485
154				ND ND		0.485 0.485
156	156/157			ND ND		0.465 0.971
156	156/157			ND ND		0.971
157	156/157			ND ND		0.485
156				ND ND		0.485 0.485
160				ND ND		0.485 0.485
				ND ND		
161						0.485
162	400/400/400			ND		0.485
163	129/138/163			ND		1.46
164				ND		0.485
165 166	400/400			ND		0.485
	128/166			ND		0.971
167	450/400			ND		0.485
168	153/168			ND		0.971
169				ND		0.485
170	474/470			ND		0.485
171	171/173			ND		0.971
172	474/470			ND		0.485
173	171/173			ND		0.971
174				ND		0.485
175				ND		0.485
176				ND		0.485
177				ND		0.485
178				ND		0.485
179	400/400			ND		0.485
180	180/193			ND		0.971

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19539 U90404A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181				ND		0.485
182				ND		0.485
183	183/185			ND		0.971
184				ND		0.485
185	183/185			ND		0.971
186				ND		0.485
187				ND		0.485
188				ND		0.485
189				ND		0.485
190				ND		0.485
191				ND		0.485
192				ND		0.485
193	180/193			ND		0.971
194				ND		0.728
195				ND		0.728
196				ND		0.728
197	197/200			ND		1.46
198	198/199			ND		1.46
199	198/199			ND		1.46
200	197/200			ND		1.46
201				ND		0.728
202				ND		0.728
203				ND		0.728
204				ND		0.728
205				ND		0.728
206				ND		0.728
207				ND		0.728
208				ND		0.728
209				ND		0.728

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename DFBLKNH BLANK-19539 U90404A_10

 Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	4.92	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	4.92	

ND = Not Detected



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID LCS-19540
Filename U90404A_07
Total Amount Extracted 1040 mL
ICAL ID U90404A02
CCal Filename(s) U90404A 01

CCal Filename(s) U90404A_01 Method Blank ID U9040A_10 Matrix Water Dilution NA

Extracted 04/03/2009 Analyzed 04/04/2009 16:18

Injected By BAL

	1	Native Analyt	tes		Labeled Analytes			
PCB Isomer	Spiked (ng)	Found (ng)	% Recove	ery	Spiked (ng)	Found (ng)	% Recove	ery
1	1.0	-10.0	-1000	Р	2.0	0.000	0	Р
3	1.0	-10.0	-1000	Р	2.0	0.000	0	Ρ
4	1.0	-10.0	-1000	Ρ	2.0	0.000	0	Ρ
15	1.0	1.45	145		2.0	0.00867	0	Ρ
19	1.0	-10.0	-1000	Р	2.0	0.000	0	Ρ
37	1.0	1.08	108		2.0	0.415	21	Ρ
54	1.0	1.01	101		2.0	0.00654	0	Р
81	1.0	1.04	104		2.0	1.16	58	
77	1.0	1.05	105		2.0	1.26	63	
104	1.0	1.03	103		2.0	0.148	7	Ρ
105	1.0	0.990	99		2.0	1.56	78	
114	1.0	1.03	103		2.0	1.45	72	
118	1.0	1.02	102		2.0	1.43	71	
123	1.0	0.989	99		2.0	1.44	72	
126	1.0	0.937	94		2.0	1.69	85	
155	1.0	1.05	105		2.0	0.553	28	Р
156/157	2.0	1.98	99		4.0	3.54	88	
167	1.0	1.20	120		2.0	1.74	87	
169	1.0	0.932	93		2.0	1.64	82	
188	1.0	1.02	102		2.0	1.37	68	
189	1.0	0.938	94		2.0	2.27	113	
202	1.0	1.02	102		2.0	1.75	87	
205	1.0	0.993	99		2.0	1.58	79	
206	1.0	0.948	95		2.0	1.35	68	
208	1.0	0.991	99		2.0	1.66	83	
209	1.0	0.950	95		2.0	1.10	55	

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms

I = Interference

Nn = Result obtained from alternate analysis



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename Total Amount Extracted

ICAL ID CCal Filename(s) Method Blank ID LCSD-19541 U90404A_08 1030 mL U90404A02 U90404A_01 BLANK-19539

Matrix Water Dilution NA Extracted 04/03/3

Extracted 04/03/2009 Analyzed 04/04/2009 17:22

Injected By BAL

	N	lative Analy	tes		La	beled Analyt	es	
PCB Isomer	Spiked (ng)	Found (ng)	% Recove	ery	Spiked (ng)	Found (ng)	% Recove	ery
1	1.0	-10.0	-1000	Р	2.0	0.000	0	Р
3	1.0	-10.0	-1000	Р	2.0	0.000	0	Ρ
4	1.0	-10.0	-1000	Р	2.0	0.000	0	Ρ
15	1.0	1.49	173	IΡ	2.0	0.0131	1	Ρ
19	1.0	-10.0	-1000	Р	2.0	0.000	0	Ρ
37	1.0	1.02	102		2.0	0.534	27	Ρ
54	1.0	0.962	107	ı	2.0	0.00983	0	Ρ
81	1.0	1.04	104		2.0	1.22	61	
77	1.0	1.01	101		2.0	1.32	66	
104	1.0	1.00	100		2.0	0.204	10	Ρ
105	1.0	0.987	99		2.0	1.66	83	
114	1.0	1.02	102		2.0	1.54	77	
118	1.0	1.00	100		2.0	1.55	78	
123	1.0	0.976	98		2.0	1.52	76	
126	1.0	0.954	95		2.0	1.76	88	
155	1.0	1.04	104		2.0	0.605	30	
156/157	2.0	1.94	97		4.0	3.66	92	
167	1.0	1.18	118		2.0	1.83	92	
169	1.0	0.920	92		2.0	1.79	89	
188	1.0	1.03	103		2.0	1.19	59	
189	1.0	0.921	92		2.0	2.16	108	
202	1.0	1.00	100		2.0	1.54	77	
205	1.0	0.965	97		2.0	1.57	79	
206	1.0	0.939	94		2.0	1.38	69	
208	1.0	0.988	99		2.0	1.61	80	
209	1.0	0.927	93		2.0	1.13	56	

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms

I = Interference

Nn = Result obtained from alternate analysis



Method 1668A Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

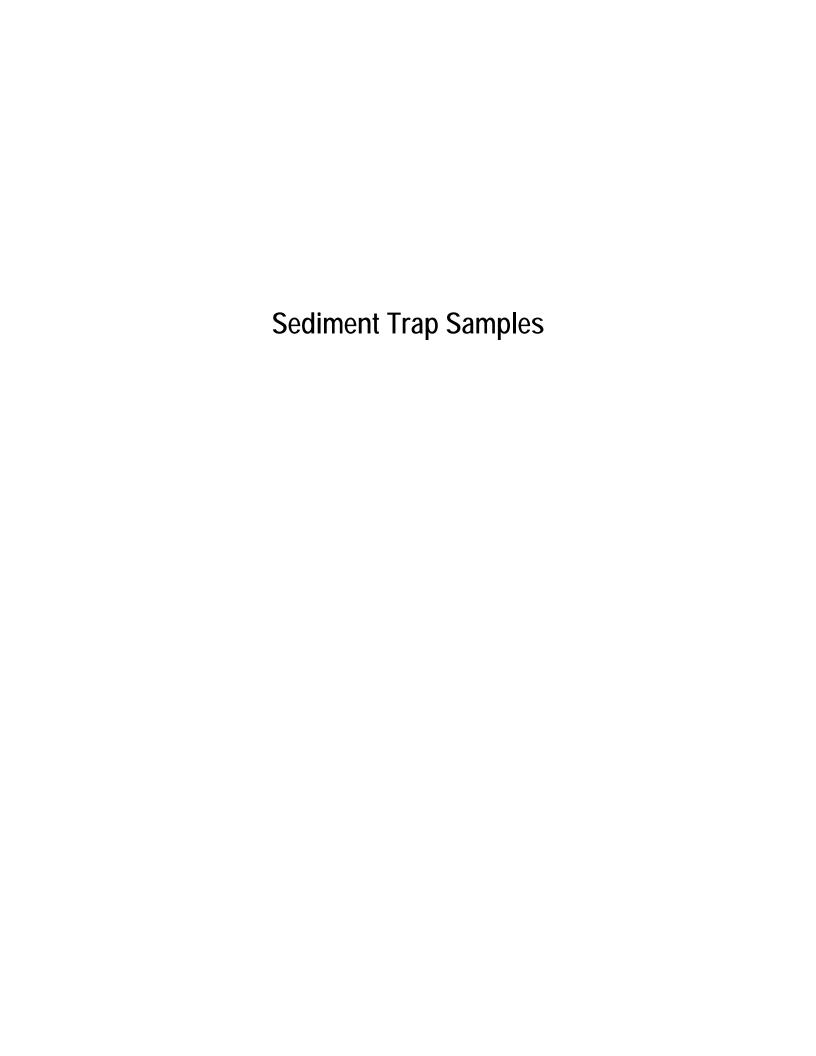
 Spike 1 ID
 LCS-19540
 Spike 2 ID
 LCSD-19541

 Spike 1 Filename
 U90404A_07
 Spike 2 Filename
 U90404A_08

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD	
2-MoCB	1	-1000	-1000		
4-MoCB	3	-1000	-1000		
2,2'-DiCB	4	-1000	-1000		
4,4'-DiCB	15	145	173	17.6	
2,2',6-TrCB	19	-1000	-1000		
3,4,4'-TrCB	37	108	102	5.7	
2,2',6,6'-TeCB	54	101	107	5.8	
3,3',4,4'-TeCB	77	105	101	3.9	
3,4,4',5-TeCB	81	104	104	0.0	
2,2',4,6,6'-PeCB	104	103	100	3.0	
2,3,3',4,4'-PeCB	105	99	99	0.0	
2,3,4,4',5-PeCB	114	103	102	1.0	
2,3',4,4',5-PeCB	118	102	100	2.0	
2,3',4,4',5'-PeCB	123	99	98	1.0	
3,3',4,4',5-PeCB	126	94	95	1.1	
2,2',4,4',6,6'-HxCB	155	105	104	1.0	
(156/157)	156/157	99	97	2.0	
2,3',4,4',5,5'-HxCB	167	120	118	1.7	
3,3',4,4',5,5'-HxCB	169	93	92	1.1	
2,2',3,4',5,6,6'-HpCB	188	102	103	1.0	
2,3,3',4,4',5,5'-HpCB	189	94	92	2.2	
2,2',3,3',5,5',6,6'-OcCB	202	102	100	2.0	
2,3,3',4,4',5,5',6-OcCB	205	99	97	2.0	
2,2',3,3',4,4',5,5',6-NoCB	206	95	94	1.1	
2,2',3,3',4,5,5',6,6'-NoCB	208	99	99	0.0	
Decachlorobiphenyl	209	95	93	2.1	

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value





55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.qsiwatersolutions.com

Laboratory Data QA/QC Review Upland Source Control Investigation Outfall Basins 43, 44, and 44A

To: File

From: Erin Carroll, GSI

Date: August 12, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during a source control investigation sampling event conducted by the City of Portland (City) in the winter and spring 2008/2009. Six solids samples were collected from sediment traps in Outfall Basins 43, 44, and 44A and submitted for analyses. A field duplicate (FO095677) from Outfall Basin 44A also was submitted for analysis.

The laboratory analyses for these source control program samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

- BES WPCL
 - o Total Solids SM 2540 G
 - o Metals EPA 6020
 - Polychlorinated Biphenyl (PCB) Aroclors EPA 8082
- Analytical Resources, Incorporated (ARI)
 - o Grain Size ASTM D421/422
- Columbia Analytical Services (CAS)
 - Organochlorine Pesticides EPA 8081A
- Test America (TA)
 - o Polycyclic Aromatic Hydrocarbons (PAHs) and Phthalates EPA 8270M-SIM
 - o Total Organic Carbon (TOC) EPA 9060 MOD

- Pace Analytical Services (Pace)
 - o PCB Congeners EPA 1668A

The WPCL summary reports and the subcontracted laboratory's data reports are attached for all analyses associated with these source control program samples. The WPCL summary report comments that, with some exceptions (included in the following sections below), all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review is based on the available laboratory documentation and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within laboratory control limits
- Internal standard recoveries within laboratory control limits
- Matrix spike and matrix spike duplicate results within laboratory control limits
- Laboratory control sample and duplicate laboratory control sample recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures appear to have been adequate indicating that sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the recommended method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analysis of PAHs, phthalates, organochlorine pesticides, TOC, and PCB congeners. There are no reported detections of PAHs, phthalates, pesticides, and TOC in the associated method blanks.

PCB congener 31 was detected in the Pace method blank. One field sample from Outfall Basin 43 (FO095659) had a result that was less than 10 times greater than the detection in the associated method blank and is flagged with a "B". The total PCB congener concentration should be considered slightly biased high.

Surrogate Recoveries

Surrogate recoveries were completed during the subcontracted laboratory analysis of PAHs, phthalates, and organochlorine pesticides. The phthalate samples required dilution which resulted in surrogate concentrations below the reporting limits and the surrogate recovery information is not applicable. All PAH and pesticide surrogate recoveries were within laboratory control limits.

Internal Standard Recoveries

Internal standard recoveries were processed during the laboratory analysis of PCB congeners. The labeled internal standard recoveries were within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicates (MS/MSD) were processed during the laboratory analysis of TOC and SVOCs. The MS/MSD recoveries and relative percent difference (RPD) were within laboratory control limits.

Laboratory Control Samples/Duplicate Laboratory Control Samples

Laboratory control samples (LCS) were processed during the laboratory analysis of PAHs, phthalates, TOC, and PCB Congeners. The LCS recoveries were within the laboratory control limits. LCS and duplicate laboratory control samples (DLCS) were processed during the laboratory analysis of organochlorine pesticides. The LCS/DLCS recoveries were within the laboratory control limits.

Other

The laboratory reports for PAHs, phthalates, and organochlorine pesticides indicate that the method reporting limits were elevated in a number of samples due to sample matrix effects and non-target background components.

Some organochlorine pesticide compounds are reported as estimated ("P") because the results from the primary and verification gas chromatography columns varied by more than 40 percent RPD. WPCL has flagged these results as estimates (EST) in their summary report.

CAS reports that the presence of PCBs may have interfered with the quantification of pesticide concentrations, which may have resulted in a high bias for some results. WPCL also notes that the presence of PCBs may have affected the reporting limits for the pesticide analysis.

WPCL reports that, given the chlordane detection in sample FO095661, the reported value for Aroclor 1254 may be a high estimate due to interferences from components of chlordane. This result is flagged "EST" in the WPCL report and data tables.

WPCL reports that trace concentrations of Aroclor 1254 were evident at concentrations below the MRL in sample FO095677; the data are reported as not detected at a concentration greater than the MRL.

Some of the PCB Aroclor MRLs are raised due to the low solids content of the samples from Outfall Basin 43.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696

Project Name: PORTLAND HARBOR STORMWATER SAMP



Chain-Cty of Pottand



Date

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Collected By: TXB/MJ5 Page:

45A/LAP

vironmental Services	

File Number: 1020.005			Matrix:	SEDIMENT	1									Reque	St.	Requested Analyses	
-							Organics	nics			ତ୍ର	General	-	Metals	S		Comments
Basi	Basin 44 Sediment Trap Chain-of-custody	Chain-of-ci	ıstody				<u>"</u>	\dashv	\exists			\neg				Analyses added	Analyses added for customer 6/5/09 @
Sediment traps installed: 11/17/08; 1/15/09 Sediment traps removed: 1/18/09 (removed due to River intrusion); 5/27/09 *Total Solids to be done at WPCL, care should be taken to use the smallest aliquot possible to retain sample volume for additional follow-up analyses.	Sediment traps installed: 11/17/08; 1/15/09 Sediment traps removed: 1/18/09 (removed due to River intrusion); 5/27/09 se done at WPCL, care should be taken to use the smallest aliquot possible volume for additional follow-up analyses.	11/17/08; 1/15 ad due to Rive use the small low-up analys	//09 r intrusion); 5, est aliquot po es.	27/09 ssible to reta		geners (All 209)	clors (Low-level)	CAS - Low-level)						als (As, Cd Cr, i, Ag, Zn) + Hg			
WPCL Sample (.D.	Location	Point Code	Sample Date	Sample Time	Sample Type				Pesticide	Grain Siz	TOC	TS*				\$TOC to be do	TOC to bedone by CASKE
FO095661	ST-44-ABC352-0609 N HARDING & RIVER	44_ST1	6/1/09	1450	С	· ·	×		×		×	•				15= 51:5% 49.7	d 49.7 g Total Wet Weight
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Signatule: WOUN WH	4 Time 57	Signature:	. 1		Time:			Receive Signature:	Received By: Signature:	Y:	ω				Time:	Received By: Signature:	4. Time:
大力にようとう人で	10121091	rinted Name:	5		Date:			Printe	Printed Name:					_	Date:	Printed Name:	Date:
	Circumstation State of State o	zi odilibiodilibi	Cock-offiging H	ardor Stormwa	eter Albina Si	edina	CQC	s.xls									



City of Portland Water Pollution Control Laboratory

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095661 Sample Collected: 06/01/09 14:50 Sample Status: COMPLETE AND

Sample Received: 06/02/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP Report Page: Page 1 of 2

Address/Location: ST-44-ABC352-0609-NW

N HARDING & RIVER-12 INCH MAIN DS OF MH

System ID: AN05760

Sample Point Code: 44_ST1

EID File #: 1020.005

Sample Type: COMPOSITE LocCode: PORTHASW

Sample Matrix: SEDIMENT Collected By: MJS/JXB/AJA/LAP

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%. The presence of PCBs may have affected pesticide quantitations and reporting limits. The reported value for Aroclor 1254 may be a high estimate due to interferences from components of Chlordane.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	67.2	% W/W	0.01	SM 2540 G	06/03/09
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μg/Kg dry wt	10	EPA 8082	06/09/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	06/09/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	06/09/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	06/09/09
Aroclor 1254	EST 132	μg/Kg dry wt	10	EPA 8082	06/09/09
Aroclor 1260	162	μg/Kg dry wt	10	EPA 8082	06/09/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	06/09/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	06/09/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	83500	mg/Kg dry wt	500	EPA 9060 MOD	06/16/09
PESTICIDES BY EPA 8081 - CAS				•	
4,4'-DDD	<1.4	μ g/Kg dry wt	1.4	EPA 8081A	06/09/09
4,4'-DDE	<1.4	μg/Kg dry wt	1.4	EPA 8081A	06/09/09
4,4'-DDT	EST 65	μg/Kg dry wt	5.0	EPA 8081A	06/09/09
Aldrin	EST 6.4	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Alpha-BHC	<0.99	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Alpha-Chlordane	<28	μg/Kg dry wt	28	EPA 8081A	06/09/09
Beta-BHC	<0.99	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Delta-BHC	EST 1.8	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Dieldrin	<2.2	μg/Kg dry wt	2.2	EPA 8081A	06/09/09
Endosulfan I	<14	μ g/Kg dry wt	14	EPA 8081A	06/09/09
Endosulfan II	<13	μ g/Kg dry wt	13	EPA 8081A	06/09/09
Endosulfan Sulfate	<0.99	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Endrin	EST 3.6	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Endrin Aldehyde	< 0.99	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Endrin Ketone	<1.3	μg/Kg dry wt	1.3	EPA 8081A	06/09/09
Gamma-BHC(Lindane)	5.8	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Gamma-Chlordane	28	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Heptachlor	14	μ g/Kg dry wt	0.99	EPA 8081A	06/09/09

Report Date: 07/08/09

Validated By:



City of Portland **Water Pollution Control Laboratory**

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

14:50

Sample ID: FO095661

Sample Collected: 06/01/09

Sample Received: 06/02/09

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: Address/Location:

PORTLAND HARBOR STORMWATER SAMP

ST-44-ABC352-0609-NW

N HARDING & RIVER-12 INCH MAIN DS OF MH

Page 2 of 2

Sample Point Code:

44 ST1

System ID:

Report Page:

AN05760 1020.005

Sample Type:

EID File #: LocCode:

PORTHASW

Sample Matrix:

COMPOSITE SEDIMENT.

Collected By: MJS/JXB/AJA/LAP

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%. The presence of PCBs may have affected pesticide quantitations and reporting limits. The reported value for Aroclor 1254 may be a high estimate due to interferences from components of Chlordane.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
Heptachlor Epoxide	1.1	μg/Kg dry wt	0.99	EPA 8081A	06/09/09
Methoxychlor	<4.1	μg/Kg dry wt	4.1	EPA 8081A	06/09/09
Toxaphene	<1100	μ g/Kg dry wt	1100	EPA 8081A	06/09/09

End of Report for Sample ID: FO095661

Report Date: 07/08/09

Validated By:



June 23, 2009

Analytical Report for Service Request No: K0905119

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor Stormwater Samp

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on June 08, 2009. For your reference, these analyses have been assigned our service request number K0905119.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/lg

Page 1 of 19

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-







Client:

Portland, City of

Service Request No.:

K0905119

Project:

Portland Harbor Stormwater Samp

Date Received:

06/08/09

Sample Matrix:

Sediment

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Five sediment samples were received for analysis at Columbia Analytical Services on 06/08/09. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Organochlorine Pesticides by EPA Method 8081A – LL

Sample Confirmation Notes:

The confirmation comparison criteria of 40% difference for at least one analyte was exceeded in some samples. The higher of the two values was reported when no evidence of a matrix interference was observed. The lower of the two values was reported when there was an apparent interference on the alternate column that produced the higher value.

Elevated Detection Limits:

The detection limit was elevated several analytes in all samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

Few samples required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

Sample Notes and Discussion:

Most samples appeared to have one or more Aroclor patterns present, in varying concentrations, which are known to interfere with several target compounds in the pesticide analysis. Some analytes may have a high bias because of this interference.

No other anomalies associated with t	the analysis of these samples wer	re observed.
	P	06/23/00
Approved by		_Date

Analytical Report

Client:

Portland, City of

Project Name:

Portland Harbor Stormwater Samp

Service Request: K0905119 **Date Collected:** 06/01/09

Project Number: NA

Sample Matrix: SEDIMENT Date Received: 06/08/09

Carbon, Total Organic (TOC)

Prep Method:

SOP

Units: Percent

Analysis Method

ASTM D4129-82M

Basis: NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Result	Result Notes
FO 095661	K0905119-004	0.05	0.02	1	6/16/2009	06/18/09	8.35	
Method Blank	K0905119-MB	0.05	0.02	1	NA	06/18/09	ND	

QA/QC Report

Client:

Portland, City of

Project Name:

Portland Harbor Stormwater Samp

Project Number: NA

Sample Matrix:

SEDIMENT

Service Request: K0905119

Date Collected: NA Date Received: NA

Date Prepared: NA

Date Analyzed: 06/18/09

Duplicate Summary Inorganic Parameters

Sample Name:

Batch QC

Lab Code:

K0904541-001DUP

Units: Percent

Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result		Relative Percent Difference	Result Notes
Carbon, Total Organic (TOC)	SOP	ASTM D4129-82M	0.05	6.26	6.28	6.27	<1	

QA/QC Report

Client:

Portland, City of

Project Name:

Portland Harbor Stormwater Samp

Project Number: NA

Sample Matrix:

SEDIMENT

Service Request: K0905119

Date Collected: NA Date Received: NA Date Prepared: NA

Date Analyzed: 06/18/09

Matrix Spike Summary Inorganic Parameters

Sample Name:

Batch QC

Lab Code:

K0904541-001MS

Units: Percent Basis: NA

								CAS Percent	
Analyte	Prep Method	Analysis Method	MRL	Spike Level	Sample Result	-	Percent Recovery	Recovery Acceptance	Result Notes
Carbon, Total Organic (TOC)	SOP	ASTM D4129-82M	0.05	12.8	6.26	18.5	96	75-114	

QA/QC Report

Client:

Portland, City of

Project Name:

Portland Harbor Stormwater Samp

Project Number:

Sample Matrix:

SEDIMENT

Service Request:

K0905119

Date Collected: NA

Date Received: NA

Date Prepared: NA

Date Analyzed:

06/18/09

Laboratory Control Sample Summary

Inorganic Parameters

Sample Name:

Lab Control Sample

Lab Code:

K0905119-LCS

Units: Basis: Dry

Percent

						CAS Percent	
Analyte	Prep Method	Analysis Method	True Value	Result		Recovery Acceptance Limits	Result Notes
Carbon, Total Organic (TOC)	SOP	ASTM D4129-82M	0.42	0.46	110	74-123	

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Stormwater Samp

Sample Matrix:

Sediment

Service Request: K0905119

Date Collected: 06/01/2009 **Date Received:** 06/08/2009

Organochlorine Pesticides

Sample Name:

FO 095661

Lab Code:

K0905119-004

Extraction Method:

EPA 3541

Analysis Method:

8081A

Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	0.99	0.11	1	06/09/09	06/19/09	KWG0904936	
beta-BHC	ND U	0.99	0.18	1	06/09/09	06/19/09	KWG0904936	
gamma-BHC (Lindane)	5.8	0.99	0.080	1	06/09/09	06/19/09	KWG0904936	
delta-BHC	1.8 P	0.99	0.074	1	06/09/09	06/19/09	KWG0904936	
Heptachlor	14	0.99	0.12	1	06/09/09	06/19/09	KWG0904936	
Aldrin	6.4 P	0.99	0.16	1	06/09/09	06/19/09	KWG0904936	
Heptachlor Epoxide	1.1	0.99	0.084	1	06/09/09	06/19/09	KWG0904936	
gamma-Chlordane†	28	0.99	0.090	1	06/09/09	06/19/09	KWG0904936	
Endosulfan I	ND Ui	14	14	1	06/09/09	06/19/09	KWG0904936	
alpha-Chlordane	ND Ui	28	28	5	06/09/09	06/19/09	KWG0904936	
Dieldrin	ND Ui	2.2	2.2	1	06/09/09	06/19/09	KWG0904936	
4,4'-DDE	ND Ui	1.4	1.4	1	06/09/09	06/19/09	KWG0904936	
Endrin	3.6 P	0.99	0.094	1	06/09/09	06/19/09	KWG0904936	
Endosulfan II	ND Ui	13	13	1	06/09/09	06/19/09	KWG0904936	
4,4'-DDD	ND Ui	1.4	1.4	1	06/09/09	06/19/09	KWG0904936	
Endrin Aldehyde	ND Ui	0.99	0.99	1	06/09/09	06/19/09	KWG0904936	
Endosulfan Sulfate	ND Ui	0.99	0.58	1	06/09/09	06/19/09	KWG0904936	
4,4'-DDT	65 PD	5.0	0.85	5	06/09/09	06/19/09	KWG0904936	
Endrin Ketone	ND Ui	1.3	1.3	1	06/09/09	06/19/09	KWG0904936	
Methoxychlor	ND Ui	4.1	4.1	1	06/09/09	06/19/09	KWG0904936	
Toxaphene	ND Ui	1100	1100	5	06/09/09	06/19/09	KWG0904936	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Tetrachloro-m-xylene Decachlorobiphenyl	80 67	25-125 22-142	06/19/09 06/19/09	Acceptable Acceptable	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Page

1 of 1

SuperSet Reference: RR103249

Analytical Results

Portland, City of Client:

Project: Portland Harbor Stormwater Samp

Sample Matrix: Sediment Service Request: K0905119

Date Collected: NA Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank Lab Code: KWG0904936-5

EPA 3541 **Extraction Method: Analysis Method:** 8081A

Units: ug/Kg Basis: Dry

Level: Low

1 of 1

Analyte Name	Result	Q MRI	L MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND 1	WATER PRIORITINICOUNTERNATION OF THE PRIORITINE PRIORIT	0.11	1	06/09/09	06/19/09	KWG0904936	
beta-BHC	ND 1	U 0.50	0.18	1	06/09/09	06/19/09	KWG0904936	
gamma-BHC (Lindane)	ND 1	U 0.50	0.080	1	06/09/09	06/19/09	KWG0904936	
delta-BHC	ND	U 0.50	0.074	1	06/09/09	06/19/09	KWG0904936	
Heptachlor	ND 1	U 0.50	0.12	1	06/09/09	06/19/09	KWG0904936	
Aldrin	ND 1	U 0.50	0.16	1	06/09/09	06/19/09	KWG0904936	
Heptachlor Epoxide	ND 1	U 0.50	0.084	1	06/09/09	06/19/09	KWG0904936	
gamma-Chlordane†	ND 1	U 0.50	0.090	1	06/09/09	06/19/09	KWG0904936	
Endosulfan I	ND 1	U 0.50	0.063	1	06/09/09	06/19/09	KWG0904936	
alpha-Chlordane	ND 1	U 0.50	0.10	1	06/09/09	06/19/09	KWG0904936	
Dieldrin	ND 1	U 0.50	0.14	1	06/09/09	06/19/09	KWG0904936	
4,4'-DDE	ND 1	U 0.50	0.11	1	06/09/09	06/19/09	KWG0904936	
Endrin	ND 1	U 0.50	0.094	1	06/09/09	06/19/09	KWG0904936	
Endosulfan II	ND 1	U 0.50	0.14	1	06/09/09	06/19/09	KWG0904936	
4,4'-DDD	ND 1	U 0.50	0.11	1	06/09/09	06/19/09	KWG0904936	
Endrin Aldehyde	ND I	U 0.50	0.12	1	06/09/09	06/19/09	KWG0904936	
Endosulfan Sulfate	ND I	U 0.50	0.11	1	06/09/09	06/19/09	KWG0904936	
4,4'-DDT	ND I	U 0.50	0.17	1	06/09/09	06/19/09	KWG0904936	
Endrin Ketone	ND I	U 0.50	0.093	1	06/09/09	06/19/09	KWG0904936	
Methoxychlor	ND 1	U 0.50	0.19	1	06/09/09	06/19/09	KWG0904936	
Toxaphene	ND I	U 25	4.8	1	06/09/09	06/19/09	KWG0904936	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene Decachlorobiphenyl	82 85	25-125 22-142	06/19/09 06/19/09	Acceptable Acceptable
,				

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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SuperSet Reference: RR103249 15

QA/QC Report

Client: Project: Portland, City of

Portland Harbor Stormwater Samp

Sample Matrix:

Sediment

Service Request: K0905119

Surrogate Recovery Summary Organochlorine Pesticides

81

86

Extraction Method: EPA 3541 **Analysis Method:**

Lab Control Sample

Duplicate Lab Control Sample

8081A

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2
FO 095657	K0905119-001	74	71
FO 095658	K0905119-002	71	59
FO 095659	K0905119-003	71	87
FO 095661	K0905119-004	80	67
FO 095662	K0905119-005	69	72
Method Blank	KWG0904936-5	82	85

KWG0904936-1

KWG0904936-2

81

85

Surrogate Recovery Control Limits (%)

Sur1 = Tetrachloro-m-xylene 25-125 Sur2 = Decachlorobiphenyl 22-142

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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Page

RR103249

1 of 1

SuperSet Reference:

QA/QC Report

Client: Portland, City of

Project: Portland Harbor Stormwater Samp

Date Extracted: 06/09/2009 Sample Matrix: Sediment **Date Analyzed:** 06/19/2009

Lab Control Spike/Duplicate Lab Control Spike Summary **Organochlorine Pesticides**

Extraction Method: EPA 3541 **Analysis Method:** 8081A

Units: ug/Kg Basis: Dry

Level: Low

Extraction Lot: KWG0904936

Service Request: K0905119

Lab Control Sample KWG0904936-1 Lab Control Spike			Duplicate KW Duplicate	%Rec		RPD			
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
alpha-BHC	19.4	20.0	97	21.2	20.0	106	45-150	9	40
beta-BHC	19.8	20.0	99	20.9	20.0	105	47-149	6	40
gamma-BHC (Lindane)	19.5	20.0	97	21.2	20.0	106	48-146	9	40
delta-BHC	21.1	20.0	106	23.1	20.0	116	59-162	9	40
Heptachlor	18.6	20.0	93	20.2	20.0	101	47-142	8	40
Aldrin	17.4	20.0	87	19.0	20.0	95	43-141	9	40
Heptachlor Epoxide	16.8	20.0	84	18.5	20.0	93	48-140	10	40
gamma-Chlordane	18.7	20.0	93	20.4	20.0	102	42-145	9	40
Endosulfan I	12.5	20.0	62	13.5	20.0	67	36-124	8	40
alpha-Chlordane	18.2	20.0	91	20.4	20.0	102	42-145	11	40
Dieldrin	18.9	20.0	94	20.9	20.0	105	50-142	10	40
4,4'-DDE	18.9	20.0	95	21.3	20.0	107	51-149	12	40
Endrin	21.3	20.0	106	23.5	20.0	118	54-155	10	40
Endosulfan II	15.1	20.0	75	16.3	20.0	82	42-130	8	40
4,4'-DDD	20.4	20.0	102	22.3	20.0	112	51-152	9	40
Endrin Aldehyde	6.52	20.0	33	8.50	20.0	43	31-139	26	40
Endosulfan Sulfate	18.8	20.0	94	20.9	20.0	105	48-143	11	40
4,4'-DDT	20.2	20.0	101	22.5	20.0	112	59-151	11	40
Endrin Ketone	17.5	20.0	88	19.5	20.0	97	41-158	11	40
Methoxychlor	20.9	20.0	105	23.6	20.0	118	55-153	12	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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CHAIN OF CUSTODY

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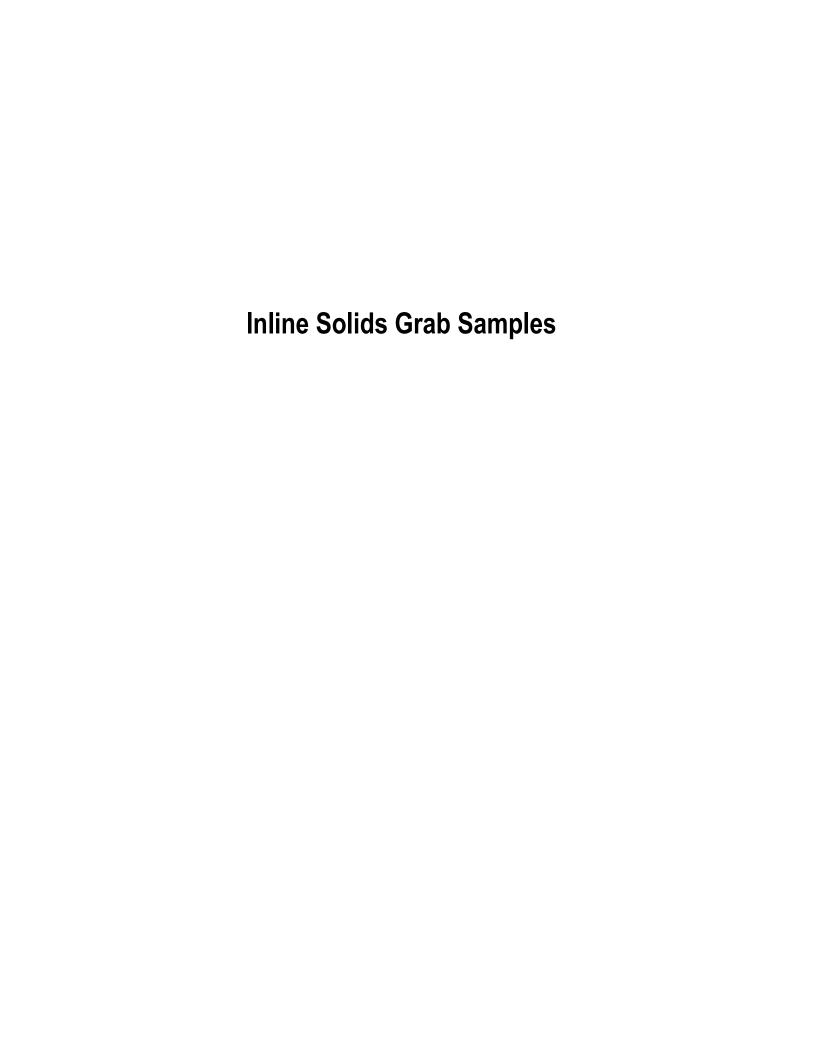
06/03 3 15-49-97 B=67.2 REMARKS 9.75 - 21 4.75 P 55 RCOC #1 Zn Zn (CIRCLE ONE) > S Š <u>___</u> <u>__</u> ത് ഗ് TS results provided about Se Se ž ž 790g J0591 XOA Printed Name Ag Ag Signature Cond. (S) 10 . bnod. (S) 10 . bnod. (S) 10 . bnod. (S) 20 . co. (S) 20 0506 XO1 × \times Please run low-level pesticites 8081 AK CA WI NORTHWEST Mg Mn Mo Ni Pb Mg Mn Mo Ni Hex-Chrom (Metals, Total or Dissolved (woled still 682) q. Date/Time ů. RELINQUISHED BY: Cu Fe 10158 Film DCP 13V SJWLEVE VE STATAL Ö Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Ö *INDICATE STATE HYDROCARBON PROCEDURE: 00 Limited Sample size-S Printed Name 155 7991 Ö SPECIAL INSTRUCTIONS/COMMENTS: Signature Be B Circle which metals are to be analyzed Hydrocarbons (*800 below)

Hydrocarbons (*800 below) Ba SS Total Metals: Al As RECEIVED BY: NUMBER OF CONTAINERS TURNAROUND REQUIREMENTS Standard (10-15 working days) Hacker Stormwest Same INVOICE INFORMATION Printed Warne Schinest Requested Report Date Provide FAX Results LAB I.D. でよったことの 5 Day 24 hr. Sith of Contland Firm Acc Bill To: 1428 P.O. # 1450 133 TIME 1235 7 5/29/63 5/29/09 5/29/69 6/1/03 50/2/3 Report Dup., MS, MSD as RELINQUISHED BY: DATE ton, Acr Routine Report: Method IV. CLP Deliverable Report REPORT REQUIREMENTS Data Validation Report (includes all raw data) Blank, Surrogate, as Partland 500 SAMPLE I.D. F0051007 required 566 required 565 SAMPLER'S SIGNATURE 305 Printed Name EDD PROJECT MANAGER Signature 1 -MAIL ADDRESS PROJECT NAME ITY/STATE/ZIP -> =

Cooler Receipt and Preservation Form Service Request K09 Received: Opened: PIX Hand Delivered Samples were received via? US Mail Fed Ex UPS DHLGHGSCourier BoxOther NA Samples were received in: (circle) Cooler Envelope Were custody seals on coolers? NA N If yes, how many and where? Y Y If present, were custody seals intact? N If present, were they signed and dated? N NA N Is shipper's air-bill filed? If not, record air-bill number: Temperature of cooler(s) upon receipt (°C): Temperature Blank (°C): Thermometer ID: If applicable, list Chain of Custody Numbers: Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Ice Sleeves Other Were custody papers properly filled out (ink, signed, etc.)? NA N 8. NA N Did all bottles arrive in good condition (unbroken)? Indicate in the table below. Were all sample labels complete (i.e analysis, preservation, etc.)? N 11. Did all sample labels and tags agree with custody papers? Indicate in the table below N Were appropriate bottles/containers and volumes received for the tests indicated? N NA Y Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below N 14. Were VOA vials received without headspace? Indicate in the table below. Y N NA 15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? Y N Υ N 16. Was C12/Res negative? Sample ID on COC Sample ID on Bottle Sample ID on COC Sample ID on Bottle Out of Head-**Bottle Count** Volume Reagent Lot Initials Sample ID **Bottle Type** Temp space Broke Reagent added Number Time *Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN). Additional Notes, Discrepancies, & Resolutions:

Columbia Analytical Services, Inc.

1



March 9, 2009: Sieving Pilot Study



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.qsiwatersolutions.com

Laboratory Data QA/QC Review Upland Source Control Investigation 2009 Inline Solids Sieving Evaluation Outfall Basin 44

To: File

From: Erin Carroll, GSI Water Solutions, Inc. (GSI)

Date: April 7, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from the collection of inline solids samples collected by the City of Portland (City) on March 9, 2009. The purpose of this event was to evaluate whether or not subsequent samples should be to segregrate the finer fractions for analysis. Inline solids were collected from manhole ABC278 and split into two samples: one sample consisted of unsieved material (FO095311) and the other sample was comprised of solids that passed through a 2mm (#10) sieve (FO095312).

The laboratory analyses for these inline solids samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

BES WPCL

- o Metals EPA 6020
- o Total Solids SM 2540G
- o Polychlorinated Biphenyls (PCBs) as Aroclors EPA 8082
- Test America (TA)
 - o Polycyclic Aromatic Hydrocarbons (PAHs) EPA 8270M-SIM
 - o Phthalates EPA 8270M-SIM
 - o Total Organic Carbon (TOC) EPA 9060
- Columbia Analytical Services (CAS)

- o Semivolatile Organic Carbons (SVOCs) EPA 8270C
- Analytical Resources, Inc. (ARI)
 - Grain Size ASTM D422

The WPCL summary report for all analyses associated with this stormwater sampling event and the subcontracted laboratory's data reports are attached. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review is based on the available laboratory documentation and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within laboratory control limits
- Matrix spike and matrix spike duplicate results within laboratory control limits
- Laboratory control sample and duplicate laboratory control sample recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures appear to have been adequate indicating that sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the required method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analyses of PAHs, phthalates, TOC, and SVOCs. There are no reported detections of PAHs or phthalates in the associated method blanks. There is a low-level detection of TOC in the associated method blank at an estimated concentration "J" greater than the method detection limit but less than the method reporting limit. However, the magnitude of TOC detections in the field samples is much greater than the detection in the method blank and therefore no data are qualified.

Two SVOCs, naphthalene and phenanthrene, were detected in the CAS method blank at levels above the MRL. Three additional SVOCs were detected at levels between the MDL and MRL. Several samples contained one or more of these analytes at levels greater than those found in the method blank. The presence of these SVOCs in the field sample at concentrations less than the

MRL is considered to be a result of laboratory contamination; therefore, these data are shown as not detected at a concentration greater than the MRL. Sample results that are greater than the MRL but less than 20 times the level found in the method blank are flagged with a "B"; these detections should be considered as biased high or possibly false positives.

Surrogate Recoveries

Surrogate recoveries were completed during the subcontracted laboratory analysis of SVOCs by EPA 8270C and PAHs and phthalates by EPA 8270M-SIM. All surrogate recoveries were within laboratory control limits for the field samples, the method blank, and the laboratory control/duplicate laboratory control samples (LCS/DLCS).

For the SVOC analysis, CAS reports that the control criteria for the surrogates in the Batch QC and the associated matrix spike samples are not considered applicable because the analysis required a dilution resulting in a surrogate concentration below the MRL. Therefore, no corrective action was taken and the data are not qualified.

For the PAH analysis, TA reports that the recoveries for two surrogates were outside of the acceptance limits in the matrix spike sample due to sample matrix effects. Acceptable method performance was demonstrated by other QC elements and no data are qualified.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were processed during the subcontracted laboratory analysis of SVOCs and PAHs. For the SVOC analyses, CAS reports that control criteria for matrix spike recoveries of all analytes for the Batch QC are not applicable because the added spike concentration was diluted below the MRL.

TA reports that the MS/MSD calculations for PAHs do not provide useful spike recovery information due to high levels of analytes in the sample. Additionally, the laboratory control criteria were exceeded for the MS/MSD recovery of three phthalates. Acceptable method performance was demonstrated by other QC elements and no data are qualified.

Laboratory Control/ Duplicate Laboratory Control Samples

Laboratory control/duplicate laboratory control samples (LCS/DLCS) were processed during the laboratory analysis of SVOCs. The laboratory advisory criteria for percent recovery were exceeded during the SVOC analysis for benzoic acid and 2,4-dimethylphenol in the LCS and DLCS samples; however, CAS reports that because these compounds are not included in the subset of analytes used to control the analysis, no further corrective action was required. In addition, CAS reports that the relative percent difference (RPD) criterion for 2,4-dimethylphenol is not applicable because the analyte concentration was not significantly greater than the MRL.

CAS reports that the RPD for 4-Methylphenol in the DLCS was outside the control criteria. However, since the spike recoveries were within the acceptance limits in the LCS/DLCS, CAS considers the analytical batch in control. In addition, 4-Methylphenol was not detected in either of the field samples.

LCS/DLCS samples were also processed during the laboratory analysis of PAHs, phthalates, and TOC; all results were within laboratory control limits.

Other

The MRLs for SVOCs in field sample FO095311 are elevated due to sample matrix interference.

WPCL notes that the pattern of PCB Aroclors in field sample (FO095311) is best matched by Aroclor 1254 but may include some amount of 1260. The pattern of PCB Aroclors in field sample (FO095312) indicates a mixture of 1254 and 1260 and that the quantitations of these results are approximate.

For the 8270M-SIM analyses, TA reports that the reporting limits were raised in the field samples due to high concentrations of non-target analytes and/or sample matrix effects.

6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696 Water Pollution Control Laboratory



Bureau of Environmental



3-11-09

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Collected By: JXB//RAP/

PHA/PRB

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WPCL Sample I.D.	Location	Point: Code	Sample Date	Sample Time	Sample Type	PCB Aro	PAHs + F	SVOCs (TOC	Total Sol	Grain Siz	Total Met	Pb, Hg, N	,			Sight in	·	•
FO095311	IL-44-ABC278-0309 N LORING & LEWIS	44_5	3/9/09	1045	C	•	•	•		•	•	•		•			Non-sieved sample	sample		
FO095312	IL-44-ABC278-0309-SIEVED N LORING & LEWIS	44_5S	3/9/09	1045	ဂ	• ~	•			•	•	•		•	<u> </u>		Sample comprise 2mm (#10) sieve	nprised of s sieve.	Sample comprised of solids that passed through 2mm (#10) sieve.	irough a
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Printed Name: RENEE CHANVIN s:\leid\1000\1020.001\Samp	SVECE CHANIVIN Date: 3/11/09 Printed N	Printed Name:			Date:				Printe	Printed Name:							Date: P	Printed Name:	Date:	
	Company Language	Costa																· .		



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: **FO095311**

Sample Collected: 03/09/09 Sample Received: 03/11/09 10:45

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Report Page:

Page 1 of 4

Address/Location:

IL-44-ABC278-0309

AN02801

N LORING & LEWIS

System ID:

1020.001

Sample Point Code:

44.5

EID File #: LocCode:

PORTHARI

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

Collected By: JXB/RAP/PHA/PTB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: The pattern of PCB Aroclor in the sample best matched 1254 but may include some amount of 1260. The MRL for 1232 is raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	86.6	% W/W	0.01	SM 2540 G	03/13/09
METALS	•				
ARSENIC	1.43	mg/Kg dry wt	0.50	EPA 6020	03/16/09
CADMIUM	0.48	mg/Kg dry wt	0.10	EPA 6020	03/16/09
CHROMIUM	84.2	mg/Kg dry wt	0.50	EPA 6020	03/16/09
COPPER	51.5	mg/Kg dry wt	0.25	EPA 6020	03/16/09
LEAD	38.7	mg/Kg dry wt	0.10	EPA 6020	03/16/09
MERCURY	0.030	mg/Kg dry wt	0.010	EPA 6020	03/16/09
NICKEL	81.9	mg/Kg dry wt	0.25	EPA 6020	03/16/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	03/16/09
ZINC	149	mg/Kg dry wt	0.50	EPA 6020	03/16/09
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μg/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	03/18/09
Aroclor 1232	<20	μ g/Kg dry wt	20	EPA 8082	03/18/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1254	11	μg/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1260	<10	μ g/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1268	<10	μ g/Kg dry wt	10	EPA 8082	03/18/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	12900	mg/Kg dry wt	50 .	EPA 9060 MOD	03/19/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 µm)	0.2	Fract %	0.1	ASTM D421/422	03/13/09
Coarse Sand (4750-2000 μ m)	21.9	Fract %	0.1	ASTM D421/422	03/13/09
Fine Sand (150-75 μ m)	3.3	Fract %	0.1	ASTM D421/422	03/13/09
Fine Sand (250-150 μm)	5.6	Fract %	0.1	ASTM D421/422	03/13/09
Fine Sand (425-250 μm)	9.5	Fract %	0.1	ASTM D421/422	03/13/09
Gravel (>4750 μm)	33.1	Fract %	0.1	ASTM D421/422	03/13/09
Medium Sand (2000-850 μ m)	11.6	Fract %	0.1	ASTM D421/422	03/13/09
Medium Sand (850-425 μ m)	11.3	Fract %	0.1	ASTM D421/422	03/13/09

Report Date: 04/06/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095311

Sample Collected: 03/09/09 Sample Received: 03/11/09 10:45

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Report Page:

Page 2 of 4

Address/Location:

IL-44-ABC278-0309

AN02801

N LORING & LEWIS

System ID:

Sample Point Code:

44_5

EID File #: LocCode:

1020.001 **PORTHARI**

Sample Type: Sample Matrix: **COMPOSITE SEDIMENT**

Collected By: JXB/RAP/PHA/PTB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: The pattern of PCB Aroclor in the sample best matched 1254 but may include some amount of 1260. The MRL for 1232 is raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Silt (13-9 μm)	0.2	Fract %	0.1	ASTM D421/422	03/13/09
Silt (22-13 µm)	0.8	Fract %	0.1	ASTM D421/422	03/13/09
Silt (32-22 μm)	1.6	Fract %	0.1	ASTM D421/422	03/13/09
Silt (7-3.2 µm)	0.4	Fract %	0.1	ASTM D421/422	03/13/09
Silt (75-32 μm)	0.6	Fract %	0.1	ASTM D421/422	03/13/09
Silt (9-7 μm)	<0.10	Fract %	0.1	ASTM D421/422	03/13/09
POLYNUCLEAR AROMATICS & PHTHA	LATES - TA				
Acenaphthene	<30.4	µg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Acenaphthylene	<30.4	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Anthracene	<30.4	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Benzo(a)anthracene	<30.4	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Benzo(a)pyrene	<30.4	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Benzo(b)fluoranthene	<30.4	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Benzo(ghi)perylene	32.8	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Benzo(k)fluoranthene	<30.4	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Bis(2-ethylhexyl) phthalate	944	μg/Kg dry wt	153	EPA8270M-SIM	03/17/09
Butyl benzyl phthalate	<153	μ g/Kg dry wt	153	EPA8270M-SIM	03/17/09
Chrysene	39.6	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Dibenzo(a,h)anthracene	<30.4	μ g/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Diethyl phthalate	<153	μg/Kg dry wt	153	EPA8270M-SIM	03/17/09
Dimethyl phthalate	<153	μg/Kg dry wt	153	EPA8270M-SIM	03/17/09
Di-n-butyl phthalate	<153	μg/Kg dry wt	. 153	EPA8270M-SIM	03/17/09
Di-n-octyl phthalate	<383	μg/Kg dry wt	383	EPA8270M-SIM	03/17/09
Fluoranthene	36.6	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Fluorene	<30.4	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Indeno(1,2,3-cd)pyrene	<30.4	μ g/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Naphthalene	<30.4	μ g/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Phenanthrene	<30.4	μg/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
Pyrene	41.8	μ g/Kg dry wt	30.4	EPA8270M-SIM	03/17/09
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
1,2-Dichlorobenzene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
1,3-Dichlorobenzene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
1,4-Dichlorobenzene	<59	μg/Kg dry wt ≐	59	EPA 8270 LV	03/16/09

Report Date: 04/06/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

10:45

Sample ID: FO095311

Sample Collected: 03/09/09

Sample Received: 03/11/09

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC278-0309 N LORING & LEWIS

Sample Point Code:

44_5

Sample Type:

COMPOSITE

Sample Matrix:

SEDIMENT

Report Page: Page 3 of 4

System ID:

AN02801

EID File #: LocCode:

1020.001 PORTHARI

Collected By: JXB/RAP/PHA/PTB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: The pattern of PCB Aroclor in the sample best matched 1254 but may include some amount of 1260. The MRL for 1232 is raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
2,4,5-Trichlorophenol	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
2,4,6-Trichlorophenol	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
2,4-Dichlorophenol	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
2,4-Dimethylphenol	<300	μ g/Kg dry wt	300	EPA 8270 LV	03/16/09
2,4-Dinitrophenol	<1200	μ g/Kg dry wt	1200	EPA 8270 LV	03/16/09
2,4-Dinitrotoluene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
2,6-Dinitrotoluene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
2-Chloronaphthalene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
2-Chlorophenol	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
2-Methylnaphthalene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
2-Methylphenol	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
2-Nitroaniline	<120	μg/Kg dry wt	120	EPA 8270 LV	03/16/09
2-Nitrophenol	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
3,3'-Dichlorobenzidine	<590	μ g/Kg dry wt	590	EPA 8270 LV	03/16/09
3-Nitroaniline	<120	μg/Kg dry wt	120	EPA 8270 LV	03/16/09
4,6-Dinitro-2-methylphenol	<590	μg/Kg dry wt	590	EPA 8270 LV	03/16/09
4-Bromophenylphenyl ether	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
4-Chloro-3-methylphenol	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
4-Chloroaniline	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
4-Chlorophenylphenyl ether	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
4-Methylphenol	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
4-Nitroaniline	<120	μg/Kg dry wt	120	EPA 8270 LV	03/16/09
4-Nitrophenol	<590	μg/Kg dry wt	590	EPA 8270 LV	03/16/09
Acenaphthene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Acenaphthylene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Anthracene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Benzo(a)anthracene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Benzo(a)pyrene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Benzo(b)fluoranthene	<59	μg/Kg dry wt	. 59	EPA 8270 LV	03/16/09
Benzo(g,h,i)perylene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Benzo(k)fluoranthene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Benzoic acid	<1200	μg/Kg dry wt	1200	EPA 8270 LV	03/16/09
Benzyl alcohol	<120	μg/Kg dry wt	120	EPA 8270 LV	03/16/09
Bis(2-chloroethoxy) methane	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Bis(2-chloroethyl) ether	<59	μg/Kg dry wt	59 ⁻	EPA 8270 LV	03/16/09

Report Date: 04/06/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

10:45

Sample ID: FO095311

Sample Collected: 03/09/09

Sample Received: 03/11/09

Sample Status:

Report Page:

COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC278-0309

N LORING & LEWIS

Sample Point Code:

44_5

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #:

AN02801

Page 4 of 4

1020.001

LocCode:

PORTHARI

Collected By: JXB/RAP/PHA/PTB

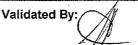
Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB; The pattern of PCB Aroclor in the sample best matched 1254 but may include some amount of 1260. The MRL for 1232 is raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Bis(2-chloroisopropyl) ether	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Bis(2-ethylhexyl) phthalate	<590	μg/Kg dry wt	590	EPA 8270 LV	03/16/09
Butyl benzyl phthalate	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Chrysene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Dibenzo(a,h)anthracene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Dibenzofuran	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Diethyl phthalate	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Dimethyl phthalate	580	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
Di-n-butyl phthalate	<120	μg/Kg dry wt	120	EPA 8270 LV	03/16/09
Di-n-octyl phthalate	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Fluoranthene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
Fluorene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Hexachlorobenzene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Hexachlorobutadiene	<59	μ g/Kg dry wt	59	EPA 8270 LV	03/16/09
Hexachlorocyclopentadiene	<300	μg/Kg dry wt	300	EPA 8270 LV	03/16/09
Hexachloroethane	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Indeno(1,2,3-cd)pyrene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Isophorone	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Naphthalene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Nitrobenzene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
N-Nitrosodi-n-propylamine	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
N-Nitrosodiphenylamine	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Pentachlorophenol	<590	μg/Kg dry wt	590	EPA 8270 LV	03/16/09
Phenanthrene	<59	μg/Kg dry wt	59	EPA 8270 LV	03/16/09
Phenol	<180	μ g/Kg dry wt	180	EPA 8270 LV	03/16/09
Pyrene	69	μg/Kg dry wt	59	EPA 8270 LV	03/16/09

End of Report for Sample ID: FO095311

Report Date: 04/06/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095312

Sample Collected: 03/09/09 Sample Received: 03/11/09 10:45

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC278-0309 - #10 SIEVED

N LORING & LEWIS

Sample Point Code:

44_5S

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Page 1 of 4 Report Page:

System ID:

AN02802

EID File #:

1020.001

LocCode:

PORTHARI

Collected By: JXB/RAP/PHA/PTB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: The pattern of PCB Aroclor in the sample indicates a mixture of 1254 and 1260; quantitations are approximate. The MRL for 1232 is raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	80.5	% W/W	0.01	SM 2540 G	03/13/09
METALS					
ARSENIC	3.08	mg/Kg dry wt	0.50	EPA 6020	03/16/09
CADMIUM	0.63	mg/Kg dry wt	0.10	EPA 6020	03/16/09
CHROMIUM	60.4	mg/Kg dry wt	0.50	EPA 6020	03/16/09
COPPER	48.0	mg/Kg dry wt	0.25	EPA 6020	03/16/09
LEAD	62.4	mg/Kg dry wt	0.10	EPA 6020	03/16/09
MERCURY	0.018	mg/Kg dry wt	0.010	EPA 6020	03/16/09
NICKEL	28.0	mg/Kg dry wt	0.25	EPA 6020	03/16/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	03/16/09
ZINC	223	mg/Kg dry wt	0.50	EPA 6020	03/16/09
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)				4	
Aroclor 1016/1242	<10	μ g/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1221	<20	μ g/Kg dry wt	20	EPA 8082	03/18/09
Aroclor 1232	<20	µg/Kg dry wt	20	EPA 8082	03/18/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1254	15	μg/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1260	13	μ g/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1262	<10	μ g/Kg dry wt	10	EPA 8082	03/18/09
Aroclor 1268	<10	μ g/Kg dry wt	10	EPA 8082	03/18/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	14600	mg/Kg dry wt	50	EPA 9060 MOD	03/19/09
GRAIN SIZE BY ASTM - ARI	ı				
Clay ($<3.2 \mu m$)	0.4	Fract %	0.1	ASTM D421/422	03/13/09
Coarse Sand (4750-2000 µm)	0.3	Fract %	0.1	ASTM D421/422	03/13/09
Fine Sand (150-75 μm)	7.5	Fract %	0.1	ASTM D421/422	03/13/09
Fine Sand (250-150 µm)	13.7	Fract %	0.1	ASTM D421/422	03/13/09
Fine Sand (425-250 µm)	23.6	Fract %	0.1	ASTM D421/422	03/13/09
Gravel (>4750 μm)	0.1	Fract %	0.1	ASTM D421/422	03/13/09
Medium Sand (2000-850 μ m)	21.5	Fract %	0.1	ASTM D421/422	03/13/09
Medium Sand (850-425 μ m)	25.3	Fract %	0.1	ASTM D421/422	03/13/09

Report Date: 04/06/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095312

Sample Collected: 03/09/09 Sample Received: 03/11/09

10:45

Sample Status: COMPLETE AND

Report Page:

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC278-0309 - #10 SIEVED

N LORING & LEWIS

Sample Point Code:

44_5S

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

LocCode:

AN02802

Page 2 of 4

System ID: EID File #:

1020.001 PORTHARI

Collected By: JXB/RAP/PHA/PTB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: The pattern of PCB Aroclor in the sample indicates a mixture of 1254 and 1260; quantitations are approximate. The MRL for 1232 is raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
		•			
Silt (13-9 μm)	0.9	Fract %	0.1	ASTM D421/422	03/13/09
Silt (22-13 μm)	1.3	Fract %	0.1	ASTM D421/422	03/13/09
Silt (32-22 μm)	2.6	Fract %	0.1	ASTM D421/422	03/13/09
Silt (7-3.2 μm)	0.9	Fract %	0.1	ASTM D421/422	03/13/09
Silt (75-32 µm)	1.8	Fract %	0.1	ASTM D421/422	03/13/09
Silt (9-7 μm)	<0.1	Fract %	0.1	ASTM D421/422	03/13/09
POLYNUCLEAR AROMATICS & PHTHALAT	ES - TA				•
Acenaphthene	<49.8	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Acenaphthylene	<49.8	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Anthracene	<49.8	μ g/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Benzo(a)anthracene	<49.8	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Benzo(a)pyrene	51.7	μ g/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Benzo(b)fluoranthene	70.4	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Benzo(ghi)perylene	112	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Benzo(k)fluoranthene	<49.8	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Bis(2-ethylhexyl) phthalate	. 1850	μg/Kg dry wt	165	EPA8270M-SIM	03/17/09
Butyl benzyl phthalate	220	μg/Kg dry wt	165	EPA8270M-SIM	03/17/09
Chrysene	112	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Dibenzo(a,h)anthracene	<49.8	μ g/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Diethyl phthalate	<165	μg/Kg dry wt	165	EPA8270M-SIM	03/17/09
Dimethyl phthalate	<165	μg/Kg dry wt	165	EPA8270M-SIM	03/17/09
Di-n-butyl phthalate	<165	μg/Kg dry wt	165	EPA8270M-SIM	03/17/09
Di-n-octyl phthalate	<496	μg/Kg dry wt	496	EPA8270M-SIM	03/17/09
Fluoranthene	124	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Fluorene	<49.8	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Indeno(1,2,3-cd)pyrene	51.3	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Naphthalene	<49.8	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Phenanthrene	66.9	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
Pyrene	143	μg/Kg dry wt	49.8	EPA8270M-SIM	03/17/09
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
1,2-Dichlorobenzene	<70	μ g/Kg dry wt	70	EPA 8270 LV	03/16/09
1,3-Dichlorobenzene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
1,4-Dichlorobenzene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09

Report Date: 04/06/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: **FO095312**

Sample Collected: 03/09/09 Sample Received: 03/11/09 10:45

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC278-0309 - #10 SIEVED

N LORING & LEWIS

Sample Point Code:

44_5S

Sample Type:

COMPOSITE

Sample Matrix: SEDIMENT

System ID:

Report Page:

AN02802

EID File #: LocCode: 1020.001

Page 3 of 4

PORTHARI

Collected By: JXB/RAP/PHA/PTB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: The pattern of PCB Aroclor in the sample indicates a mixture of 1254 and 1260; quantitations are approximate. The MRL for 1232 is raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
2,4,5-Trichlorophenol	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
2,4,6-Trichlorophenol	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
2,4-Dichlorophenol	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
2,4-Dimethylphenol	<350	μg/Kg dry wt	350	EPA 8270 LV	03/16/09
2,4-Dinitrophenol	<1400	μg/Kg dry wt	1400	EPA 8270 LV	03/16/09
2,4-Dinitrotoluene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
2,6-Dinitrotoluene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
2-Chloronaphthalene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
2-Chlorophenol	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
2-Methylnaphthalene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
2-Methylphenol	<70	μ g/Kg dry wt	70	EPA 8270 LV	03/16/09
2-Nitroaniline	<140	μg/Kg dry wt	140	EPA 8270 LV	03/16/09
2-Nitrophenol	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
3,3'-Dichlorobenzidine	<700	μg/Kg dry wt	700	EPA 8270 LV	03/16/09
3-Nitroaniline	<140	μ g/Kg dry wt	140	EPA 8270 LV	03/16/09
4,6-Dinitro-2-methylphenol	<700	μg/Kg dry wt	700	EPA 8270 LV	03/16/09
4-Bromophenylphenyl ether	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
4-Chloro-3-methylphenol	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
4-Chloroaniline	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
4-Chlorophenylphenyl ether	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
4-Methylphenol	. <70	μ g/Kg dry wt	70	EPA 8270 LV	03/16/09
4-Nitroaniline	<140	μ g/Kg dry wt	140	EPA 8270 LV	03/16/09
4-Nitrophenol	<700	μg/Kg dry wt	700	EPA 8270 LV	03/16/09
Acenaphthene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Acenaphthylene	<70	μ g/Kg dry wt	70	EPA 8270 LV	03/16/09
Anthracene	<70	μ g/Kg dry wt	70	EPA 8270 LV	03/16/09
Benzo(a)anthracene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Benzo(a)pyrene	140	μ g/Kg dry wt	70	EPA 8270 LV	03/16/09
Benzo(b)fluoranthene	240	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Benzo(g,h,i)perylene	240	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Benzo(k)fluoranthene	77	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Benzoic acid	<1400	μg/Kg dry wt	1400	EPA 8270 LV	03/16/09
Benzyl alcohol	<140	μg/Kg dry wt	140	EPA 8270 LV	03/16/09
Bis(2-chloroethoxy) methane	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Bis(2-chloroethyl) ether	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09

Report Date: 04/06/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095312

Sample Collected: 03/09/09 Sample Received: 03/11/09 10:45

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC278-0309 - #10 SIEVED

N LORING & LEWIS

Sample Point Code:

44_5S

Sample Type:

COMPOSITE

Sample Matrix:

SEDIMENT

Report Page:

Page 4 of 4

System ID:

AN02802

EID File #:

1020.001

LocCode:

PORTHARI

Collected By: JXB/RAP/PHA/PTB

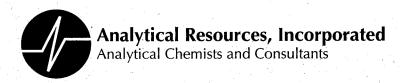
Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: The pattern of PCB Aroclor in the sample indicates a mixture of 1254 and 1260; quantitations are approximate. The MRL for 1232 is raised due to matrix interferences.

				· *	Analysis
Test Parameter	Result	Units	MRL	Method	Date
Bis(2-chloroisopropyl) ether	<70	μ g/Kg dry wt	70	EPA 8270 LV	03/16/09
Bis(2-ethylhexyl) phthalate	770	μg/Kg dry wt	700	EPA 8270 LV	03/16/09
Butyl benzyl phthalate	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Chrysene	260	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Dibenzo(a,h)anthracene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Dibenzofuran	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Diethyl phthalate	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Dimethyl phthalate	270	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Di-n-butyl phthalate	<140	μg/Kg dry wt	140	EPA 8270 LV	03/16/09
Di-n-octyl phthalate	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Fluoranthene	380	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Fluorene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Hexachlorobenzene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Hexachlorobutadiene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Hexachlorocyclopentadiene	<350	μg/Kg dry wt	350	EPA 8270 LV	03/16/09
Hexachloroethane	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Indeno(1,2,3-cd)pyrene	180	μ g/Kg dry wt	70	EPA 8270 LV	03/16/09
Isophorone	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Naphthalene	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Nitrobenzene	<70	μg/Kg dry wt	- 70	EPA 8270 LV	03/16/09
N-Nitrosodi-n-propylamine	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
N-Nitrosodiphenylamine	<70	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Pentachlorophenol	<700	μg/Kg dry wt	700	EPA 8270 LV	03/16/09
Phenanthrene	220	μg/Kg dry wt	70	EPA 8270 LV	03/16/09
Phenol	<210	μg/Kg dry wt	210	EPA 8270 LV	03/16/09
Pyrene	440	μg/Kg dry wt	70	EPA 8270 LV	03/16/09

End of Report for Sample ID: FO095312

Report Date: 04/06/09



March 30, 2009

Mr. Howard Holmes Test America, Inc. 9405 SW Nimbus Ave. Beaverton, OR 97008

Subject: Project No.: PSC0342;

ARI Project No.: OQ51

Dear Mr. Holmes,

The following pages provide the information you requested. Please call me to discuss any questions or comments you may have on the data or its presentation.

Best Regards,

Analytical Resources Incorporated

Guenna Smith

Geotechnical Division Manager

206-695-6246

quennas@arilabs.com

Enclosures

cc: File OQ51

Client: Test America, Inc.

ARI Project No.: OQ51

Client Project No.: PSC0342

Case Narrative

1. Two samples were received on March 13, 2009, and were in good condition.

2. The samples were submitted for grain size distribution, according to ASTM D422. The samples were prepared according to ASTM D421.

3. An assumed specific gravity of 2.65 was used in the hydrometer calculations.

4. A standard milkshake mixer type device was used to disperse the sample.

5. One sample contained shells and/or fragments of shells.

6. The data is provided in summary tables and plots.

7. There were no other anomalies in the samples or test method.

Approved by:_

Title:

Geotechnical Laboratory Manager

Date

SUBCONTRACT ORDER

TestAmerica Portland PSC0342

SENDING LABORATORY:

TestAmerica Portland 9405 SW Nimbus Ave. Beaverton, OR 97008 Phone: (503) 906-9200

Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Analytical Resources, Inc. (ARI) 4611 S 134th Place, Suite 100

Tukwilla, WA 98168 Phone: (206) 621-6490 Fax: 206-621-7523

Project Location: OR - OREGON

Receipt Temperature: 3.8

Ice: (Y)/N

needs Excel EDD					
Analysis	Units	Due	Expires		Comments
Sample ID: PSC0342-01	Soil		Sampled: 03/	09/09 10:45	
Grain Size (ASTM) - SUB	ug/l	03/25/09	09/05/09 10:45	2.5	sub to Analytical Resources Inc (ARI)
Containers Supplied:					
8 oz. jar (A)					
Sample ID: PSC0342-02	Soil		Sampled: 03/	09/09 10:45	
Grain Size (ASTM) - SUB	ug/l	03/25/09	09/05/09 10:45		sub to Analytical Resources Inc (ARI)
Containers Supplied:					
8 oz. jar (A)					

Received By

Released By

Date/Time

Received By

Date/Time

Page 1 of 1

Test America, Inc. PSC0342

Percent Finer (Passing) Than the Indicated Size

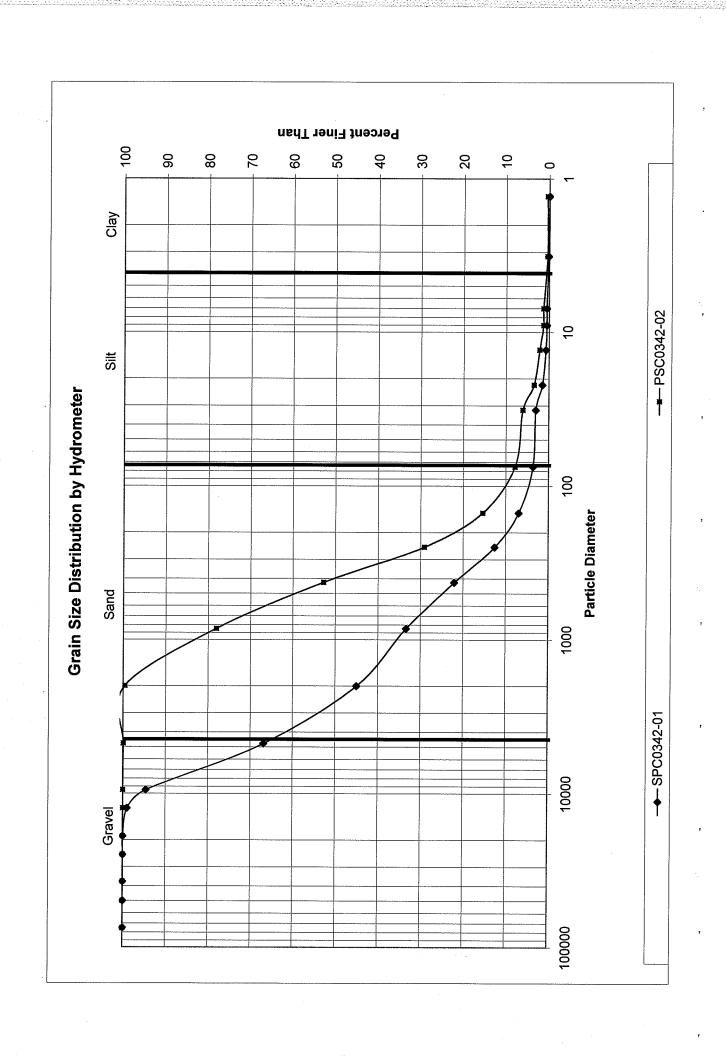
3.2 1.3	0.2 0.0	0.4 0.4
2	9.0	1.3
6	9.0	1.3
13	0.8	2.2
22	1.6	3.5
32	3.1	6.1
#200 (75)	3.7	7.9
#100 (150)	7.0	15.4
#60 (250)	12.6	29.1
#40 (425)	22.1	52.8
#20 (850)	33.4	78.1
#10 (2000)	45.0	9.66
#4 (4750)	6.99	99.9
3/8"	94.6	100.0
1/2"	99.0	100.0
3/4"	100.0	100.0
}	100.0	100.0
1 1/2"	100.0	100.0
2".	100.0 100.0 100.0 100.0 99.0	100.0 100.0 100.0 100.0 100.0 100.0
3"	100.0	100.0
Sieve Size (microns)	SPC0342-01	PSC0342-02

422
7
D421/I
ASTM
g to /
accordin
performed
Testing

Test America, Inc. PSC0342	

Percent Retained in Each Size Fraction

Description		%Coars	%Coarse Gravel			% Gravel		% Coarse Sand	% Medium Sand	m Sand	%	% Fine Sand	Q	% Very Coarse Silt	% Coarse Silt	% Medium Silt	% Fine Silt	% Fine Silt	% Very Fine Silt	% Clay
Particle Size (microns)	3-2"	2-1 1/2"	1 1/2"-1"	1-3/4"	3-2" 2-11/2" 11/2"-1" 1-3/4" 3/4-1/2" 1/2-3/8" 3/8"-4750	1/2-3/8"	3/8"-4750	4750- 2000	2000-850	850-425	425-250	2000-850 850-425 425-250 250-150	150-75	75-32	32-22	22-13	13-9	2-6	7-3.2	<3.2
SPC0342-01	0.0	0.0	0.0	0.0	1.0	4.4	27.7	21.9	11.6	11.3	9.5	5.6	3.3	9.0	1.6	8.0	0.2	0.0	0.4	0.2
PSC0342-02	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	21.5	25.3	23.6	13.7	7.5	1.8	5.6	1.3	6.0	0.0	6.0	0.4





March 26, 2009

Analytical Report for Service Request No: K0902091

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on March 11, 2009. For your reference, these analyses have been assigned our service request number K0902091.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/lb

Page 1 of 23

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-







Client: Project: Portland, City of Portland Harbor

Service Request No.: Date Received:

K0902091 03/11/2009

Sample Matrix:

Sediment

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Two sediment samples were received for analysis at Columbia Analytical Services on 03/11/2009. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Semivolatile Organic Compounds by EPA Method 8270C LL

Method Blank Exceptions:

The Method Blank KWG0902167-5 contained low levels of Naphthalene and Phenanthrene above the Method Reporting Limit (MRL). In accordance with CAS QA/QC policy, all sample results less than twenty times the level found in the Method Blank are flagged as estimated. The samples were not re-extracted and reanalyzed because The analytes in question were either not detected at levels greater than the MRL in the field samples, or were significantly greater than the twenty times threshold. No further corrective action was appropriate.

Surrogate Exceptions:

The control criteria for the surrogates in Batch QC and the associated replicate Matrix Spike Samples are not applicable. The analysis of the samples required a dilution, which resulted in a surrogate concentration below the MRL. No further corrective action was appropriate.

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recoveries of all analytes for Batch QC are not applicable. The analysis of this sample required a dilution such that the added spike concentration was diluted below the MRL. No further corrective action was required.

Lab Control Sample (LCS) Exceptions:

The advisory criterion was exceeded for 2,4-Dimethylphenol in LCS KWG0902167-3. As per the CAS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analytes used to control the analysis. The recovery information reported for these analytes is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) criterion for all analytes in the replicate matrix spike of Batch QC is not applicable because the analyte concentration was not significantly greater than the MRL. Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

1 11-0

Approved by		03/200 Date
	43/	Polholog

The Relative Percent Difference (RPD) for 4-Methylphenol in the replicate LCS analyses (KWG0902167-3 and KWG0902167-4) was outside control criteria. All spike recoveries for the analyte in question were within acceptance limits in the LCS/DLCS, indicating the analytical batch was in control. No further corrective action was appropriate.

The Relative Percent Difference (RPD) criterion for 2,4-Dimethylphenol in the replicate Laboratory Control Samples (LCS/DLCS) KWG0902167-3 and KWG0902167-4 is not applicable because the analyte concentration was not significantly greater than the MRL. Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

Elevated Method Reporting Limits:

The reporting limits are elevated in sample FO 095311. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extract was highly colored and viscous, which indicated the need to perform a dilution prior to injection into the instrument. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. A semi-quantitative screen was performed prior to final analysis. The results of the screening indicated the need to perform a dilution.

Approved by		Date	
	Pl	03/26/09	

Analytical Results

Client:

Portland, City of

Project: Sample Matrix: Portland Harbor

Service Request: K0902091

72.1

Sludge, solid

Total Solids

Prep Method: Analysis Method:

Test Notes:

FO 095312

N

NONE 160.3M Units: PERCENT

Basis: Wet

Page

1 of 1

Date Date Date Result Sample Name Lab Code Collected Received Analyzed Notes Result FO 095311 K0902091-001 03/09/2009 03/11/2009 03/13/2009 85.6

03/09/2009

03/11/2009

03/13/2009

K0902091-002

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u:\Stealth\Crystal.rpt\Solids.rpt 7 SuperSet Reference: W0902127

QA/QC Report

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Soil

Service Request: K0902091

Date Collected: 03/09/2009 **Date Received:** 03/11/2009

Date Analyzed: 03/13/2009

Duplicate Sample Summary Total Solids

Prep Method:

Analysis Method:

NONE

Units: PERCENT

Basis: Wet

Test Notes:

160.3M

Duplicate Relative Sample Sample Percent Result Result **Difference** Result Notes Sample Name Lab Code Average FO 095311 K0902091-001 85.6 85.7 85.7 <1

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SuperSet Reference: W0902127

8

Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Sludge, solid

Service Request: K0902091

Date Collected: 03/09/2009

Date Received: 03/11/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095311

Lab Code:

K0902091-001

Units: ug/Kg Basis: Dry

Extraction Method:

EPA 3541

Level: Low

Analysis Method: 8270C

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	59	19	10	03/16/09	03/23/09	KWG0902167	
Phenol	ND U	180	20	10	03/16/09	03/23/09	KWG0902167	
2-Chlorophenol	ND U	59	20	10	03/16/09	03/23/09	KWG0902167	
1,3-Dichlorobenzene	ND U	59	30	10	03/16/09	03/23/09	KWG0902167	
1,4-Dichlorobenzene	ND U	59	29	10	03/16/09	03/23/09	KWG0902167	
1.2-Dichlorobenzene	ND U	59	29	10	03/16/09	03/23/09	KWG0902167	
Benzyl Alcohol	ND U	120	21	10	03/16/09	03/23/09	KWG0902167	
Bis(2-chloroisopropyl) Ether	ND U	59	26	10	03/16/09	03/23/09	KWG0902167	
2-Methylphenol	ND U	59	15	10	03/16/09	03/23/09	KWG0902167	
Hexachloroethane	ND U	59	31	10	03/16/09	03/23/09	KWG0902167	
N-Nitrosodi-n-propylamine	ND U	59	24	10	03/16/09	03/23/09	KWG0902167	
4-Methylphenol†	ND U	59	15	10	03/16/09	03/23/09	KWG0902167	
Nitrobenzene	ND U	59	22	10	03/16/09	03/23/09	KWG0902167	
Isophorone	ND U	59	10	10	03/16/09	03/23/09	KWG0902167	
2-Nitrophenol	ND U	59	15	10	03/16/09	03/23/09	KWG0902167	
2,4-Dimethylphenol	ND U	300	55	10	03/16/09	03/23/09	KWG0902167	d
Bis(2-chloroethoxy)methane	ND U	59	15	10	03/16/09	03/23/09	KWG0902167	
2,4-Dichlorophenol	ND U	59	10	10	03/16/09	03/23/09	KWG0902167	
Benzoic Acid	ND U	1200	960	10	03/16/09	03/23/09	KWG0902167	
1,2,4-Trichlorobenzene	ND U	59	26	10	03/16/09	03/23/09	KWG0902167	
Naphthalene	ND U	59	23	10	03/16/09	03/23/09	KWG0902167	
4-Chloroaniline	ND U	59	19	10	03/16/09	03/23/09	KWG0902167	
Hexachlorobutadiene	ND U	59	25	10	03/16/09	03/23/09	KWG0902167	
4-Chloro-3-methylphenol	ND U	59	14	10	03/16/09	03/23/09	KWG0902167	
2-Methylnaphthalene	ND U	59	22	10	03/16/09	03/23/09	KWG0902167	
Hexachlorocyclopentadiene	ND U	300	290	10	03/16/09	03/23/09	KWG0902167	
2,4,6-Trichlorophenol	ND U	59	14	10	03/16/09	03/23/09	KWG0902167	
2,4,5-Trichlorophenol	ND U	59	15	10	03/16/09	03/23/09	KWG0902167	
2-Chloronaphthalene	ND U	59	16	10	03/16/09	03/23/09	KWG0902167	
2-Nitroaniline	ND U	120	32	10	03/16/09	03/23/09	KWG0902167	
Acenaphthylene	ND U	59	12	10	03/16/09	03/23/09	KWG0902167	
Dimethyl Phthalate	580 D	59	10	10	03/16/09	03/23/09	KWG0902167	
2,6-Dinitrotoluene	ND U	59	20	10	03/16/09	03/23/09	KWG0902167	

9

SuperSet Reference:

Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Sludge, solid

Service Request: K0902091

Date Collected: 03/09/2009

Date Received: 03/11/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095311

Lab Code:

K0902091-001

Extraction Method:

EPA 3541

Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND U	59	14	10	03/16/09	03/23/09	KWG0902167	RESERVATION CONTRACTOR
3-Nitroaniline	ND U	120	25	10	03/16/09	03/23/09	KWG0902167	
2,4-Dinitrophenol	ND U	1200	170	10	03/16/09	03/23/09	KWG0902167	
Dibenzofuran	ND U	59	12	10	03/16/09	03/23/09	KWG0902167	
4-Nitrophenol	ND U	590	180	10	03/16/09	03/23/09	KWG0902167	
2,4-Dinitrotoluene	ND U	59	15	10	03/16/09	03/23/09	KWG0902167	
Fluorene	ND U	59	11	10	03/16/09	03/23/09	KWG0902167	
4-Chlorophenyl Phenyl Ether	ND U	59	14	10	03/16/09	03/23/09	KWG0902167	
Diethyl Phthalate	ND U	59	13	10	03/16/09	03/23/09	KWG0902167	
4-Nitroaniline	ND U	120	18	10	03/16/09	03/23/09	KWG0902167	
2-Methyl-4,6-dinitrophenol	ND U	590	14	10	03/16/09	03/23/09	KWG0902167	
N-Nitrosodiphenylamine	31 JD	59	16	10	03/16/09	03/23/09	KWG0902167	
4-Bromophenyl Phenyl Ether	ND U	59	16	10	03/16/09	03/23/09	KWG0902167	
Hexachlorobenzene	ND U	59	12	10	03/16/09	03/23/09	KWG0902167	
Pentachlorophenol	ND U	590	200	10	03/16/09	03/23/09	KWG0902167	
Phenanthrene	36 BJ	D 59	14	10	03/16/09	03/23/09	KWG0902167	
Anthracene	ND U	59	16	10	03/16/09	03/23/09	KWG0902167	
Di-n-butyl Phthalate	ND U	120	79	10	03/16/09	03/23/09	KWG0902167	
Fluoranthene	58 JD	59	16	10	03/16/09	03/23/09	KWG0902167	
Pyrene	69 D	59	15	10	03/16/09	03/23/09	KWG0902167	
Butyl Benzyl Phthalate	ND U	59	32	10	03/16/09	03/23/09	KWG0902167	
3,3'-Dichlorobenzidine	ND U	590	37	10	03/16/09	03/23/09	KWG0902167	
Benz(a)anthracene	24 JD	59	17	10	03/16/09	03/23/09	KWG0902167	
Chrysene	54 JD	59	15	10	03/16/09	03/23/09	KWG0902167	
Bis(2-ethylhexyl) Phthalate	280 JD	590	70	10	03/16/09	03/23/09	KWG0902167	
Di-n-octyl Phthalate	ND U	59	17	10	03/16/09	03/23/09	KWG0902167	
Benzo(b)fluoranthene	45 JD	59	12	10	03/16/09	03/23/09	KWG0902167	
Benzo(k)fluoranthene	18 JD	59	14	10	03/16/09	03/23/09	KWG0902167	
Benzo(a)pyrene	36 JD	59	17	10	03/16/09	03/23/09	KWG0902167	
Indeno(1,2,3-cd)pyrene	33 JD	59	15	10	03/16/09	03/23/09	KWG0902167	
Dibenz(a,h)anthracene	ND U	59	15	10	03/16/09	03/23/09	KWG0902167	
Benzo(g,h,i)perylene	48 JD	59	15	10	03/16/09	03/23/09	KWG0902167	

Comments:

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Form 1A - Organic 10

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SuperSet Reference: RR100060

Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Sludge, solid

Service Request: K0902091 **Date Collected:** 03/09/2009

Date Received: 03/11/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095311

Lab Code:

K0902091-001

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	36	10-89	03/23/09	Acceptable
Phenol-d6	49	15-103	03/23/09	Acceptable
Nitrobenzene-d5	64	10-108	03/23/09	Acceptable
2-Fluorobiphenyl	78	10-105	03/23/09	Acceptable
2,4,6-Tribromophenol	43	16-122	03/23/09	Acceptable
Terphenyl-d14	106	31-126	03/23/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

SuperSet Reference: RR100060

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Analytical Results

Client: Portland, City of Project: Portland Harbor Sample Matrix: Sludge, solid

Service Request: K0902091 **Date Collected:** 03/09/2009 **Date Received:** 03/11/2009

Units: ug/Kg

Level: Low

Dry

Basis:

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO 095312 Lab Code: K0902091-002

Extraction Method: EPA 3541

Analysis Method: 8270C

Dilution Extraction Date Date **Analyte Name** Result Q MRL MDL **Factor** Extracted Analyzed Lot Note KWG0902167 Bis(2-chloroethyl) Ether 70 03/16/09 03/23/09 ND U 19 10 KWG0902167 Phenol ND U 210 20 10 03/16/09 03/23/09 2-Chlorophenol ND U 70 20 10 03/16/09 03/23/09 KWG0902167 1.3-Dichlorobenzene ND U 70 30 10 03/16/09 03/23/09 KWG0902167 70 KWG0902167 1.4-Dichlorobenzene ND U 29 10 03/23/09 03/16/09 1.2-Dichlorobenzene ND U 70 29 10 03/16/09 03/23/09 KWG0902167 10 KWG0902167 Benzyl Alcohol 140 21 03/23/09 ND U 03/16/09 Bis(2-chloroisopropyl) Ether KWG0902167 ND U 70 26 10 03/16/09 03/23/09 2-Methylphenol 70 KWG0902167 ND U 15 10 03/16/09 03/23/09 Hexachloroethane 70 31 10 KWG0902167 ND U 03/16/09 03/23/09 N-Nitrosodi-n-propylamine ND U 70 24 10 03/16/09 03/23/09 KWG0902167 4-Methylphenol† 70 15 10 KWG0902167 ND U 03/16/09 03/23/09 Nitrobenzene 70 22 10 KWG0902167 ND U 03/16/09 03/23/09 Isophorone ND U 70 10 10 KWG0902167 03/16/09 03/23/09 2-Nitrophenol KWG0902167 ND U 70 15 10 03/16/09 03/23/09 2,4-Dimethylphenol 55 KWG0902167 ND U 350 10 03/16/09 03/23/09 Bis(2-chloroethoxy)methane KWG0902167 ND U 70 15 10 03/16/09 03/23/09 2.4-Dichlorophenol ND U 70 10 10 03/16/09 03/23/09 KWG0902167 10 960 KWG0902167 Benzoic Acid ND U 1400 03/16/09 03/23/09 1,2,4-Trichlorobenzene ND U 70 26 10 03/16/09 03/23/09 KWG0902167 70 KWG0902167 Naphthalene ND U 23 10 03/16/09 03/23/09 4-Chloroaniline ND U 70 19 10 KWG0902167 03/16/09 03/23/09 Hexachlorobutadiene ND U 70 25 10 03/16/09 03/23/09 KWG0902167 4-Chloro-3-methylphenol 70 14 10 KWG0902167 ND U 03/16/09 03/23/09 2-Methylnaphthalene ND U 70 22 10 03/16/09 03/23/09 KWG0902167 Hexachlorocyclopentadiene 290 KWG0902167 ND U 350 10 03/16/09 03/23/09 2,4,6-Trichlorophenol ND U 70 14 10 03/16/09 03/23/09 KWG0902167 2,4,5-Trichlorophenol 70 ND U 15 10 03/16/09 03/23/09 KWG0902167 2-Chloronaphthalene ND U 70 KWG0902167 16 10 03/16/09 03/23/09 2-Nitroaniline ND U 140 32 10 03/16/09 KWG0902167 03/23/09 12 KWG0902167 Acenaphthylene 28 JD 70 10 03/16/09 03/23/09 **Dimethyl Phthalate** 70 10 KWG0902167 270 D 10 03/16/09 03/23/09

Comments:	

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03/16/09

SuperSet Reference:

03/23/09

70

2.6-Dinitrotoluene

KWG0902167

RR100060

ND U

Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Sludge, solid

Service Request: K0902091 **Date Collected:** 03/09/2009

Date Received: 03/11/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095312

Lab Code:

K0902091-002

Extraction Method:

Analysis Method:

EPA 3541 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	0	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND		70	14	10	03/16/09	03/23/09	KWG0902167	NOLE
3-Nitroaniline	ND ND		140	25	10	03/16/09	03/23/09	KWG0902167	
2,4-Dinitrophenol	ND		1400	170	10	03/16/09	03/23/09	KWG0902167	
Dibenzofuran	ND		70	12	10	03/16/09	03/23/09	KWG0902167	
4-Nitrophenol	ND		700	180	10	03/16/09	03/23/09	KWG0902167	
2,4-Dinitrotoluene	ND		70	15	10	03/16/09	03/23/09	KWG0902167	
Fluorene	13	JD	70	11	10	03/16/09	03/23/09	KWG0902167	
4-Chlorophenyl Phenyl Ether	ND		70	14	10	03/16/09	03/23/09	KWG0902167	
Diethyl Phthalate	ND		70	13	10	03/16/09	03/23/09	KWG0902167	
4-Nitroaniline	ND	U	140	18	10	03/16/09	03/23/09	KWG0902167	
2-Methyl-4,6-dinitrophenol	ND		700	14	10	03/16/09	03/23/09	KWG0902167	
N-Nitrosodiphenylamine	43	JD	70	16	10	03/16/09	03/23/09	KWG0902167	
4-Bromophenyl Phenyl Ether	ND	U	70	16	10	03/16/09	03/23/09	KWG0902167	
Hexachlorobenzene	ND	U	70	12	10	03/16/09	03/23/09	KWG0902167	
Pentachlorophenol	ND	U	700	200	10	03/16/09	03/23/09	KWG0902167	
Phenanthrene	220	D	70	14	10	03/16/09	03/23/09	KWG0902167	
Anthracene	36	JD	70	16	10	03/16/09	03/23/09	KWG0902167	
Di-n-butyl Phthalate	ND	U	140	79	10	03/16/09	03/23/09	KWG0902167	
Fluoranthene	380		70	16	10	03/16/09	03/23/09	KWG0902167	
Pyrene	440		70	15	10	03/16/09	03/23/09	KWG0902167	
Butyl Benzyl Phthalate	ND	U	70	32	. 10	03/16/09	03/23/09	KWG0902167	
3,3'-Dichlorobenzidine	ND	U	700	37	10	03/16/09	03/23/09	KWG0902167	
Benz(a)anthracene	67	JD	70	17	10	03/16/09	03/23/09	KWG0902167	
Chrysene	260	D	70	15	10	03/16/09	03/23/09	KWG0902167	
Bis(2-ethylhexyl) Phthalate	770	D	700	70	10	03/16/09	03/23/09	KWG0902167	
Di-n-octyl Phthalate	ND	U	70	17	10	03/16/09	03/23/09	KWG0902167	
Benzo(b)fluoranthene	240	D	70	12	10	03/16/09	03/23/09	KWG0902167	
Benzo(k)fluoranthene	77	D	70	14	10	03/16/09	03/23/09	KWG0902167	
Benzo(a)pyrene	140	D	70	17	10	03/16/09	03/23/09	KWG0902167	
Indeno(1,2,3-cd)pyrene	180	D	70	15	10	03/16/09	03/23/09	KWG0902167	
Dibenz(a,h)anthracene		JD	70	15	10	03/16/09	03/23/09	KWG0902167	
Benzo(g,h,i)perylene	240	D	70	15	10	03/16/09	03/23/09	KWG0902167	

Comments:

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Form 1A - Organic 13

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SuperSet Reference:

RR100060

Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Sludge, solid

Service Request: K0902091 Date Collected: 03/09/2009

Date Received: 03/11/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO 095312

Lab Code:

K0902091-002

Units: ug/Kg

Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	30	10-89	03/23/09	Acceptable	
Phenol-d6	44	15-103	03/23/09	Acceptable	
Nitrobenzene-d5	67	10-108	03/23/09	Acceptable	
2-Fluorobiphenyl	79	10-105	03/23/09	Acceptable	
2,4,6-Tribromophenol	41	16-122	03/23/09	Acceptable	
Terphenyl-d14	103	31-126	03/23/09	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference: RR100060

Analytical Results

Client: Portland, City of Project: Portland Harbor

Sample Matrix: Soil

Service Request: K0902091

Date Collected: NA **Date Received:** NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: Method Blank KWG0902167-5

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND U	5.0	1.9	1	03/16/09	03/20/09	KWG0902167	
Phenol	ND U	15	2.0	1	03/16/09	03/20/09	KWG0902167	
2-Chlorophenol	ND U	5.0	2.0	1	03/16/09	03/20/09	KWG0902167	
1,3-Dichlorobenzene	ND U	5.0	3.0	1	03/16/09	03/20/09	KWG0902167	
1,4-Dichlorobenzene	ND U	5.0	2.9	1	03/16/09	03/20/09	KWG0902167	
1,2-Dichlorobenzene	ND U	5.0	2.9	1	03/16/09	03/20/09	KWG0902167	
Benzyl Alcohol	ND U	10	2.1	1	03/16/09	03/20/09	KWG0902167	
Bis(2-chloroisopropyl) Ether	ND U	5.0	2.6	1	03/16/09	03/20/09	KWG0902167	
2-Methylphenol	ND U	. 5.0	1.5	1	03/16/09	03/20/09	KWG0902167	
Hexachloroethane	ND U	5.0	3.1	1	03/16/09	03/20/09	KWG0902167	
N-Nitrosodi-n-propylamine	ND U	5.0	2.4	1	03/16/09	03/20/09	KWG0902167	
4-Methylphenol†	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	
Nitrobenzene	ND U	5.0	2.2	1	03/16/09	03/20/09	KWG0902167	
Isophorone	ND U	5.0	1.0	1	03/16/09	03/20/09	KWG0902167	
2-Nitrophenol	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	
2,4-Dimethylphenol	ND U	25	5.5	1	03/16/09	03/20/09	KWG0902167	
Bis(2-chloroethoxy)methane	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	
2,4-Dichlorophenol	ND U	5.0	1.0	1	03/16/09	03/20/09	KWG0902167	
Benzoic Acid	ND U	100	96	1	03/16/09	03/20/09	KWG0902167	
1,2,4-Trichlorobenzene	ND U	5.0	2.6	1	03/16/09	03/20/09	KWG0902167	
Naphthalene	8.2	5.0	2.3	1	03/16/09	03/20/09	KWG0902167	
4-Chloroaniline	ND U	5.0	1.9	1	03/16/09	03/20/09	KWG0902167	
Hexachlorobutadiene	ND U	5.0	2.5	1	03/16/09	03/20/09	KWG0902167	
4-Chloro-3-methylphenol	ND U	5.0	1.4	1	03/16/09	03/20/09	KWG0902167	
2-Methylnaphthalene	ND U	5.0	2.2	1	03/16/09	03/20/09	KWG0902167	
Hexachlorocyclopentadiene	ND U	29	29	1	03/16/09	03/20/09	KWG0902167	
2,4,6-Trichlorophenol	ND U	5.0	1.4	1	03/16/09	03/20/09	KWG0902167	
2,4,5-Trichlorophenol	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	manufacture and a second
2-Chloronaphthalene	ND U	5.0	1.6	1	03/16/09	03/20/09	KWG0902167	
2-Nitroaniline	ND U	10	3.2	1	03/16/09	03/20/09	KWG0902167	
Acenaphthylene	ND U	5.0	1.2	1	03/16/09	03/20/09	KWG0902167	
Dimethyl Phthalate	ND U	5.0	1.0	1	03/16/09	03/20/09	KWG0902167	
2,6-Dinitrotoluene	ND U	5.0	2.0	1	03/16/09	03/20/09	KWG0902167	

Comments:	Co	mr	ner	ıts	:
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Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Soil

Service Request: K0902091

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

Method Blank

Extraction Method:

KWG0902167-5 EPA 3541

Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND U	5.0	1.4	1	03/16/09	03/20/09	KWG0902167	
3-Nitroaniline	ND U	10	2.5	1	03/16/09	03/20/09	KWG0902167	
2,4-Dinitrophenol	ND U	100	17	1	03/16/09	03/20/09	KWG0902167	
Dibenzofuran	ND U	5.0	1.2	1	03/16/09	03/20/09	KWG0902167	
4-Nitrophenol	ND U	50	18	1	03/16/09	03/20/09	KWG0902167	
2,4-Dinitrotoluene	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	
Fluorene	1.2 J	5.0	1.1	1	03/16/09	03/20/09	KWG0902167	
4-Chlorophenyl Phenyl Ether	ND U	5.0	1.4	1	03/16/09	03/20/09	KWG0902167	
Diethyl Phthalate	ND U	5.0	1.3	1	03/16/09	03/20/09	KWG0902167	
4-Nitroaniline	ND U	10	1.8	1	03/16/09	03/20/09	KWG0902167	
2-Methyl-4,6-dinitrophenol	ND U	50	1.4	1	03/16/09	03/20/09	KWG0902167	
N-Nitrosodiphenylamine	ND U	5.0	1.6	1	03/16/09	03/20/09	KWG0902167	
4-Bromophenyl Phenyl Ether	ND U	5.0	1.6	1	03/16/09	03/20/09	KWG0902167	
Hexachlorobenzene	ND U	5.0	1.2	1	03/16/09	03/20/09	KWG0902167	
Pentachlorophenol	ND U	50	20	1	03/16/09	03/20/09	KWG0902167	
Phenanthrene	5.6	5.0	1.4	1	03/16/09	03/20/09	KWG0902167	
Anthracene	ND U	5.0	1.6	1	03/16/09	03/20/09	KWG0902167	
Di-n-butyl Phthalate	ND U	10	7.9	1	03/16/09	03/20/09	KWG0902167	
Fluoranthene	2.9 J	5.0	1.6	1	03/16/09	03/20/09	KWG0902167	
Pyrene	3.2 J	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	
Butyl Benzyl Phthalate	ND U	5.0	3.2	1	03/16/09	03/20/09	KWG0902167	
3,3'-Dichlorobenzidine	ND U	50	3.7	1	03/16/09	03/20/09	KWG0902167	
Benz(a)anthracene	ND U	5.0	1.7	1	03/16/09	03/20/09	KWG0902167	
Chrysene	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	
Bis(2-ethylhexyl) Phthalate	ND U	50	7.0	1	03/16/09	03/20/09	KWG0902167	
Di-n-octyl Phthalate	ND U	5.0	1.7	1	03/16/09	03/20/09	KWG0902167	
Benzo(b)fluoranthene	ND U	5.0	1.2	1	03/16/09	03/20/09	KWG0902167	
Benzo(k)fluoranthene	ND U	5.0	1.4	· 1	03/16/09	03/20/09	KWG0902167	
Benzo(a)pyrene	ND U	5.0	1.7	1	03/16/09	03/20/09	KWG0902167	
Indeno(1,2,3-cd)pyrene	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	
Dibenz(a,h)anthracene	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	with the order of the section of the sec
Benzo(g,h,i)perylene	ND U	5.0	1.5	1	03/16/09	03/20/09	KWG0902167	

Comments:

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Form 1A - Organic 16

Page

2 of 3

SuperSet Reference: RR100060

Analytical Results

Client:

Portland, City of Portland Harbor

Project: Sample Matrix:

Soil

Service Request: K0902091

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Units: ug/Kg

Basis: Dry

Lab Code:	KWG0902167-5

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	51	10-89	03/20/09	Acceptable	-
Phenol-d6	55	15-103	03/20/09	Acceptable	
Nitrobenzene-d5	56	10-108	03/20/09	Acceptable	
2-Fluorobiphenyl	61	10-105	03/20/09	Acceptable	
2,4,6-Tribromophenol	56	16-122	03/20/09	Acceptable	
Terphenyl-d14	79	31-126	03/20/09	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

SuperSet Reference: RR100060

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QA/QC Report

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Sludge, solid

Service Request: K0902091

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 **Analysis Method:**

8270C

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2	<u>Sur3</u>	Sur4	<u>Sur5</u>	<u>Sur6</u>
FO 095311	K0902091-001	36 D	49 D	64 D	78 D	43 D	106 D
FO 095312	K0902091-002	30 D	44 D	67 D	79 D	41 D	103 D
Method Blank	KWG0902167-5	51	55	56	61	56	79
Batch QC	K0902138-004	0D#	0D#	0D#	80 D #	77 D #	133 D #
Batch QCMS	KWG0902167-1	0D#	0 D #	0D#	93 D #	74 D #	142 D #
Batch QCDMS	KWG0902167-2	0 D #	0D#	0 D #	86 D #	91 D #	158 D #
Lab Control Sample	KWG0902167-3	54	57	62	64	62	83
Duplicate Lab Control Sample	KWG0902167-4	57	61	65	65	68	79

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	10-89	Sur5 = 2,4,6-Tribromophenol	16-122
Sur2 = Phenol-d6	15-103	Sur6 = Terphenyl-d14	31-126
Sur3 = Nitrobenzene-d5	10-108		
Sur4 = 2-Fluorobiphenyl	10-105		

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

SuperSet Reference: RR100060

Page

1 of 1

QA/QC Report

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Soil

Service Request: K0902091

Date Extracted: 03/16/2009 **Date Analyzed:** 03/21/2009

Matrix Spike/Duplicate Matrix Spike Summary Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Batch QC

Lab Code:

K0902138-004

Extraction Method: EPA 3541

Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Extraction Lot: KWG0902167

Batch QCMS KWG0902167-1

Batch QCDMS KWG0902167-2

	Sample	Matrix Spike				cate Matrix S	%Rec		RPD	
Analyte Name	Result	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Phenol	ND	ND	159	0 *	ND	159	0 *	10-120		40
2-Chlorophenol	ND	ND	159	0 *	ND	159	0 *	12-105		40
1,4-Dichlorobenzene	ND	ND	159	0 *	ND	159	0 *	10-105		40
N-Nitrosodi-n-propylamine	ND	ND	159	0 *	ND	159	0 *	10-111		40
1,2,4-Trichlorobenzene	ND	ND	159	0 *	132	159	82	10-102	200 *	40
4-Chloro-3-methylphenol	ND	ND	159	0 *	ND	159	0 *	10-119		40
Acenaphthene	56000	89000E	159	20490#	51700	159	-2877#	23-106	53 *	40
4-Nitrophenol	ND	ND	159	0 *	ND	159	0 *	11-143		40
2.4-Dinitrotoluene	ND	1830	159	1147 *	ND	159	0 *	22-125	200 *	40
Pentachlorophenol	ND	ND	159	0 *	ND	159	0 *	10-146		40
Pyrene	170000	177000E	159	5365 #	141000E	159	-1723 #	10-146	23	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3A - Organic

SuperSet Reference: RR100060 1 of 1

Page

QA/QC Report

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Soil

Service Request: K0902091 **Date Extracted:** 03/16/2009

Date Analyzed: 03/20/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Extraction Lot: KWG0902167

Lab Control Sample KWG0902167-3

Duplicate Lab Control Sample KWG0902167-4

	Lab	Control Spike	e	Duplicate	Lab Control	Spike	%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Bis(2-chloroethyl) Ether	157	250	63	159	250	64	22-98	1	40
Phenol	147	250	59	153	250	61	34-101	4	40
2-Chlorophenol	144	250	58	157	250	63	30-91	9	40
1,3-Dichlorobenzene	143	250	57	148	250	59	10-97	3	40
1,4-Dichlorobenzene	148	250	59	155	250	62	10-98	4	40
1,2-Dichlorobenzene	147	250	59	153	250	61	10-98	3	40
Benzyl Alcohol	168	250	67	175	250	70	30-101	4	40
Bis(2-chloroisopropyl) Ether	148	250	59	157	250	63	17-100	6	40
2-Methylphenol	86.0	250	34	129	250	51	10-93	40	40
Hexachloroethane	143	250	57	149	250	60	10-99	4	40
N-Nitrosodi-n-propylamine	150	250	60	163	250	65	10-103	8	40
4-Methylphenol	87.6	250	35	134	250	54	10-98	42 *	40
Nitrobenzene	151	250	61	161	250	65	22-99	6	40
Isophorone	151	250	60	164	250	65	35-91	8	40
2-NitrophenoI	154	250	62	161	250	64	30-98	4	40
2,4-Dimethylphenol	8.15	250	3 *	57.6	250	23	10-81	150 *	40
Bis(2-chloroethoxy)methane	154	250	61	161	250	64	34-93	5	40
2,4-Dichlorophenol	148	250	59	161	250	64	35-91	8	40
Benzoic Acid	244	750	33	261	750	35	10-50	7	40
1,2,4-Trichlorobenzene	155	250	62	161	250	64	18-96	4	40
Naphthalene	157	250	63	164	250	66	23-95	5	40
4-Chloroaniline	123	250	49	137	250	55	10-95	11	40
Hexachlorobutadiene	149	250	60	163	250	65	14-100	9	40
4-Chloro-3-methylphenol	137	250	55	158	250	63	28-98	15	40
2-Methylnaphthalene	157	250	63	168	250	67	30-92	7	40
Hexachlorocyclopentadiene	139	250	56	146	250	58	10-81	5	40
2,4,6-Trichlorophenol	147	250	59	163	250	65	31-96	10	40
2,4,5-Trichlorophenol	162	250	65	163	250	65	38-95	1	40
2-Chloronaphthalene	162	250	65	167	250	67	33-95	3	40
2-Nitroaniline	167	250	67	170	250	68	40-104	2	40
Acenaphthylene	167	250	67	173	250	69	38-99	3	40
Dimethyl Phthalate	173	250	69	177	250	71	44-99	2	40
2,6-Dinitrotoluene	166	250	67	172	250	69	42-100	4	40
Acenaphthene	164	250	66	167	250	67	39-90	2	40
3-Nitroaniline	155	250	62	160	250	64	28-100	3	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

Page RR100060 SuperSet Reference:

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QA/QC Report

Client: Project: Portland, City of Portland Harbor

Sample Matrix:

Soil

Service Request: K0902091 **Date Extracted:** 03/16/2009

Date Analyzed: 03/20/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 **Analysis Method:**

8270C

Units: ug/Kg

Basis: Dry

Level: Low

Extraction Lot: KWG0902167

Lab Control Sample KWG0902167-3

Duplicate Lab Control Sample KWG0902167-4

	Lab Control Spike			Duplicate	Lab Control	%Rec		RPD	
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
2,4-Dinitrophenol	107	250	43	114	250	45	14-104	6	40
Dibenzofuran	163	250	65	168	250	67	40-91	3	40
4-Nitrophenol	177	250	71	174	250	70	42-115	2	40
2,4-Dinitrotoluene	178	250	71	177	250	71	43-106	1	40
Fluorene	171	250	68	172	250	69	41-94	1	40
4-Chlorophenyl Phenyl Ether	170	250	68	172	250	69	41-93	1	40
Diethyl Phthalate	178	250	71	176	250	70	46-104	1	40
4-Nitroaniline	143	250	57	158	250	63	29-107	10	40
2-Methyl-4,6-dinitrophenol	143	250	57	143	250	57	30-107	0	40
N-Nitrosodiphenylamine	171	250	68	174	250	69	20-100	1	40
4-Bromophenyl Phenyl Ether	171	250	69	173	250	69	42-97	1	40
Hexachlorobenzene	173	250	69	173	250	69	42-98	0	40
Pentachlorophenol	98.2	250	39	125	250	50	28-100	24	40
Phenanthrene	180	250	72	176	250	70	44-97	2	40
Anthracene	175	250	70	176	250	71	31-104	1	40
Di-n-butyl Phthalate	178	250	71	173	250	69	47-129	3	40
Fluoranthene	185	250	74	181	250	72	45-111	2	40
Pyrene	187	250	75	178	250	71	46-112	5	40
Butyl Benzyl Phthalate	189	250	76	175	250	70	50-119	8	40
3,3'-Dichlorobenzidine	109	250	43	132	250	53	10-112	19	40
Benz(a)anthracene	185	250	74	178	250	71	45-110	4	40
Chrysene	192	250	77	182	250	73	50-108	5	40
Bis(2-ethylhexyl) Phthalate	186	250	74	173	250	69	48-127	7	40
Di-n-octyl Phthalate	186	250	74	178	250	71	52-126	4	40
Benzo(b)fluoranthene	187	250	75	177	250	71	51-111	6	40
Benzo(k)fluoranthene	192	250	77	185	250	74	52-109	3	40
Benzo(a)pyrene	170	250	68	165	250	66	26-125	3	40
Indeno(1,2,3-cd)pyrene	184	250	7 3	180	250	72	47-119	2	40
Dibenz(a,h)anthracene	189	250	76	181	250	72	50-115	4	40
Benzo(g,h,i)perylene	182	250	73	175	250	70	43-115	4	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic 21

SuperSet Reference:

Page RR100060

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CHAIN OF CUSTODY Sediment and Tissue Chemistry

PAGE

_ 유 coç # 2091

Signature Printed Name RELINQUISHED BY: Date/Time Firm	II. Report Dup., MS, MSD as required III. Data Validation Report (includes all raw data) IV. CLP Deliverable Report V. EDD	REPORT REQUIREMENTS I. Routine Report: Method Blank, Surrogate, as required				0095312 3/9/09	FO095311 3/10/09	COMPANY/ADDRESS CHYOF PHONE # SAMPLER'S SIGNATURE SAMPLE I.D. DATE	Portlare
TOS TOS	TURNAROL24 hr5 DayStandaProvidReque	INVOICE P.O. # Bill To:				1045	1045	Shacks Cortland	Hart
Signature Printed Name	TURNAROUND REQUIREMENTS 24 hr48 hr. 5 Day Standard (10-15 working days) Provide FAX Results Requested Report Date	E INFORMATION				Sed	Sed	LABI.D. MATRIX	1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222
RECEIVED BY: Date Firm							^	NUMBER OF CONTAINERS Metals (list below)	98626 • (360
Ime	SPECIAL INSTRUCTIONS/COMMENTS:	Circle which metals are to be analyzed: SMS Metals: As Cd Cr Ct CA Metals: Ag As Cd C					<u> </u>	Otal Volatile o)) 577-7222 •
105	leve (are to be analy Cd Cr As Cd						Grain size - PSEP / ASTM D42 AVS (9030M)	FAX (360) 636-1068
Signature Signature Printed Name	DMMENTS:	ized: Cu Pb Cr Cu						9/0-	02 0-1068 Pluble
ELINQUISHED	18270	Hg Ag Zn Hg Ni Pb						Pesticides (8081) PCBs Pore we	a_{ter}
BY: 215	drywt basis	Se Zn						Organotin - Pore Water Volatiles (0.5)	☐ PSEP
Signature Printed Name	basis					×	·	-015/.	
RECEIVED D	>>							SVOCS EPA 82	182m
ate/Time		-							1000
5				20				REMARKS	

Cooler Receipt and Preservation Form 0209 Service Request K09 Opened: Received: GSHand Delivered US Mail **UPS** DHLGHCourier Samples were received via? Fed Ex NASamples were received in: (circle) Cooler Box Envelope Other If yes, how many and where? Were <u>custody seals</u> on coolers? NA N Υ If present, were custody seals intact? If present, were they signed and dated? N NA Υ Is shipper's air-bill filed? If not, record air-bill number: N 5. Temperature of cooler(s) upon receipt (°C): Temperature Blank (°C): Thermometer ID: If applicable, list Chain of Custody Numbers: Bubble Wrap Gel Packs Wet Ice Sleeves Other Packing material used. Inserts Baggies N Were custody papers properly filled out (ink, signed, etc.)? Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA N Were all sample labels complete (i.e analysis, preservation, etc.)? NA Ν Did all sample labels and tags agree with custody papers? Indicate in the table below NA N NA Ν Were appropriate bottles/containers and volumes received for the tests indicated? 13. Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below NΑ N 14. Were VOA vials and 1631 Mercury bottles received without headspace? *Indicate in the table below.* ÑΑ Y N Υ Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? NA Ν 16. Was C12/Res negative? NA N Sample ID on Bottle Sample ID on COC Sample ID on COC Sample ID on Bottle Volume Reagent Lot Bottle Out of Head-Initials Broken На Reagent added Number Sample ID Count Bottle Type Temp | space | *Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN). Additional Notes, Discrepancies, & Resolutions:_

Columbia Analytical Services, Inc.

2



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

March 30, 2009

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

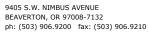
Enclosed are the results of analyses for samples received by the laboratory on 03/11/09 14:30. The following list is a summary of the Work Orders contained in this report, generated on 03/30/09 20:52.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber	
PSC0342	Portland Harbor	36238	

TestAmerica Portland







City of Portland Water Pollution Laboratory Project Name: Portland Harbor

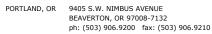
6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 03/30/09 20:52

ANALYTICAL REPO	RT FOR SAMPLES
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO095311	PSC0342-01	Soil	03/09/09 10:45	03/11/09 14:30
FO095312	PSC0342-02	Soil	03/09/09 10:45	03/11/09 14:30

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.

Project Number: 36238

Report Created:
Portland, OR 97203

Project Manager: Jennifer Shackelford

03/30/09 20:52

Polynuclear Aromatic Compounds per EPA 8270M-SIM

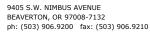
TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSC0342-01 (FO095311)			Soil			Samp	led: 03/09/	/09 10:45			RL3
Acenaphthene	EPA 8270m	ND		30.4	ug/kg dry	2x	9030529	03/17/09 22:05	03/19/09 16:23		
Acenaphthylene	"	ND		30.4	"	"	"	"	"		
Anthracene	"	ND		30.4	"	"	"	"	"		
Benzo (a) anthracene	"	ND		30.4	"	"	"	"	"		
Benzo (a) pyrene	"	ND		30.4	"	"	"	"	"		
Benzo (b) fluoranthene	"	ND		30.4	"	"	"	"	"		
Benzo (ghi) perylene	"	32.8		30.4	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		30.4	"	"	"	"	"		
Chrysene	"	39.6		30.4	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		30.4	"	"	"	"	"		
Fluoranthene	"	36.6		30.4	"	"	"	"	"		
Fluorene	"	ND		30.4	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	ND		30.4	"	"	"	"	"		
Naphthalene	"	ND		30.4	"	"	"	"	"		
Phenanthrene	"	ND		30.4	"	"	"	"	"		
Pyrene	"	41.8		30.4	"	"	"	"	"		
Surrogate(s): Fluorene-d10				117%		24 - 125 %	"			"	
Pyrene-d10				111%		41 - 141 %	"			"	
Benzo (a) pyrei	ne-d12			114%		38 - 143 %	"			"	
PSC0342-02 (FO095312)			Soil			Samp	led: 03/09/	09 10:45			RL3
Acenaphthene	EPA 8270m	ND		49.8	ug/kg dry	3x	9030529	03/17/09 22:05	03/19/09 16:56		
Acenaphthylene	"	ND		49.8	"	"	"	"	"		
Anthracene	"	ND		49.8	"	"	"	"	"		
Benzo (a) anthracene	"	ND		49.8	"	"	"	"	"		
Benzo (a) pyrene	"	51.7		49.8	"	"	"	"	"		
Benzo (b) fluoranthene	"	70.4		49.8	"	"	"	"	"		
Benzo (ghi) perylene	"	112		49.8	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		49.8	"	"	"	"	"		
Chrysene	"	112		49.8	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		49.8	"	"	"	"	"		
		.,			,,		,,	,,	,,		
Fluoranthene	"	124		49.8	"	"	"				
	"			49.8 49.8	"	"	"	"	"		
Fluoranthene Fluorene	" "	ND 51.3						"	"		
Fluoranthene	" " " " " " " " " " " " " " " " " " " "	ND		49.8	"	"	"	" "	" "		

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford03/30/09 20:52

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	I	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSC0342-02	(FO095312)			Soil			Samp	led: 03/09	09 10:45			RL3
Pyrene	E	EPA 8270m	143		49.8	ug/kg dry	3x	9030529	03/17/09 22:05	03/19/09 16:56		
Surrogate(s):	Fluorene-d10				110%		24 - 125 %	"			"	
	Pyrene-d10				111%		41 - 141 %	"			"	
	Benzo (a) pyrene-d12	2			108%		38 - 143 %	"			"	

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PORTLAND, OR

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City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/30/09 20:52

Phthalates per EPA 8270-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed		Notes	
PSC0342-01 (FO095311)			Se	oil		Samp	led: 03/09/	09 10:45				RL3
Dimethyl phthalate	EPA 8270m	ND		153	ug/kg dry	2x	9030698	03/23/09 15:00	03/26/09 20:59			
Diethyl phthalate	"	ND		153	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		153	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		153	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	944		153	"	"	"	"	"			
Di-n-octyl phthalate	"	ND		383	"	"	"	"	"		RL1	
Surrogate(s): 2-Fluorobipher	ıyl			88.7%		10 - 150 %	"			"		
p-Terphenyl-d1	4			135%		10 - 150 %	"			"		
PSC0342-02 (FO095312)			Se	oil		Samp	led: 03/09/	09 10:45				RL3
Dimethyl phthalate	EPA 8270m	ND		165	ug/kg dry	2x	9030698	03/23/09 15:00	03/26/09 21:35			
Diethyl phthalate	"	ND		165	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		165	"	"	"	"	"			
Butyl benzyl phthalate	,	220		165	"	"	"	"	•			
Bis(2-ethylhexyl)phthalate	"	1850		165		"	"	"	"			
Di-n-octyl phthalate	"	ND		496	"	"	"	"	"		RL1	
Surrogate(s): 2-Fluorobipher	ıyl			87.0%		10 - 150 %	"			"		
p-Terphenyl-d1	•			145%		10 - 150 %	"			"		

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Howard Holmes, Project Manager





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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford03/30/09 20:52

Percent Dry Weight (Solids) per Standard Methods

TestAmerica Portland

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSC0342-01	(FO095311)			Soil	ļ		Sam	pled: 03/09/	09 10:45		
% Solids		NCA SOP	87.4		0.0100	% by Weight	1x	9030489	03/16/09 18:29	03/17/09 08:07	
PSC0342-02	(FO095312)			Soil	I		Sam	pled: 03/09/	09 10:45		
% Solids		NCA SOP	80.8		0.0100	% by Weight	1x	9030489	03/16/09 18:29	03/17/09 08:07	

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Howard Holmes, Project Manager





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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford03/30/09 20:52

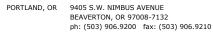
Organic Carbon, Total (TOC)

TestAmerica Connecticut

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes		
PSC0342-01 (FO095311)			Soil			Sam	pled: 03/09/	09 10:45				
Total Organic Carbon - Duplicates	9060	12900	3.3	100	mg/Kg	1x	25386	03/19/09 15:17	03/19/09 15:17			
PSC0342-02 (FO095312)		Soil Sampled: 03/09/09 10:45										
Total Organic Carbon - Duplicates	9060	14600	3.3	100	mg/Kg	1x	25386	03/19/09 15:31	03/19/09 15:31			

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City of Portland Water Pollution Laboratory

Project Name: Portland Harbor

6543 N. Burlington Ave. Portland, OR 97203 Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 03/30/09 20:52

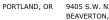
Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

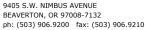
TestAmerica Portland

QC Bate	h: 9030529	Soil Pre	paration N	Iethod: EPA	3550										
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (90305	29-BLK1)								Extra	acted:	03/17/09 22	2:05			
Acenaphthene		EPA 8270m	ND		13.3	ug/kg wet	1x						(03/18/09 13:51	
Acenaphthylene		"	ND		13.3	"	"							"	
Anthracene		"	ND		13.3	"	"							"	
Benzo (a) anthracen	e	"	ND		13.3	"	"							"	
Benzo (a) pyrene		"	ND		13.3	"	"							"	
Benzo (b) fluoranthe	ene	"	ND		13.3	"	"							"	
Benzo (ghi) perylen	e	"	ND		13.3	"	"							"	
Benzo (k) fluoranthe	ene	"	ND		13.3	"	"								
Chrysene		"	ND		13.3	"	"							"	
Dibenzo (a,h) anthra	icene	"	ND		13.3	"	"							"	
Fluoranthene		"	ND		13.3	"	"							"	
Fluorene		"	ND		13.3	"	"							"	
Indeno (1,2,3-cd) py	rene	"	ND		13.3	"	"							"	
Naphthalene		"	ND		13.3	"	"							,,	
Phenanthrene		"	ND		13.3	"	"							,,	
Pyrene		"	ND		13.3	"	"							"	
Surrogate(s):	Fluorene-d10		Recovery:	98.6%	1	imits: 24-125%	, ,,							03/18/09 13:51	
Surroguic(s).	Pyrene-d10		necovery.	96.2%	Li	41-1419								"	
	Benzo (a) pyrene-d12			101%		38-1439	6 "							"	
LCS (9030529) DC1)								Extr	acted:	03/17/09 22)·05			
Acenaphthene	7-DS1)	EPA 8270m	159		13.3	ug/kg wet	1x			95.8%			(03/18/09 17:43	
Benzo (a) pyrene		"	168		13.3	"	"		"	102%	(45-149)		`	"	
Pyrene		"	149		13.3	"	,,		,,	89.8%				,,	
							- "			07.0/0	(39-138)				
Surrogate(s):	Fluorene-d10		Recovery:	96.2%	Li	imits: 24-125%								03/18/09 17:43	
	Pyrene-d10 Benzo (a) pyrene-d12			92.6% 102%		41-1419 38-1439								,,	
	Benzo (u) pyrene-u12			102/0		30-143/	o								
Matrix Spike	(9030529-MS1)				QC Source	e: PSC0206-0	3		Extra	acted:	03/17/09 22	2:05			
Acenaphthene		EPA 8270m	1540		355	ug/kg dry	20x	742	221	362%	(33-139)		(03/18/09 16:36	MHA
Benzo (a) pyrene		"	210		355	"	"	ND	"	95.0%	(45-149)			"	
Pyrene		"	1070		355	"	"	435	"	286%	(39-138)			"	MH
Surrogate(s):	Fluorene-d10		Recovery:	144%	L	imits: 24-125%	, ,,							03/18/09 16:36	
San - 0 gane (3).	Pyrene-d10		necorery.	143%	Li	41-1419								"	2
	Benzo (a) pyrene-d12			97.5%		38-1439								"	_

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Howard Holmes, Project Manager







QC Batch: 9030529

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

Soil Preparation Method: EPA 3550

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 03/30/09 20:52

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

-														
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits) Analyzed	Notes
Matrix Spike Dup (90305	529-MSD1)		QC Source	: PSC0206-0	3		Ext	racted:	03/17/09 22	:05				
Acenaphthene	EPA 8270m	1110		356	ug/kg dry	20x	742	221	165%	(33-139)	32.8%	(60)	03/18/09 17:10	MHA
Benzo (a) pyrene	"	218		356	**	"	ND	"	98 4%	(45-149)	3 62%	. "	"	

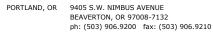
356 435 161% (39-138) 29.8% " Pyrene Limits: 24-125% 03/18/09 17:10 Surrogate(s): Fluorene-d10 Recovery: 94.6% Pyrene-d10 132% 41-141% 38-143% Benzo (a) pyrene-d12 100%

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Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

MHA





THE LEADER IN ENVIRONMENTAL TESTING

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/30/09 20:52

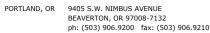
Phthalates per EPA 8270-SIM - Laboratory Quality Control Resu

TestAmerica Portland

QC Batch: 9030698	3011 FT6	paration iv	lethod: EPA	3330										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Note
Blank (9030698-BLK1)								Exti	acted:	03/23/09 15	:00			
Dimethyl phthalate	EPA 8270m	ND		26.8	ug/kg wet	1x							03/26/09 16:07	
Diethyl phthalate	"	ND		26.8	"	"							"	
Di-n-butyl phthalate	"	ND		26.8	"	"							"	
Butyl benzyl phthalate	"	ND		26.8	"	"							"	
Bis(2-ethylhexyl)phthalate	"	ND		26.8	"	"							"	
Di-n-octyl phthalate	"	ND		26.8	"	"							"	
Surrogate(s): 2-Fluorobiphenyl		Recovery:	96.3%	Li	mits: 10-150%	6 "							03/26/09 16:07	
p-Terphenyl-d14			125%		10-150	% "							"	
LCS (9030698-BS1)								Exti	acted:	03/23/09 15	:00			
Dimethyl phthalate	EPA 8270m	113		26.8	ug/kg wet	1x		133	84.9%	(20-150)			03/26/09 16:43	
Diethyl phthalate	"	114		26.8	"	"		"	85.7%	"			"	
Di-n-butyl phthalate	"	120		26.8	"	"		"	89.9%	"				
Butyl benzyl phthalate	"	129		26.8	"	"		"	96.7%	"				
Bis(2-ethylhexyl)phthalate	"	134		26.8	"	"		"	100%	"				
Di-n-octyl phthalate	"	155		26.8	"	"		"	116%	"			"	
Surrogate(s): 2-Fluorobiphenyl		Recovery:	87.0%	Li	mits: 10-150%	6 "							03/26/09 16:43	
p-Terphenyl-d14			111%		10-150	% "							"	
LCS Dup (9030698-BSD1)								Exti	acted:	03/23/09 15	:00			
Dimethyl phthalate	EPA 8270m	118		26.8	ug/kg wet	1x		133	88.3%	(20-150)	3.89%	(50)	03/26/09 17:20	
Diethyl phthalate	"	119		26.8	"	"		"	89.4%	"	4.25%	5 "	"	
Di-n-butyl phthalate	"	123		26.8	"	"		"	92.2%	"	2.53%	5 "	"	
Butyl benzyl phthalate	"	139		26.8	"	"		"	104%	"	7.44%	5 "	"	
Bis(2-ethylhexyl)phthalate	"	143		26.8	"	"		"	107%	"	6.57%	5 "	"	
Di-n-octyl phthalate	"	165		26.8	"	"		"	124%	"	6.22%	· "	"	
Surrogate(s): 2-Fluorobiphenyl p-Terphenyl-d14		Recovery:	82.1% 101%	Li	mits: 10-150%								03/26/09 17:20	
	.			OC Sauma	: PSC0712-0	4		Fest	o atadı	03/23/09 15	.00			
Matrix Spike (9030698-MS1		1.47					NID						02/26/00 17-56	
Dimethyl phthalate	EPA 8270m	147		184	ug/kg dry	5x	ND	183	80.2%	(10-150)			03/26/09 17:56	
Diethyl phthalate		150		184		,,	ND	"	81.5%					
Di-n-butyl phthalate		170		184		"	ND	"	92.6%					
Butyl benzyl phthalate		233		184		"	ND	"	127%					
Bis(2-ethylhexyl)phthalate		502		184			283		119%					
Di-n-octyl phthalate	"	258		184	"	"	ND	"	140%	"			"	
Surrogate(s): 2-Fluorobiphenyl p-Terphenyl-d14		Recovery:	102% 138%	Li	mits: 10-150%								03/26/09 17:56 "	

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Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

36238 6543 N. Burlington Ave. Project Number: Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/30/09 20:52

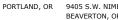
Phthalates per EPA 8270-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 9030698	Soil Pre	paration Metl	hod: EPA	3550										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limit	s) Analyzed	Notes
Matrix Spike Dup (9030698-	MSD1)			QC Source	: PSC0712-0	04		Extr	acted:	03/23/09 15	:00			
Dimethyl phthalate	EPA 8270m	187		184	ug/kg dry	5x	ND	183	102%	(10-150)	23.8%	(50)	03/26/09 18:33	
Diethyl phthalate	"	194		184	"	"	ND	"	106%	"	25.6%	. "	"	
Di-n-butyl phthalate	"	217		184	"	"	ND	"	118%	"	24.4%	. "	"	
Butyl benzyl phthalate	"	284		184	"	"	ND	"	155%	"	19.6%	. "	"	M7
Bis(2-ethylhexyl)phthalate	"	575		184	"	"	283	"	159%	"	13.6%	. "	"	M7
Di-n-octyl phthalate	"	335		184	"		ND	"	183%		26.1%	"	"	M7

Surrogate(s): 2-Fluorobiphenyl Recovery: 79.6% Limits: 10-150% 03/26/09 18:33 107% 10-150% p-Terphenyl-d14

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford03/30/09 20:52

	Percent Dry V	Veight (Solid			lethods - a Portland	Labo	oratory Q	Quality Control Results
QC Batch: 9030489	Soil Pre	paration Met	hod: Dry	Weight				
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % (Limits) % (Limits) Analyzed Notes
Duplicate (9030489-DUP1)				QC Source:	PSC0446-0	l		Extracted: 03/16/09 18:29
% Solids	NCA SOP	60.6		0.0100 %	6 by Weight	1x	59.4	2.00% (20) 03/17/09 08:07

TestAmerica Portland

Howard Holmes, Project Manager





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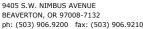
City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 03/30/09 20:52

Organic Carbon, Total (TOC) - Laboratory Quality Control Results TestAmerica Connecticut														
QC Batch: 25386	Soil Pro	eparation Met	hod: NA											
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limit	s) Analyzed	Notes
LCS (220-25386-5)				QC Source	:			Extr	acted:	03/19/09 14	:49			
Total Organic Carbon - Duplicates	9060	4381	3.3	100	mg/Kg	1x		3530	124%	(28-172)			03/19/09 14:49	
Blank (220-25386-6)				QC Source	:			Extr	acted:	03/19/09 14	:56			
Total Organic Carbon - Duplicates	9060	4.5	3.3	100	mg/Kg	1x							03/19/09 14:56	

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford03/30/09 20:52

Notes and Definitions

Report Specific Notes:

J - Sample result is greater than the MDL but below the CRDL

- The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).

MHA - Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank

Spike (LCS).

RL1 - Reporting limit raised due to sample matrix effects.

RL3 - Reporting limit raised due to high concentrations of non-target analytes.

ZX - Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.

Laboratory Reporting Conventions:

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA _ Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported

on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

 $\begin{tabular}{ll} MRL & - & METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. \\ \end{tabular}$

MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and

percent solids, where applicable.

Electronic - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*.

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

Limits

Howard Holmes, Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400. Bothell, WA 98011-8244 11922 E. First Ave, Spokane, WA 99206-5302

9405 SW Nimbus Ave.Beaverton, OR 97008-7145

2000 W International Airport Rd Ste A10. Anchorage, AK 99502-1119

425-420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210

	CHAIN OF CUSTODY REPORT														Work Order #: \(\int \)500342				
CLIENT: City of Portland					INVOICE TO: Chuck Lytle										TURNAROUND REQUEST				
REPORT TO: Jean fer Strackel Ford ADDRESS:							C /(2	() -	- 7 '								Business Days *		
															Organic & Inorganic Analyses 7 5 4 3 2 1 <1				
DHANH: EAV.						P.O. NUMBER: うらょろう										7 5 4 3 2 1 <1 Petroleum Hydrocarbon Analyses			
PROJECT NAME: Portland Hackber PROJECT NUMBER:			PRESERVATIVE												5 4 3 2 1 <1				
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SAMPLED BY:			ن	5 2											* Turnaround Requests less than standard may incur Rush			ncur Rush Charges.	
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PAHT	70	Grum Size			:								MATRIX (W, S, O)	# OF CONT.	LOCATION COMMENT		
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TestAmerica Sample Receipt Checklist Work Order No. PSC0342 Received by: Unpacked by: Logged-in by: *(section B) *(section A) Temperature out of range: Initials: Not enough Ice No Ice ice Melted ***ESI Clients (see Section C) Digi #1 W/in 4 Hours Diai #2 Cooler Temperature (IR): 3.7 c plastic glass NA (oil/air samples, ESI client) Temperature Blank: Sample Status: Custody Seals: (#) (If N circled, see NOD) Signature: Y N Dated: General: Received from: Intact? N **TA Courier** # Containers Match COC? Ν none given Container Type: Senvoy #Cooler(s) **UPS** IDs Match COC? Ν #Box(s) Fed Ex For Analyses Requested: None (#Other: (NA) Cyanide Checked? Ν Client Correct Type & Preservation? Ν TDP Coolant Type: DHL Adequate Volume? Gel Ice SDS Within Hold Time? Loose Ice N) HF Dilution Required? Mid-Valley None GS/TA Volatiles/ Oil Quality: GS/Senvoy VOAs/ Syringes free of Headspace? Y Packing Material: Other: **Bubble Bags** TB on COC? not provided Styrofoam Cubbies Metals: Peanuts **HNO3 Preserved?** Ν NA Other: **Dissolved Metals Filtered?** NA. Ν ESI Clients Only: NO FED EX/ UPS: Was the tracking paper keepable? Temperature Blank: °C not provided If circled NO, what is the Tracking number? Digi: # 1 #2 Other: All preserved bottles checked FED EX Goldstreak **UPS** DHL NA (voas/soils/all unp.) All preserved accordingly? Y N (see NOD) NA (voas/soils/all unp.) Project Managers: Comments:

(Initial/Date)

PM Reviewed:

March 26, 2009: Surface Solids Sampling



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.qsiwatersolutions.com

Laboratory Data QA/QC Review Upland Source Control Investigation March 26, 2009 Solids Investigation Outfall Basin 44

To: File

From: Erin Carroll, GSI

Date: May 1, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses conducted by the City of Portland (City) on March 26, 2009. One solids composite sample was collected by the City from the vicinity of manhole ABC438 in Outfall Basin 44 and submitted for analyses.

The laboratory analyses for this solids sample was completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

- BES WPCL
 - o Total Solids SM 2540G
 - o Polychlorinated Biphenyls (PCBs) as Aroclors EPA 8082
- Pace Analytical (Pace)
 - o PCBs as Congeners EPA 1668A

The WPCL summary report for all analyses associated with this stormwater sampling event and the subcontracted laboratory's data report are attached. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review is based on the available laboratory documentation and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

• Chain-of-custody for completeness and continuous custody

- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Internal standard recoveries within laboratory control limits
- Laboratory control sample and duplicate laboratory control sample recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the sample. The chain-of-custody procedures appear to have been adequate indicating that sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The sample was extracted and analyzed within the required method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analysis of PCB congeners. There are no reported detections of PCB congeners in the associated method blanks.

Internal Standard Recoveries

Internal standard recoveries were processed during the laboratory analysis of PCB congeners. The labeled internal standard recoveries were within the target ranges specified in the method.

Laboratory Control Samples/Duplicate Laboratory Control Samples

Laboratory control/duplicate laboratory control samples (LCS/DLCS) were processed during the laboratory analysis of PCB Congeners. The LCS/DLCS recoveries and relative percent differences were within the laboratory control limits.

Other

Some PCB congener results are qualified with an "I" due to interfering substances that affected the isotope ratios. Where interference occurred and the laboratory could not provide a quantitative result, Pace reports the PCB congener result as the estimated maximum possible concentration (EMPC).

WPCL reports that a complex mixture of PCB Aroclors was detected and that the best pattern matches Aroclors 1248 and 1260 but that the sample may also contain some 1242, 1254, and/or 1262.

GSI WATER SOLUTIONS, INC.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services



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City of Portland Water Pollution Control Laboratory

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095407

Sample Collected: 03/26/09 Sample Received: 03/26/09 09:35

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Report Page:

Page 1 of 1

Address/Location:

IL-44-ABC348-CBtoSouth-0309 N LORING & HARDING

System ID:

AN03490

Sample Point Code:

44_12

EID File #:

1020.001

Sample Type:

COMPOSITE

LocCode:

PORTHARI

Sample Matrix:

SEDIMENT

Collected By: MJS/PHA/PTB

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Analysis for PCB Aroclors detected a complex mixture. Quantitation was based on the best pattern matches (Aroclors 1248 and 1260) but the sample may also contain some 1242, 1254, and/or 1262.

T(B		11-:4-	MOI	Bastical	Analysis Date
Test Parameter	Result	Units	MRL	Method	Date
GENERAL					
TOTAL SOLIDS	80.8	% W/W	0.01	SM 2540 G	04/09/09
GC ANALYSIS				•	
POLYCHLORINATED BIPHENYLS (PCB)		•		
Aroclor 1016/1242	·	μg/Kg dry wt	50	EPA 8082	04/08/09
Aroclor 1221	<100	μ g/Kg dry wt	100	EPA 8082	04/08/09
Aroclor 1232	<50	μg/Kg dry wt	50	EPA 8082	04/08/09
Aroclor 1248	372	μg/Kg dry wt	50	EPA 8082	04/08/09
Aroclor 1254	<50	μ g/Kg dry wt	50	EPA 8082	04/08/09
Aroclor 1260	423	μg/Kg dry wt	50	EPA 8082	04/08/09
Aroclor 1262	<50	μg/Kg dry wt	50	EPA 8082	04/08/09
Aroclor 1268	<50	μ g/Kg dry wt	50	EPA 8082	04/08/09
OUTSIDE ANALYSIS	1				
POLYCHLORINATED BIPHENYL CO	ONGENERS -PACE				
Refer to Contract Report	COMPLETED	ng/Kg dry wt		EPA 1668 MOD	04/29/09

End of Report for Sample ID: FO095407

Report Date: 04/30/09

Validated By:



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

Report Prepared for:

Howard Holmes Test America 9405 SW Nimbus Avenue Beaverton OR 97008

> REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 1092151

Sample Receipt Date: 04/01/2009

Client Project #: PSC0839

Client Sub PO #: N/A

State Cert #: MN200001-005

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed and prepared by:

got C. Muye

Scott Unze, Project Manager (612) 607-6383

(612) 607-6444 (fax) scott.unze@pacelabs.com



Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

April 16, 2009



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on one sample submitted by a representative of Test America - Portland. The sample was analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 25-75 parts-per-trillion and were adjusted for sample weight. The sample was received within the temperature range specified in the method.

All of the labeled internal standards for this project were recovered within the acceptable ranges for Method 1668A. Since the quantification of the native PCB congeners was based on internal standards/isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

In some cases, interfering substances impacted the determinations of PCB congeners; the affected values were flagged "I" where incorrect isotope ratios were obtained. Also, one value reported for the field sample was obtained from a separate analysis of the sample extract; the affected value was flagged "N2" on the results table.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of contaminants at the reporting limits.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native congeners in the lab spikes were recovered at 82-108% with relative percent differences of 0-8.3%. These results indicate high degrees of accuracy and precision for these congeners. Matrix spikes were not prepared with the sample set.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Appendix A

Sample Management

TestAmerica Portland PSC0839

109.2151

SENDING LABORATORY:

TestAmerica Portland 9405 SW Nimbus Ave. Beaverton, OR 97008 Phone: (503) 906-9200

Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone :(612) 607-1700

Fax: (612) 607-6444

Project Location: OR - OREGON

Receipt Temperature: 4,2 °C

Ice; $(\hat{Y})/N$

needs Excel EDD

Analysis

Units

Due

Expires

Comments

Sample ID: PSC0839-01

Other dry

Sampled: 03/26/09 09:35

container A returned to client 3/31/09

19 (201

Dalida Davida

1668 Coplanar PCBs - SUB ug/l

04/09/09 09/22/09 09:35

209 Congeners to Pace

Solids, Dry Weight

% by Weight

04/02/09

04/23/09 09:35

Containers Supplied:

4 oz. jar (B)

Coff IDS FO 095407

Mmana Ealle Released By

<u>3/8//09</u> /404 Date/Time

Received By

F T= 4.7c° Pacclabs 41169 0930

Sample Colidation Upon Receipt

, Pace Analytical Client I	Name: Ist America	Project # 1092 ₁₅
Courler: Fed Ex UPS USPS Tracking #: 9796-8712-295	☐ Client ☐ Commercial ☐ Pace	The state of the s
	☑yes ☐ no Seals infact: ↓	Zwa Carrie Proj. Name.
Packing Material: 🔲 Bubble Wrap 🛮 🗸		Z] yes [] no
Thermometer Used — 80044092, 179425	/#/ DT. 109	The state of the s
Cooler Temperature 4.2 Temp should be above freezing to 6°C	Type of Ice: Line No. Biological Tissue is Frozen:	Yes No Date and Initials of person examin
Chain of Custody Present:	Comments Ves DNo DNA 1.	-
Chain of Custody Filled Out:	Ayes One Ona 2.	THE ELECTRONIC ALL STREET, WHITE STREET, SECTION 524 DECEMBER 1935 FALL STREET, STREET
Chain of Custody Relinguished:	MYes Ono Ona 3.	ACCURATE THE PARTY OF THE PARTY
Sampler Name & Signature on COC:	Gyes ZNo Divia 4,	Committee California and a state of the stat
Samples Arrived within Hold Time:	Yes ONO ONA 5.	The could be supplied the supplied the supplied to the supplin
Short Hold Time Analysis (<72hr):	Dyes DNo DNA 6.	The state of the s
Rush Turn Around Time Requested:	☐Yes ØNo ☐NA 7.	Carried and and the second of
Sufficient Volume:	The state of the s	Anny COLAR South Color - State of the State
Correct Containers Used:	Dives DNo DNA 8	AND LONG TO THE RESIDENCE AND ADDRESS OF THE PROPERTY OF THE P
Pace Containers Used:	DYes DNO DNA 9.	
Containers Intact:	The state of the s	·····································
Fillered volume received for Dissolved tests	MYes □No □NA 10. □Yes □No □NA 11	and to compression the accompany to the second of the seco
Sample Labels match COC:	☐Yes ☐No ☐NVA 11.	The grant of the state of the s
Includes date/time/ID/Analysis Matrix	2) 45 1340 ENA 12.	
All containers needing acid/base preservation have been checked. Noncombilance are noted in 13.	Dyes Ono Ania 13.	The state of the s
All containers needing preservation are found to be in compliance with EPA recommendation.	DYES DNO KINA 13.	
Exceptions: VOA,Collform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☐No Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A 14.	The state of the s
Headspace in VOA Vials (>6mm):	□Yes □No ØN/A 15.	The same of the sa
Trip Blank Present:	DYes DNO DNIA 16.	and the same of th
Trip Blank Custody Seals Present	Dyes One DAIA	
Pace Trip Blank Lot # (If purchased):		
Client Notification/ Resolution:		
Person Contacted:	Date/Time:	Field Data Required? Y / N
Comments/ Resolution:	Defet 11119.	
Project Manager Review:	(D)	Date: 04/01/09

Note: Whenever there is a discrepancy effecting News Byplina compliance samples, a copy of this form will be sent to the North Carolina Derived 5 of 23 Certification Office Plant of the North Carolina Derived by the property of the containers.

Appendix B

Sample Analysis Summary



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID PSC0839-01 FO 095407
Lab Sample ID 1092151001
Filename U90408A_04
Injected By BAL
Total Amount Extracted 14.2 g

Total Amount Extracted14.2 gMatrixSolid% Moisture16.6Dilution5Dry Weight Extracted11.8 gCollected03/26/2009ICAL IDU90408A02Received04/01/2009

 CCal Filename(s)
 U90408A_01
 Extracted
 04/03/2009

 Method Blank ID
 BLANK-19501
 Analyzed
 04/08/2009 19:25

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	6.647	2.76	2.0	0.815	41
13C-4-MoCB	3	9.559	3.21	2.0	1.01	50
13C-2,2'-DiCB	4	9.870	1.77	2.0	1.16	58
13C-4,4'-DiCB	15	17.837	1.56	2.0	1.50	75
13C-2,2',6-TrCB	19	14.123	1.15	2.0	1.86	93
13C-3,4,4'-TrCB	37	26.390	1.08	2.0	1.32	66
13C-2,2',6,6'-TeCB	54	18.124	0.80	2.0	1.07	54
13C-3,4,4',5-TeCB	81	34.052	0.83	2.0	1.32	66
13C-3,3',4,4'-TeCB	77	34.673	0.79	2.0	1.23	62
13C-2,2',4,6,6'-PeCB	104	24.881	1.50	2.0	1.12	56
13C-2,3,3',4,4'-PeCB	105	38.462	1.56	2.0	0.970	48
13C-2,3,4,4',5-PeCB	114	37.774	1.54	2.0	0.922	46
13C-2,3',4,4',5-PeCB	118	37.221	1.55	2.0	1.07	53
13C-2,3',4,4',5'-PeCB	123	36.852	1.52	2.0	0.982	49
13C-3,3',4,4',5-PeCB	126	41.848	1.60	2.0	0.817	41
13C-2,2',4,4',6,6'-HxCB	155	31.437	1.28	2.0	1.33	67
13C-HxCB (156/157)	156/157	45.051	1.35	4.0	1.62	40
13C-2,3',4,4',5,5'-HxCB	167	43.844	1.24	2.0	0.831	42
13C-3,3',4,4',5,5'-HxCB	169	48.572	1.13	2.0	0.721	36
13C-2,2',3,4',5,6,6'-HpCB	188	37.724	1.10	2.0	2.60	130
13C-2,3,3',4,4',5,5'-HpCB	189	51.199	1.07	2.0	1.33	66
13C-2,2',3,3',5,5',6,6'-OcCB	202	43,492	0.98	2.0	2.19	110
13C-2,3,3',4,4',5,5',6-OcCB	205	53.893	0.92	2.0	1.15	57
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.703	0.75	2.0	1.15	58
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.574	0.89	2.0	1.56	78
13CDeCB	209	57.341	0.76	2.0	1.00	50
Cleanup Standards	00	04.040	4.00	0.0	4.00	00
13C-2,4,4'-TrCB	28	21.612	1.02	2.0	1.26	63
13C-2,3,3',5,5'-PeCB	111	34.756	1.53	2.0	1.27	64
13C-2,2',3,3',5,5',6-HpCB	178	41.044	1.07	2.0	1.32	66
Recovery Standards						
13C-2,5-DiCB	9	12.649	1.40	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	23.842	0.76	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.722	1.56	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.557	1.37	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.397	0.92	2.0	ŇA	NA
,_ ,0,0 , ., . ,0,0 3000		55.55.	0.02			

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

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Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0839-01 FO 095407 1092151001 U90408A_04

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1				ND		21.1
2				ND		21.1
2 3				ND		21.1
4		9.882	1.62	154		21.1
4 5 6				ND		21.1
6		13.213	1.40	86.7		21.1
7				ND		21.1
8		13.800	1.42	236		21.1
9				ND		21.1
10				ND		30.2
11		17.082	1.40	301		127
12	12/13	17.441	1.35	130		42.2
13	12/13	17.441	1.35	(130)		42.2
14				NĎ		21.1
15		17.849	1.49	2040		21.1
16		17.729	1.09	1650		21.1
17		17.178	1.09	1200		21.1
18	18/30	16.651	1.07	2400		42.2
19		14.159	1.03	236		21.1
20	20/28	21.645	1.00	8610		42.2
21	21/33	21.914	0.99	2440		42.2
22		22.383	1.01	4240		21.1
23				ND		21.1
24				ND		21.1
25	00/00	20.908	0.97	445		21.1
26	26/29	20.623	0.97	1000		42.2
27 28	20/20	17.454	1.11	257		21.1
28 29	20/28	21.645 20.623	1.00 0.97	(8610)		42.2 42.2
29 30	26/29 18/30	20.623 16.651	1.07	(1000) (2400)		42.2 42.2
31	16/30	21.293	1.07	5130		21.1
32		18.426	1.01	1170		21.1
33	21/33	21.914	0.99	(2440)		42.2
34	21/33	20.086	1.15	21.7		21.1
35		25.954	0.94	393		21.1
36		24.395	1.18	90.1		21.1
37		26.407	1.01	7480		21.1
38		25.401	1.08	30.2		21.1
39		24.747	0.85 I		53.2	21.1
40	40/41/71	26.155	0.78	11000		127
41	40/41/71	26.155	0.78	(11000)		127
42	10, 11, 1	25.602	0.79	4330		42.2
43		24.143	0.67	292		42.2
44	44/47/65	24.999	0.81	12800		127
45	45/51	21.696	0.80	1940		84.4
46	·	22.048	0.79	747		42.2
47	44/47/65	24.999	0.81	(12800)		127
48		24.730	0.71	2600		42.2

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EMPC = Estimated Maximum Possible Concentration

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P = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
RT = Retention Time
I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0839-01 FO 095407 1092151001 U90408A_04

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	24.428	0.79	6810		84.4
				1220		
50	50/53	20.908	0.78			84.4
51	45/51	21.696	0.80	(1940)		84.4
52	E0/E0	23.858	0.79	12400		42.2
53	50/53	20.908	0.78	(1220)		84.4
54				` NĎ		42.2
55		29.961	0.77	335		42.2
56		30.515	0.76	11400		42.2
57		28.268	0.74	183		42.2
58		28.587	0.73	128		42.2
59	59/62/75	25.384	0.77	1370		127
60		30.749	0.75	5240		42.2
61	61/70/74/76	29.425	0.75	30400		169
62	59/62/75	25.384	0.77	(1370)		127
63		29.039	0.74	` 525		42.2
64		26.440	0.80	6760		42.2
65	44/47/65	24.999	0.81	(12800)		127
66	,,	29.794	0.76	17800		42.2
67		28.754	0.78	491		42.2
68		27.832	0.69	42.5		42.2
69	49/69	24.428	0.79	(6810)		84.4
70	61/70/74/76	29.425	0.75	(30400)		169
71	40/41/71	26.155	0.78	(11000)		127
72	40/41/71	27.514	0.78	66.0		42.2
73		27.514	0.07	ND		42.2 42.2
73 74	64/70/74/76					169
	61/70/74/76	29.425	0.75	(30400)		
75 70	59/62/75	25.384	0.77	(1370)		127
76	61/70/74/76	29.425	0.75	(30400)		169
77		34.689	0.77	4890		42.2
78		33.633	0.69	128		42.2
79		32.929	0.78	589		42.2
80				ND		42.2
81		34.069	0.64 I		237	42.2
82		34.203	1.62	6090		42.2
83		32.242	1.56	3510		42.2
84		29.576	1.58	7220		42.2
85	85/116/117	33.717	1.56	12900		127
86	86/87/97/108/119/125	32.979	1.57	29700		253
87	86/87/97/108/119/125	32.979	1.57	(29700)		253
88	88/91	29.375	1.59	` 465Ó		84.4
89		30.112	1.53	437		42.2
90	90/101/113	31.755	1.59	41400		127
91	88/91	29.375	1.59	(4650)		84.4
92		31.101	1.59	`601Ó		42.2
93	93/98/100/102	28.788	1.67	1010		169
94	· · · · · · · · · · · · · · · · · · ·	27.882	1.55	125		42.2
95		28.385	1.57	24200		42.2
96		25.300	1.65	162		42.2

Conc = Concentration

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Results reported on a dry weight basis

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NA = Not Applicable
NC = Not Calculated
*= See Discussion
! = Outside QC Limits
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I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSC0839-01 FO 095407 Lab Sample ID 1092151001 Filename U90408A_04

	•					
IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	32.979	1.57	(29700)		253
98	93/98/100/102	28.788	1.67	(1010)		169
99	93/96/100/102	32.392	1.59	15900		42.2
100	93/98/100/102	28.788	1.67	(1010)		169
101		31.755	1.57	(41400)		127
101	90/101/113 93/98/100/102	28.788	1.67			169
	93/96/100/102		1.07	(1010)		
103		27.664	1.60	105		42.2
104			 4 54	ND		42.2
105		38.479	1.51	21000		42.2
106	407/404			ND		42.2
107	107/124	36.500	1.53	2260		84.4
108	86/87/97/108/119/125	32.979	1.57	(29700)		253
109		36.768	1.54	2660		42.2
110	110/115	33.901	1.58	58200		84.4
111				ND		42.2
112				ND		42.2
113	90/101/113	31.755	1.59	(41400)		127
114		37.791	1.59	927		42.2
115	110/115	33.901	1.58	(58200)		84.4
116	85/116/117	33.717	1.56	(12900)		127
117	85/116/117	33.717	1.56	(12900)		127
118		37.255	1.53	`4040Ó		42.2
119	86/87/97/108/119/125	32.979	1.57	(29700)		253
120				` NĎ		42.2
121				ND		42.2
122		37.573	1.46	810		42.2
123		36.886	1.60	737		42.2
124	107/124	36.500	1.53	(2260)		84.4
125	86/87/97/108/119/125	32.979	1.57	(29700)		253
126	30/01/01/100/110/120	41.882	1.59	1330		42.2
127		40.138	1.74	268		42.2
128	128/166	41.899	1.27	15000		84.4
129	129/138/163	40.591	1.27	107000		127
130	129/130/103	39.887	1.24	5780		42.2
131		36.785	1.23	901		42.2
132		37.271	1.30	32500		42.2
133		37.271	1.24	1030		42.2 42.2
	124/142	37.900	1.24	1030		
134	134/143	36.131	1.23	3600		84.4 84.4
135	135/151	34.941	1.27	31500		
136		32.191	1.26	10400		42.2
137	400/400/400	40.122	1.29	4120		42.2
138	129/138/163	40.591	1.27	(107000)		127
139	139/140	36.584	1.30	1140		84.4
140	139/140	36.584	1.30	(1140)		84.4
141		39.468	1.27	17600		42.2
142				ND		42.2
143	134/143	36.131	1.23	(3600)		84.4
144		35.494	1.25	2980 N2		42.2

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0839-01 FO 095407 1092151001 U90408A_04

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145				ND		42.2
146		38.613	1.28	12700		42.2
147	147/149	35.947	1.28	75800		84.4
148	17/173			ND		42.2
149	147/149	35.947	1.28	(75800)		84.4
150	147/149	31.839	1.26	73.5		42.2
	135/151	34.941	1.20	/3.5 (31500)		42.2 84.4
151	135/151			(31500)		
152	450/400		4.00	ND		42.2
153	153/168	39.266	1.29	88500		84.4
154		35.276	1.29	219		42.2
155				ND		42.2
156	156/157	45.051	1.22	9740		84.4
157	156/157	45.051	1.22	(9740)		84.4
158		41.010	1.26	9390		42.2
159		43.039	0.60 I		95.6	42.2
160				ND		42.2
161				ND		42.2
162		43.358	1.19	695		42.2
163	129/138/163	40.591	1.27	(107000)		127
164		40.256	1.25	6070		42.2
165				ND		42.2
166	128/166	41.899	1.27	(15000)		84.4
167		43.877	1.15	` 315Ó		42.2
168	153/168	39.266	1.29	(88500)		84.4
169		48.589	1.54 I		238	42.2
170		47.851	1.05	25700		42.2
171	171/173	44.062	1.06	7750		84.4
172	,	45.856	1.09	4340		42.2
173	171/173	44.062	1.06	(7750)		84.4
174	17 17 17 0	42.922	1.05	31800		42.2
175		41.748	1.04	1170		42.2
176		39.032	1.05	3620		42.2
177		43.391	1.05	16900		42.2
178		41.077	1.05	5710		42.2
179		38.076	1.04	12200		42.2
180	180/193	46.543	1.05	63200		84.4
181	100/193	43.877	1.03	333		42.2
182		43.077	1.02	ND		42.2 42.2
183	183/185	42.704	1.04	20600		42.2 84.4
	103/105					
184	400/405	40.704	4.04	ND (00000)		42.2
185	183/185	42.704	1.04	(20600)		84.4
186				ND		42.2
187		42.050	1.03	36300		42.2
188				ND		42.2
189		51.221	1.01	764		42.2
190		48.421	1.06	4430		42.2
191		46.912	1.03	984		42.2
192				ND		42.2

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0839-01 FO 095407 1092151001 U90408A_04

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	46.543	1.05	(63200)		84.4
194		53.419	0.89	[•] 9160		63.3
195		50.876	0.88	4060		63.3
196		49.293	0.88	6500		63.3
197	197/200	45.537	0.90	2180		127
198	198/199	48.605	0.89	14000		127
199	198/199	48.605	0.89	(14000)		127
200	197/200	45.537	0.90	`(2180)́		127
201		44.498	0.88	`182Ó		63.3
202		43.508	0.87	1960		63.3
203		49.511	0.87	7640		63.3
204				ND		63.3
205		53.936	0.84	531		63.3
206		55.725	0.75	2430		63.3
207		51.587	0.77	362		63.3
208		50.617	0.77	459		63.3
209		57.362	0.76	221		63.3

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EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated *= See Discussion ! = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSC0839-01 FO 095407 1092151001 U90408A_04

Congener Group	Concentration ng/Kg	
Congener Group	ng/kg	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	2950	
Total Trichloro Biphenyls	36800	
Total Tetrachloro Biphenyls	134000	
Total Pentachloro Biphenyls	282000	
Total Hexachloro Biphenyls	440000	
Total Heptachloro Biphenyls	236000	
Total Octachloro Biphenyls	47900	
Total Nonachloro Biphenyls	3250	
Decachloro Biphenyls	221	
Total PCBs	1180000	

ND = Not Detected
Results reported on a dry weight basis



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID **BLANK-19501** Filename U90409A 07 Injected By SMT Total Amount Extracted 10.6 g U90409A02 **ICAL ID**

Matrix Solid Extracted 04/03/2009 Analyzed 04/09/2009 15:57

CCal Filename(s) U90409A 01 Dilution **PCB** Isomer **IUPAC** RT Ratio ng's Added ng's Found % Recovery Labeled Analytes 13C-2-MoCB 6.6353.60 2.0 1.07 53 13C-4-MoCB 3 9.582 3.20 2.0 62 1.23 4 2.0 73 13C-2,2'-DiCB 9.906 1.54 1.47 13C-4,4'-DiCB 15 17.801 2.0 76 1.57 1.51 13C-2,2',6-TrCB 19 14.159 1.03 2.0 1.46 73 13C-3,4,4'-TrCB 37 26.340 2.0 86 1.06 1.72 13C-2,2',6,6'-TeCB 62 54 18.091 0.79 2.0 1.24 13C-3,4,4',5-TeCB 81 34.035 0.77 2.0 1.65 83 13C-3,3',4,4'-TeCB 84 77 34.655 0.78 2.0 1.68 13C-2,2',4,6,6'-PeCB 104 24.847 2.0 1.50 75 1.61 13C-2,3,3',4,4'-PeCB 105 38.428 2.0 66 1.61 1.33 13C-2,3,4,4',5-PeCB 2.0 66 114 37.741 1.57 1.33 13C-2,3',4,4',5-PeCB 37.204 118 2.0 66 1.56 1.31 1.33 13C-2,3',4,4',5'-PeCB 123 36.835 1.54 2.0 66 13C-3,3',4,4',5-PeCB 126 41.815 1.47 2.0 1.30 65 13C-2,2',4,4',6,6'-HxCB 92 155 31.420 1.27 2.0 1.84 1.22 75 13C-HxCB (156/157) 44.984 156/157 4.0 2.99 13C-2,3',4,4',5,5'-HxĆB 167 43.793 1.25 2.0 1.51 76 13C-3,3',4,4',5,5'-HxCB 48.454 1.22 2.0 1.47 74 169 13C-2,2',3,4',5,6,6'-HpCB 37.707 2.0 2.22 111 188 1.04 13C-2,3,3',4,4',5,5'-HpCB 189 51.070 1.00 2.0 1.72 86 88.0 2.0 103 13C-2,2',3,3',5,5',6,6'-OcCB 202 43.458 2.06 205 0.90 2.0 13C-2,3,3',4,4',5,5',6-OcCB 53.742 1.55 77 13C-2,2',3,3',4,4',5,5',6-NoCB 206 55.531 0.79 2.0 1.56 78 13C-2,2',3,3',4,5,5',6,6'-NoCB 208 50.488 0.78 2.0 1.83 91 13C--DeCB 2.0 79 209 57.169 0.69 1.59 Cleanup Standards 13C-2,4,4'-TrCB 28 0.97 81 21.578 2.0 1.62 13C-2,3,3',5,5'-PeCB 34.756 1.56 2.0 1.65 83 111 13C-2,2',3,3',5,5',6-HpCB 178 41.027 1.04 2.0 1.92 96 Recovery Standards 13C-2,5-DiCB 9 12.865 1.50 2.0 NA NA 13C-2,2',5,5'-TeCB 52 23.791 0.80 2.0 NA NA 13C-2,2',4,5,5'-PeCB 101 31.704 1.57 2.0 NA NA 13C-2,2',3,4,4',5'-HxCB 138 40.524 2.0 NA 1.28 NA 13C-2,2',3,3',4,4',5,5'-OcCB 194 53.225 0.94 2.0 NA NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

Results reported on a total weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion ! = Outside QC Limits

RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19501 U90409A 07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1				ND		23.7
2				ND		23.7
3				ND		23.7
4				ND		23.7
4 5 6 7				ND		23.7
6				ND		23.7
7				ND		23.7
8				ND		23.7
9				ND		23.7
10				ND		23.7
11				ND		142
12	12/13			ND		47.4
13	12/13			ND		47.4
14	.2, .0			ND		23.7
15				ND		23.7
16				ND		23.7
17				ND		23.7
18	18/30			ND		47.4
19	10/00			ND		23.7
20	20/28			ND		47.4
21	21/33			ND		47.4
22	21/00			ND		23.7
23				ND		23.7
24				ND		23.7
25				ND		23.7
26	26/29			ND		47.4
27	_0/_0			ND		23.7
28	20/28			ND		47.4
29	26/29			ND		47.4
30	18/30			ND		47.4
31	10/00			ND		23.7
32				ND		23.7
33	21/33			ND		47.4
34	21/00			ND		23.7
34 35				ND		23.7
36				ND		23.7
36 37				ND		23.7
38				ND		23.7
39				ND		23.7
40	40/41/71			ND		142
41	40/41/71			ND		142
42	.0/ 11/11			ND		47.4
43				ND		47.4
44	44/47/65			ND		142
45	45/51			ND		94.8

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19501 U90409A 07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46				ND		47.4
47	44/47/65			ND		142
48	11/11/00			ND		47.4
49	49/69			ND		94.8
50	50/53			ND		94.8
51	45/51			ND		94.8
52				ND		47.4
53	50/53			ND		94.8
54				ND		47.4
55				ND		47.4
56				ND		47.4
57				ND		47.4
58				ND		47.4
59	59/62/75			ND		142
60				ND		47.4
61	61/70/74/76			ND		190
62	59/62/75			ND		142
63				ND		47.4
64				ND		47.4
65	44/47/65			ND		142
66				ND		47.4
67				ND		47.4
68				ND		47.4
69	49/69			ND		94.8
70	61/70/74/76			ND		190
71	40/41/71			ND		142
72				ND		47.4
73	04/70/74/70			ND		47.4
74	61/70/74/76			ND		190
75	59/62/75			ND		142
76 77	61/70/74/76			ND		190
77 70				ND		47.4
78 70				ND		47.4
79 90				ND ND		47.4 47.4
80 81				ND ND		47.4 47.4
82				ND ND		47.4 47.4
83				ND ND		47.4 47.4
84				ND ND		47.4 47.4
85	85/116/117			ND ND		142
86	86/87/97/108/119/125			ND ND		284
87	86/87/97/108/119/125			ND ND		284
88	88/91			ND ND		94.8
89	00/01			ND		47.4
90	90/101/113			ND		142

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time I = Interference

Page 16 of 23



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19501 U90409A 07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
		111	Natio		ngng	
91	88/91			ND		94.8
92				ND		47.4
93	93/98/100/102			ND		190
94				ND		47.4
95				ND		47.4
96				ND		47.4
97	86/87/97/108/119/125			ND		284
98	93/98/100/102			ND		190
99				ND		47.4
100	93/98/100/102			ND		190
101	90/101/113			ND		142
102	93/98/100/102			ND		190
103				ND		47.4
104				ND		47.4
105				ND		47.4
106				ND		47.4
107	107/124			ND		94.8
108	86/87/97/108/119/125			ND		284
109				ND		47.4
110	110/115			ND		94.8
111				ND		47.4
112				ND		47.4
113	90/101/113			ND		142
114				ND		47.4
115	110/115			ND		94.8
116	85/116/117			ND		142
117	85/116/117			ND		142
118				ND		47.4
119	86/87/97/108/119/125			ND		284
120	00/01/01/100/110/120			ND		47.4
121				ND		47.4
122				ND		47.4
123				ND		47.4
124	107/124			ND		94.8
125	86/87/97/108/119/125			ND		284
126	00/07/07/100/110/120			ND		47.4
127				ND		47.4
128	128/166			ND ND		94.8
129	129/138/163			ND ND		142
130	120/100/100			ND ND		47.4
131				ND ND		47.4 47.4
132				ND ND		47.4 47.4
133				ND ND		47.4 47.4
134	134/143			ND ND		47.4 94.8
135	135/151			ND ND		94.8 94.8
133	133/131			חאו		94.0

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19501 U90409A 07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
136				ND		47.4
137				ND ND		47.4
138	129/138/163			ND ND		142
139	139/140			ND		94.8
140	139/140			ND		94.8
141	100/140			ND		47.4
142				ND		47.4
143	134/143			ND		94.8
144				ND		47.4
145				ND		47.4
146				ND		47.4
147	147/149			ND		94.8
148	,			ND		47.4
149	147/149			ND		94.8
150	,			ND		47.4
151	135/151			ND		94.8
152	100, 101			ND		47.4
153	153/168			ND		94.8
154	100/100			ND		47.4
155				ND		47.4
156	156/157			ND		94.8
157	156/157			ND		94.8
158				ND		47.4
159				ND		47.4
160				ND		47.4
161				ND		47.4
162				ND		47.4
163	129/138/163			ND		142
164	,,			ND		47.4
165				ND		47.4
166	128/166			ND		94.8
167				ND		47.4
168	153/168			ND		94.8
169				ND		47.4
170				ND		47.4
171	171/173			ND		94.8
172				ND		47.4
173	171/173			ND		94.8
174				ND		47.4
175				ND		47.4
176				ND		47.4
177				ND		47.4
178				ND		47.4
179				ND		47.4
180	180/193			ND		94.8

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-19501 U90409A 07

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/Kg	ng/Kg	ng/Kg
181				ND		47.4
182				ND		47.4
183	183/185			ND		94.8
184				ND		47.4
185	183/185			ND		94.8
186				ND		47.4
187				ND		47.4
188				ND		47.4
189				ND		47.4
190				ND		47.4
191				ND		47.4
192				ND		47.4
193	180/193			ND		94.8
194				ND		71.1
195				ND		71.1
196				ND		71.1
197	197/200			ND		142
198	198/199			ND		142
199	198/199			ND		142
200	197/200			ND		142
201				ND		71.1
202				ND		71.1
203				ND		71.1
204				ND		71.1
205				ND		71.1
206				ND		71.1
207				ND		71.1
208				ND		71.1
209				ND		71.1

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

P = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated *! = See Discussion ! = Outside QC Limits RT = Retention Time I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename DFBLKNA BLANK-19501 U90409A_07

Congener Group	Concentration ng/Kg	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected
Results reported on a total weight basis



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename Total Amount Extracted

Total Amount Extracted ICAL ID

CCal Filename(s) Method Blank ID U90409A_03 10.1 g U90409A02 U90409A_01 BLANK-19501

LCS-19502

Matrix Solid
Dilution NA

Extracted 04/03/2009 Analyzed 04/09/2009 11:41

Injected By SMT

	N	lative Analyt	tes	Lat	peled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	0.968	97	2.0	1.13	56
3	1.0	0.919	92	2.0	1.28	64
4	1.0	1.00	100	2.0	1.51	75
15	1.0	1.07	107	2.0	1.50	75
19	1.0	0.975	97	2.0	1.53	77
37	1.0	1.00	100	2.0	1.70	85
54	1.0	0.914	91	2.0	1.32	66
81	1.0	0.924	92	2.0	1.68	84
77	1.0	0.926	93	2.0	1.66	83
104	1.0	0.927	93	2.0	1.61	81
105	1.0	0.952	95	2.0	1.42	71
114	1.0	0.975	97	2.0	1.35	67
118	1.0	1.02	102	2.0	1.37	69
123	1.0	0.942	94	2.0	1.37	69
126	1.0	0.851	85	2.0	1.36	68
155	1.0	0.933	93	2.0	1.96	98
156/157	2.0	1.87	93	4.0	2.95	74
167	1.0	0.899	90	2.0	1.54	77
169	1.0	0.910	91	2.0	1.39	70
188	1.0	0.957	96	2.0	2.31	116
189	1.0	0.875	87	2.0	1.76	88
202	1.0	0.965	96	2.0	2.21	111
205	1.0	0.903	90	2.0	1.61	81
206	1.0	0.913	91	2.0	1.63	82
208	1.0	0.934	93	2.0	1.81	90
209	1.0	0.877	88	2.0	1.69	85

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms I = Interference

Nn = Result obtained from alternate analysis



Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID LCSD-19503 U90409A_04 10.3 g U90409A02 U90409A_01

BLANK-19501

Matrix Dilution Solid NA

Extracted 04/03/2009 Analyzed 04/09/2009 12:45

Injected By SMT

	ı	Native Analy	tes	Lal	beled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	0.982	98	2.0	1.12	56
3	1.0	0.998	100	2.0	1.24	62
4	1.0	1.04	104	2.0	1.48	74
15	1.0	1.08	108	2.0	1.45	72
19	1.0	0.923	92	2.0	1.56	78
37	1.0	1.01	101	2.0	1.62	81
54	1.0	0.957	96	2.0	1.28	64
81	1.0	0.898	90	2.0	1.49	74
77	1.0	0.922	92	2.0	1.51	76
104	1.0	0.937	94	2.0	1.72	86
105	1.0	0.937	94	2.0	1.35	68
114	1.0	0.945	95	2.0	1.34	67
118	1.0	1.01	101	2.0	1.38	69
123	1.0	0.913	91	2.0	1.33	66
126	1.0	0.818	82	2.0	1.34	67
155	1.0	0.942	94	2.0	2.00	100
156/157	2.0	1.85	93	4.0	2.99	75
167	1.0	0.871	87	2.0	1.51	75
169	1.0	0.900	90	2.0	1.44	72
188	1.0	0.961	96	2.0	2.17	108
189	1.0	0.851	85	2.0	1.66	83
202	1.0	0.953	95	2.0	2.05	103
205	1.0	0.886	89	2.0	1.52	76
206	1.0	0.922	92	2.0	1.60	80
208	1.0	0.922	92	2.0	1.88	94
209	1.0	0.857	86	2.0	1.65	83

P = Recovery outside of method 1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

! = See Discussion

ng = Nanograms I = Interference

Nn = Result obtained from alternate analysis



Method 1668A Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

 Spike 1 ID
 LCS-19502
 Spike 2 ID
 LCSD-19503

 Spike 1 Filename
 U90409A_03
 Spike 2 Filename
 U90409A_04

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD	
2-MoCB	1	97	98	1.0	
4-MoCB	3	92	100	8.3	
2,2'-DiCB	4	100	104	3.9	
4,4'-DiCB	15	107	108	0.9	
2,2',6-TrCB	19	97	92	5.3	
3,4,4'-TrCB	37	100	101	1.0	
2,2',6,6'-TeCB	54	91	96	5.3	
3,3',4,4'-TeCB	77	93	92	1.1	
3,4,4',5-TeCB	81	92	90	2.2	
2,2',4,6,6'-PeCB	104	93	94	1.1	
2,3,3',4,4'-PeCB	105	95	94	1.1	
2,3,4,4',5-PeCB	114	97	95	2.1	
2,3',4,4',5-PeCB	118	102	101	1.0	
2,3',4,4',5'-PeCB	123	94	91	3.2	
3,3',4,4',5-PeCB	126	85	82	3.6	
2,2',4,4',6,6'-HxCB	155	93	94	1.1	
(156/157)	156/157	93	93	0.0	
2,3',4,4',5,5'-HxCB	167	90	87	3.4	
3,3',4,4',5,5'-HxCB	169	91	90	1.1	
2,2',3,4',5,6,6'-HpCB	188	96	96	0.0	
2,3,3',4,4',5,5'-HpCB	189	87	85	2.3	
2,2',3,3',5,5',6,6'-OcCB	202	96	95	1.0	
2,3,3',4,4',5,5',6-OcCB	205	90	89	1.1	
2,2',3,3',4,4',5,5',6-NoCB	206	91	92	1.1	
2,2',3,3',4,5,5',6,6'-NoCB	208	93	92	1.1	
Decachlorobiphenyl	209	88	86	2.3	

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value

April 7 – 8, 2009: Inline Solids Grab Sampling



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.qsiwatersolutions.com

Laboratory Data QA/QC Review Upland Source Control Investigation Outfall Basins 44 and 44A (April 7 and 8, 2009)

To: File

From: Julia Fowler, GSI

Date: May 29, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses conducted by the City of Portland (City) on April 7 and 8, 2009. The City collected ten inline solids samples in Outfall Basin 44 and two inline solids samples in Outfall Basin 44A and submitted the samples for analysis.

The laboratory analyses for this solids sample was completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

- BES WPCL
 - o Total Solids SM 2540G
 - o Metals EPA 6020
 - Diesel- and oil-range hydrocarbons Washington State Department of Ecology Method NWTPH-Dx
 - Polychlorinated Biphenyls (PCBs) as Aroclors EPA 8082
- Analytical Resources, Incorporated (ARI)
 - o Grain Size ASTM D421/422
- Columbia Analytical Services (CAS)
 - o Semivolatile Organic Compounds (SVOCs) EPA 8270C
 - Chlorinated Pesticides EPA 1699M (on two samples only FO096567 and FO095468)
- Test America (TA)

- o Polynuclear Aromatic Hydrocarbons (PAHs) and Phthalates EPA 8270M-SIM
- o Total Organic Carbon (TOC) EPA 9060 MOD

The WPCL summary report for all analyses associated with this stormwater sampling event and the subcontracted laboratory's data report are attached. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review is based on the available laboratory documentation and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within laboratory control limits
- Matrix spike and matrix spike duplicate results within laboratory control limits
- Laboratory control sample and duplicate laboratory control sample recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures appear to have been adequate indicating that sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the recommended method-specific holding times with the exception of the two samples analyzed for pesticides. The pesticide analyses were conducted approximately 3 weeks past the recommended holding time of 14 days.

Method Blanks

Method blanks were processed during the subcontracted laboratory analysis of SVOCs, PAHs phthalates, pesticides and TOC. Bis(2-ethylhexyl)phthalate (BEHP) was detected in the method blank at a concentration between the method detection limit (MDL) and the method reporting limit (MRL). Because BEHP concentrations detected in the field samples were greater than 10 times the method blank detection, the sample data are not affected.

Hexachlorobenzene, 4,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDT and 4,4'-DDT were detected at concentrations between the MDL and the MRL. The sample results for these constituents should be considered slightly biased high. Methoxychlor was detected in the method blank at a concentration greater than the MRL. Sample results for these constituents are flagged "B" if the concentration is less than 10 times the method blank concentration and should be considered

biased high or false positives. If the sample results are greater than 10 times the blank concentrations, the data are not flagged.

Surrogate Recoveries

Surrogate recoveries were completed during the subcontracted laboratory analysis of SVOCs, PAHs, phthalates and pesticides. For the SVOC analyses, CAS reports that the control criteria for all surrogates in sample FO095470 and for surrogate Terphenyl-d14 in some samples are not applicable. The samples required dilution which resulted in surrogate concentrations below the reporting limits.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicates (MS/MSD) were processed during the laboratory analysis of TOC and SVOCs. The MS/MSD recoveries and relative percent difference (RPD) were within laboratory control limits.

Laboratory Control Samples/Duplicate Laboratory Control Samples

Laboratory control samples (LCS) were processed during the laboratory analysis of PAHs, phthalates, pesticides and TOC. The LCS recoveries were within the laboratory control limits. LCS and duplicate laboratory control samples were processed during the laboratory analysis of SVOCs. The LCS recoveries were within the laboratory control limits. CAS reports that the RPD criterion for 2,4-dimethylphenol was not applicable because the analyte concentration was not significantly greater than the MRL. Refer to the CAS report for further discussion.

The recovery of 2,4'-DDD during the pesticide analysis in the LCS was outside the control limits. CAS reports that, based on the method and historic data, the recoveries observed were in the range expected for this procedure, no further corrective action was taken.

Other

The method reporting limits (MRL) for all samples were significantly elevated during the EPA 8270C analyses and for the two samples analyzed for pesticides due to the presence of non-target background components.

WPCL reports that chlordane was detected at a significant concentration during the Aroclor analysis of sample FO095467. As a result, the MRLs for the Aroclors are raised due to interference from the pesticide contamination.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



Bureau of Environmental Services C TO TABLE

Date: 4/10/09

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				•	•	•	•	•	•	С	818	4/8/09	44_8	IL-44-NLORING-CBtoN-0409 N LORING & CLARK	FO095473
				•	•	•	•	•	•	C ·	752	4/8/09	44_7	IL-44-NLORING-CBtoS-0409 N LORING & CLARK	FO095472
				•	•	•	•	•	•	С	1348	4/7/09	44_6	IL-44-ABC261-0409 N LEWIS & RR TRACKS	F0095471
	Rode corrected 6/5/09-PHA	acode co		•	•	•	•	•	•	С	1311	4/7/09	44_4	IL-44-ABC259-CBtoN&,0409 N CLARK & RR TRACKS	FO095470
				•	•	•	•	•	•	C	1147	4/7/09	44_3	IL-44-ABC335-0409 N HARDING & RR TRACKS	FO095469
**************************************	7600.			•	•	•	•	•	•	С	948	4/7/09	44_2	IL-44-ABC345-0409 N RIVER & RANDOLPH	F0095468
			er.		•	•	•	•	•	С	848	4/7/09	44_1	IL-44-ABC343-0409 N LORING & RANDOLPH	FO095467
	9		Pb, Hg, I	Total Me	Total Sol Grain Siz	тос	NWTPH-	PAHs + I	PCB Arc	Sample Type	Sample Time	Sample Date	Point Code	Location	WPCL Sample I.D.
			Ni, Ag, Z						<u>-</u>			A the store	Per PH	10 20 20 248 - Per 544 - Oct 2001	* 10 095476- NO
	· .	,0	(n)					es (TA)		en Personal services		SIEAE	Ner Loss	OUTFALLS 44 (AIDINA RIVER LOSS) ALL SAMPLES WERE SIEVED BY #10 SIEVE	A
				Cu,	-									OUTENIO MAINING	
ents	Field Comments		Metals		General	Ge	Š	Organics							
	nalyses	Requested Analyses	Req		0					3	SEDIMENT	Matrix:);	File Number: 1020.001
2				204									NE S/	Project Name: PORTLAND HARBOR INLINE SAMP	Project Name: PORT

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services



Page: Date: <u>4/10/09</u> + e L

Collected By: JXB/MUS/PTB/

Project Name: PORTLAND HARBOR INLINE SAMP	AND HARBOR INL	INE SA	F											٠.															
File Number: 1020,001			Matrix:	SEDIMENT	甲							-			Z	ĕ	es	Requested Analyses		Se:	S								•
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	OUTFALL 44A (Albina River Lots)	River Lots)					A)	, ,				-	Cr. Cu.	,,				-							-				
ALL	ALL SAMPLES WERE SIEVED BY #10 SIEVE	D BY #10 9	SIEVE			- LL	ates (1						s. Cd.		, — . ,	,	·												
						clors	htha!	CAS))x ·		ids		********	-		-		- 9											
WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	PCB Aro	PAHs + F	SVOCs (NWTPH-I	TOC	Total Sol	Grain Siz	Total Met	Pb, Hg, I	, , ,														
FO095477	IL-44A-ADZ315-0409 CB ON NE RUSSELL ST	44A_1	4/8/09	1001	C	. •	•	•	•	•	•	•		•		-										ļ			
FO095478	IL-44A-NERODNEY-CBIONE-0409 NE RODNEY AT NE RUSSELL	44A_2	4/8/09	1036	င	•	•	•	•	•		•		•			<u> </u>	·											
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ignature: LordChul	7	Signature:			Time:				Signature:	иге:							Time:		Signature:	ture:						Time:			
Yea / Value Manual Manu	60/01/h	Printed Name:	٠		Date:				Printe	Printed Name:					.		Date:		Printe	Printed Name:	Ē	Ĭ				Date:	**		1

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City of Portland Water Pollution Control Laboratory

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Sample ID: **FO095467**

Sample Collected: 04/07/09 Sample Received: 04/10/09 08:48

Sample Status: COMPLETE AND

VALIDATED

Page 1 of 5

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC343-0409 #10 SIEVED

N LORING & RANDOLPH

Sample Point Code:

44_1

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #: AN04124

LocCode:

Report Page:

1020.001 PORTHARI

Collected By: JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chlordane-related components were slightly high. LAB: MRLs for the Aroclors are raised due to interferences from technical grade Chlordane.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL			,		
TOTAL SOLIDS	69.9	% W/W	0.01	SM 2540 G	04/13/09
METALS					
ARSENIC	2.78	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	0.79	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	78.5	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	44.2	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	83.4	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.034	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	50.0	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	420	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS NWTPH-Dx DIESEL RANGE HYDROCARBONS (C12-C24) OIL RANGE HYDROCARBONS (>C24)	<250 1240	mg/Kg dry wt mg/Kg dry wt	250 500	NWTPH-Dx NWTPH-Dx	04/16/09 04/16/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1221	<40	μg/Kg dry wt	40	EPA 8082	04/29/09
Aroclor 1232	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1248	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1254	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1260	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1262	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1268	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	29600	mg/Kg dry wt	100	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI	,			•	
Clay (<3.2 μm)	7.0	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 µm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μm)	10.3	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 µm)	10.1	Fract %	0.1	ASTM D421/422	04/15/09

Report Date: 06/01/09

Validated By



City of Portland Water Pollution Control Laboratory

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LABORATORY ANALYSIS REPORT

Sample ID: FO095467 Sample Collected: 04/07/09 08:48 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 2 of 5

Address/Location: IL-44-ABC343-0409 #10 SIEVED

N LORING & RANDOLPH

Sample Point Code: 44_1

System ID: AN04124

EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI

Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chlordane-related components were slightly high. LAB: MRLs for the Aroclors are raised due to interferences from technical grade Chlordane.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Fine Sand (425-250 µm)	12.7	Fract %	0.1	ASTM D421/422	04/15/09
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μm)	9.6	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 μm)	11.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 μm)	7.0	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 μm)	5.6	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 μm)	7.0	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	4.2	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 µm)	10.7	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 μ m)	4.2	Fract %	0.1	ASTM D421/422	04/15/09
PESTICIDES BY EPA 1699M HR/MS/MS - CAS		•			*
2,4'-DDD	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
2,4'-DDE	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
2,4'-DDT	0.51	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
4,4'-DDD	1.3	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
4,4'-DDE	1.5	µg/Kg dry wt	0.25	EPA 1699M	05/15/09
4,4'-DDT	2.8	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Aldrin	< 0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Alpha-BHC	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
Alpha-Chlordane	130	μ g/Kg dry wt	1.0	EPA 1699M	05/15/09
Beta-BHC	< 0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
Chlorpyrifos	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
cis-Nonachlor	24	μ g/Kg dry wt	1.0	EPA 1699M	05/15/09
Delta-BHC	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
Dieldrin	<2.5	μ g/Kg dry wt	2.5	EPA 1699M	05/15/09
Endosulfan I	<1.0	μ g/Kg dry wt	1.0	EPA 1699M	05/15/09
Endosulfan II	<0.50	μ g/Kg dry wt	0.50	EPA 1699M	05/15/09
Endosulfan Sulfate	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Endrin	<1.0	μ g/Kg dry wt	1.0	EPA 1699M	05/15/09
Endrin Aldehyde	< 0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Endrin Ketone	<0.50	μ g/Kg dry wt	0.50	EPA 1699M	05/15/09
Gamma-BHC(Lindane)	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
Gamma-Chlordane	170	μ g/Kg dry wt	1.0	EPA 1699M	05/15/09

Report Date: 06/01/09

Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: FO095467 Sample Collected: 04/07/09 08:48 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 3 of 5

Address/Location: IL-44-ABC343-0409 #10 SIEVED

N LORING & RANDOLPH

System ID: AN04124

Sample Point Code: 44_1

EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chlordane-related components were slightly high. LAB: MRLs for the Aroclors are raised due to interferences from technical grade Chlordane.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
Heptachlor	6.9	μ g/Kg dry wt	0.50	EPA 1699M	05/15/09
Heptachlor Epoxide	<0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Hexachlorobenzene	0.88	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Isodrin	<1.0	μg/Kg dry wt	1.0	EPA 1699M	05/15/09
Methoxychlor	0.39	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
Mirex	<0.50	μg/Kg dry wt	0.50	EPA 1699M	. 05/15/09
Octachlorostyrene	<0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Oxychlordane	<1.0	μg/Kg dry wt	1.0	EPA 1699M	05/15/09
trans-Nonachlor	81	μ g/Kg dry wt	1.0	EPA 1699M	05/15/09
POLYNUCLEAR AROMATICS & PHTH.	ALATES - TA				
Acenaphthene	<99.5	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Acenaphthylene	<99.5	μ g/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Anthracene	<99.5	μ g/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	<99.5	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	108	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	154	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	170	μ g/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	102	μ g/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	3270	μg/Kg dry wt	1990	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<1990	μg/Kg dry wt	1990	EPA8270M-SIM	04/17/09
Chrysene	197	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<99.5	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Diethyl phthalate	<1990	μ g/Kg dry wt	1990	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<1990	μg/Kg dry wt	1990	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<1990	μg/Kg dry wt	1990	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<1990	μ g/Kg dry wt	1990	EPA8270M-SIM	04/17/09
Fluoranthene	224	μ g/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Fluorene	<99.5	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Indeno(1,2,3-cd)pyrene	<99.5	μ g/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Naphthalene	<99.5	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Phenanthrene	120	μg/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
Pyrene	236	μ g/Kg dry wt	99.5	EPA8270M-SIM	04/17/09
	· ·				

SEMI-VOLATILE ORGANICS - CAS

Report Date: 06/01/09 Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: FO095467 Sample Collected: 04/07/09 08:48 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 4 of 5

Address/Location: IL-44-ABC343-0409 #10 SIEVED

N LORING & RANDOLPH

Sample Point Code: 44_1

System ID: AN04124

EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI

Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chlordane-related components were slightly high. LAB: MRLs for the Aroclors are raised due to interferences from technical grade Chlordane.

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,2,4-Trichlorobenzene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
1,2-Dichlorobenzene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
1,3-Dichlorobenzene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
1,4-Dichlorobenzene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<980	μg/Kg dry wt	980	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<4000	μg/Kg dry wt	4000	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2-Chloronaphthalene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2-Chlorophenol	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2-Methylphenol	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
2-Nitroaniline	<400	μg/Kg dry wt	400	EPA 8270 LV	04/16/09
2-Nitrophenol	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<2000	μ g/Kg dry wt	2000	EPA 8270 LV	04/16/09
3-Nitroaniline	<400	μg/Kg dry wt	400	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<2000	μg/Kg dry wt	2000	. EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
4-Chloroaniline	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
4-Methylphenol	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
4-Nitroaniline	<400	μg/Kg dry wt	400	EPA 8270 LV	04/16/09
4-Nitrophenol	<2000	μg/Kg dry wt	2000	EPA 8270 LV	04/16/09
Acenaphthene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Acenaphthylene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Anthracene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Benzo(a)anthracene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Benzo(a)pyrene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Benzo(b)fluoranthene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Benzo(g,h,i)perylene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09

Report Date: 06/01/09



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LABORATORY ANALYSIS REPORT

Sample ID: FO095467

Sample Collected: 04/07/09

08:48

Report Page:

Sample Status: COMPLETE AND

Sample Received: 04/10/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC343-0409 #10 SIEVED

N LORING & RANDOLPH

Sample Point Code:

44 1

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #: AN04124 1020.001

Page 5 of 5

LocCode:

PORTHARI

Collected By: JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chlordane-related components were slightly high. LAB: MRLs for the Aroclors are raised due to interferences from technical grade Chlordane.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzo(k)fluoranthene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Benzoic acid	<4000	μg/Kg dry wt	4000	EPA 8270 LV	04/16/09
Benzyl alcohol	<400	μg/Kg dry wt	400	EPA 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Bis(2-chloroethyl) ether	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Bis(2-ethylhexyl) phthalate	<2000	μg/Kg dry wt	2000	EPA 8270 LV	04/16/09
Butyl benzyl phthalate	260	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Chrysene	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Dibenzo(a,h)anthracene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Dibenzofuran	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Diethyl phthalate	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Dimethyl phthalate	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Di-n-butyl phthalate	<400	μ g/Kg dry wt	400	EPA 8270 LV	04/16/09
Di-n-octyl phthalate	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Fluoranthene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Fluorene	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Hexachlorobenzene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Hexachlorobutadiene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene	<980	μg/Kg dry wt	980	EPA 8270 LV	04/16/09
Hexachloroethane	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Isophorone	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Naphthalene	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Nitrobenzene	<200	µg/Kg dry wt ∘	200	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
N-Nitrosodiphenylamine	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09
Pentachlorophenol	<2000	μ g/Kg dry wt	2000	EPA 8270 LV	04/16/09
Phenanthrene	<200	μ g/Kg dry wt	200	EPA 8270 LV	04/16/09
Phenol	<590	μg/Kg dry wt	590	EPA 8270 LV	04/16/09
Pyrene	<200	μg/Kg dry wt	200	EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095467

Report Date: 06/01/09 Validated By:





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Sample ID: FO095468

Sample Collected: 04/07/09

09:48

Sample Status: COMPLETE AND

Sample Received: 04/10/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC345-0409 #10 SIEVED

N RIVER & RANDOLPH

Sample Point Code:

44_2

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID:

AN04125

EID File #: LocCode:

1020.001

Page 1 of 5

Report Page:

PORTHARI

Collected By: JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chlordane-related components were slightly high.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	77.4	% W/W	0.01	SM 2540 G	04/13/09
METALS					
ARSENIC	2.18	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	0.25	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	91.8	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	41.9	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	24.8	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.015	mg/Kg dry wt	0.010	EPA 6020	.04/22/09
NICKEL	81.2	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	135	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS					
NWTPH-Dx			*		
DIESEL RANGE HYDROCARBONS (C12-C24)	<250	mg/Kg dry wt	250	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	965	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μ g/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1254	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1260	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1268	<10	μg/Kg dry wt	1.0	EPA 8082	04/29/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	15200	mg/Kg dry wt	50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 μm)	4.3	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 μm)	0.2	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μ m)	17.3	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 μm)	12.2	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 μm)	11.2	Fract %	0.1	ASTM D421/422	04/15/09
;		la .	•		

Report Date: 06/01/09





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LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample ID: FO095468 Sample Collected: 04/07/09 09:48

VALIDATED Sample Received: 04/10/09

Report Page: Page 2 of 5 Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location: IL-44-ABC345-0409 #10 SIEVED

AN04125 N RIVER & RANDOLPH System ID: 1020.001

EID File #: 44_2 Sample Point Code: **PORTHARI** Sample Type: COMPOSITE LocCode: Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments: QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as

applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time

was past and LCS recoveries for the Chlordane-related components were slightly high.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μ m)	6.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 μ m)	7.4	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 µm)	2.8	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 µm)	4.3	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 μm)	10.0	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	2.8	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 μm)	17.1	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 μm)	4.3	Fract %	0.1	ASTM D421/422	04/15/09
PESTICIDES BY EPA 1699M HR/MS/MS - CAS					
2,4'-DDD	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
2,4'-DDE	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
2,4'-DDT	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
4,4'-DDD	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
4,4'-DDE	0.43	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
4,4'-DDT	0.98	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Aldrin	<0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Alpha-BHC	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Alpha-Chlordane	5.3	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
Beta-BHC	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Chlorpyrifos	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
cis-Nonachlor	1.1	μ g/Kg dry wt	1.0	EPA 1699M	05/15/09
Delta-BHC	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
Dieldrin	<2.5	μg/Kg dry wt	2.5	EPA 1699M	05/15/09
Endosulfan I	<1.0	µg/Kg dry wt	1.0	EPA 1699M	05/15/09
Endosulfan II	<0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Endosulfan Sulfate	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Endrin	<1.0	μg/Kg dry wt	1.0	EPA 1699M	05/15/09
Endrin Aldehyde	<0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Endrin Ketone	<0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Gamma-BHC(Lindane)	<0.25	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Gamma-Chlordane	6.9	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Heptachlor	< 0.50	μ g/Kg dry wt	0.50	EPA 1699M	05/15/09
Heptachlor Epoxide	<0.50	μ g/Kg dry wt	0.50	EPA 1699M	05/15/09

Report Date: 06/01/09 Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: FO095468 Sample Collected: 04/07/09 09:48 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 3 of 5

Address/Location: IL-44-ABC345-0409 #10 SIEVED

N RIVER & RANDOLPH

System ID: AN04125

Sample Point Code: 44_2

EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chlordane-related components were slightly high.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Hexachlorobenzene	0.52	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
Isodrin	<1.0	μ g/Kg dry wt	1.0	EPA 1699M	05/15/09
Methoxychlor	<0.25	μ g/Kg dry wt	0.25	EPA 1699M	05/15/09
Mirex	<0.50	μ g/Kg dry wt	0.50	EPA 1699M	05/15/09
Octachlorostyrene	<0.50	μg/Kg dry wt	0.50	EPA 1699M	05/15/09
Oxychlordane	<1.0	μg/Kg dry wt	1.0	EPA 1699M	05/15/09
trans-Nonachlor	3.3	μg/Kg dry wt	0.25	EPA 1699M	05/15/09
POLYNUCLEAR AROMATICS & PHTHA	ALATES - TA		•	•	
Acenaphthene	<87.8	μ g/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Acenaphthylene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Anthracene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	100	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	1850	μg/Kg dry wt	878	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<878	μg/Kg dry wt	878	EPA8270M-SIM	04/17/09
Chrysene	105	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Diethyl phthalate	<878	μg/Kg dry wt	878	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<878	μg/Kg dry wt	878	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<878	μg/Kg dry wt	878	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<878	μg/Kg dry wt	878	EPA8270M-SIM	04/17/09
Fluoranthene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Fluorene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Indeno(1,2,3-cd)pyrene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Naphthalene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Phenanthrene	<87.8	μg/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
Pyrene	124	μ g/Kg dry wt	87.8	EPA8270M-SIM	04/17/09
SEMI-VOLATILE ORGANICS - CAS	. •				
1,2,4-Trichlorobenzene	<170	µg/Kg dry wt	170	EPA 8270 LV	04/16/09
1,2-Dichlorobenzene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
1,3-Dichlorobenzene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09

Report Date: 06/01/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095468 Sample Collected: 04/07/09 09:48 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 4 of 5

Address/Location: IL-44-ABC345-0409 #10 SIEVED

N RIVER & RANDOLPH System ID: AN04125
Sample Point Code: 44_2 EID File #: 1020.001

Sample Type:COMPOSITELocCode:PORTHARISample Matrix:SEDIMENTCollected By:JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chlordane-related components were slightly high.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
1,4-Dichlorobenzene	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<820	μg/Kg dry wt	820	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<3300	μg/Kg dry wt	3300	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
2-Chloronaphthalene	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
2-Chlorophenol	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<170	μg/Kg dry wt	. 170	EPA 8270 LV	04/16/09
2-Methylphenol	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
2-Nitroaniline	<330	μg/Kg dry wt	330	EPA 8270 LV	04/16/09
2-Nitrophenol	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<1700	μg/Kg dry wt	1700	EPA 8270 LV	04/16/09
3-Nitroaniline	<330	μg/Kg dry wt	330	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<1700	μg/Kg dry wt	1700	EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
4-Chloroaniline	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
4-Methylphenol	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
4-Nitroaniline	<330	μg/Kg dry wt	330	EPA 8270 LV	04/16/09
4-Nitrophenol	<1700	μg/Kg dry wt	1700	EPA 8270 LV	04/16/09
Acenaphthene	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
Acenaphthylene	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
Anthracene	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
Benzo(a)anthracene	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
Benzo(a)pyrene	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09
Benzo(b)fluoranthene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Benzo(g,h,i)perylene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Benzo(k)fluoranthene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Benzoic acid	<3300	μg/Kg dry wt	3300	EPA 8270 LV	04/16/09
Benzyl alcohol	<330	μg/Kg dry wt	330	EPA 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<170	μ g/Kg dry wt	170	EPA 8270 LV	04/16/09

Report Date: 06/01/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095468 Sample Collected: 04/07/09 09:48 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 5 of 5

Address/Location: IL-44-ABC345-0409 #10 SIEVED

N RIVER & RANDOLPH

System ID: AN04125

Sample Point Code: 44_2

EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method

blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Results for Pesticides should be considered estimates; analysis was requested after the recommended holding time was past and LCS recoveries for the Chloridane related components were slightly high

was past and LCS recoveries for the Chlordane-related components were slightly high.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Bis(2-chloroethyl) ether	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Bis(2-ethylhexyl) phthalate	<1700	μg/Kg dry wt	1700	EPA 8270 LV	04/16/09
Butyl benzyl phthalate	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Chrysene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Dibenzo(a,h)anthracene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Dibenzofuran	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Diethyl phthalate	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Dimethyl phthalate	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Di-n-butyl phthalate	<330	μg/Kg dry wt	330	EPA 8270 LV	04/16/09
Di-n-octyl phthalate	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Fluoranthene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Fluorene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Hexachlorobenzene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Hexachlorobutadiene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene	<820	μg/Kg dry wt	820	EPA 8270 LV	04/16/09
Hexachloroethane	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Isophorone	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Naphthalene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Nitrobenzene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
N-Nitrosodiphenylamine	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Pentachlorophenol	<1700	μg/Kg dry wt	1700	EPA 8270 LV	04/16/09
Phenanthrene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09
Phenoi	<490	μg/Kg dry wt	49Ó	EPA 8270 LV	04/16/09
Pyrene	<170	μg/Kg dry wt	170	EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095468

Report Date: 06/01/09 Validated By:



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LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample ID: FO095469 Sample Collected: 04/07/09 11:47

Sample Received: 04/10/09

VALIDATED

Page 1 of 4 Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page:

Address/Location: IL-44-ABC335-0409 #10 SIEVED

> N HARDING & RR TRACKS System ID: AN04126 EID File #: 1020.001

Sample Point Code: 44_3 Sample Type: COMPOSITE LocCode: **PORTHARI** Sample Matrix: **SEDIMENT** Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL			,		
TOTAL SOLIDS	75.8	% W/W	0.01	SM 2540 G	04/13/09
METALS			٠		
ARSENIC	49.0	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	1.83	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	87.0	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	93.3	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	255	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.184	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	55.3	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	0.12	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	516	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS					
NWTPH-Dx					
DIESEL RANGE HYDROCARBONS (C12-C24)	<250	mg/Kg dry wt	250	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	600	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μ g/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1254	11	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1260	22	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	25800	mg/Kg dry wt	50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI		•			
Clay (<3.2 μm)	1.1	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 μm)	0.3	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μm)	6.6	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 μ m)	7.6	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 μm)	11.9	Fract %	0.1	ASTM D421/422	04/15/09

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095469 Sample Collected: 04/07/09 11:47 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 2 of 4

Address/Location: IL-44-ABC335-0409 #10 SIEVED

N HARDING & RR TRACKS

System ID: AN04126

Sample Point Code: 44_3

EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI

Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

				Analysis	
Test Parameter	Result	Units	MRL	Method	Date
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μm)	17.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 μm)	18.0	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 μm)	. 1.1	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 µm)	16.0	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 μm)	2.3	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	1.1	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 μm)	13.3	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 µm)	3.4	Fract %	0.1	ASTM D421/422	04/15/09
POLYNUCLEAR AROMATICS & PHTHALAT	TES - TA			•	
Acenaphthene	<95.7	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Acenaphthylene	<95.7	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Anthracene	<95.7	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	116	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	148	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	185	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	226	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	140	µg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	3000	µg/Kg dry wt	1910	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<1910	µg/Kg dry wt	1910	EPA8270M-SIM	04/17/09
Chrysene	235	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<95.7	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Diethyl phthalate	<1910	μg/Kg dry wt	1910	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<1910	μ g/Kg dry wt	1910	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<1910	μ g/Kg dry wt	1910	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<1910	μ g/Kg dry wt	1910	EPA8270M-SIM	04/17/09
Fluoranthene	276	μ g/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Fluorene	<95.7	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Indeno(1,2,3-cd)pyrene	136	μ g/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Naphthalene	<95.7	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Phenanthrene	134	μg/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
Pyrene	235	μ g/Kg dry wt	95.7	EPA8270M-SIM	04/17/09
SEMI-VOLATILE ORGANICS - CAS				•	
1,2,4-Trichlorobenzene	<150	μ g/Kg dry wt	150	EPA 8270 LV	04/16/09

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095469 Sample Collected: 04/07/09 11:47 Sample Status: COMPLETE AND

Sample Received: 04/10/09

VALIDATED

AN04126

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 3 of 4

Address/Location: IL-44-ABC335-0409 #10 SIEVED

N HARDING & RR TRACKS System ID:

Sample Point Code:44_3EID File #:1020.001Sample Type:COMPOSITELocCode:PORTHARI

Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,2-Dichlorobenzene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
1,3-Dichlorobenzene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
1,4-Dichlorobenzene	<150	μ g/Kg dry wt	150	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<730	μg/Kg dry wt	730	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<3000	μg/Kg dry wt	3000	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2-Chioronaphthalene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2-Chlorophenol	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2-Methylphenol	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
2-Nitroaniline	<300	μg/Kg dry wt	300	EPA 8270 LV	04/16/09
2-Nitrophenol	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<1500	μg/Kg dry wt	1500	EPA 8270 LV	04/16/09
3-Nitroaniline	<300	μg/Kg dry wt	300	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<1500	μg/Kg dry wt	1500	EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
4-Chloroaniline	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
4-Methylphenol	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
4-Nitroaniline	<300	μ g/Kg dry wt	300	EPA 8270 LV	04/16/09
4-Nitrophenol	<1500	μg/Kg dry wt	1500	EPA 8270 LV	04/16/09
Acenaphthene	<150	μ g/Kg dry wt	150	EPA 8270 LV	04/16/09
Acenaphthylene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Anthracene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Benzo(a)anthracene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Benzo(a)pyrene	170	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Benzo(b)fluoranthene	270	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Benzo(g,h,i)perylene	230	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Benzo(k)fluoranthene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Benzoic acid	<3000	μg/Kg dry wt	3000	EPA 8270 LV	04/16/09

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095469 Sample Collected: 04/07/09 11:47 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 4 of 4

Address/Location: IL-44-ABC335-0409 #10 SIEVED

N HARDING & RR TRACKS

Sample Point Code: 44_3

N HARDING & RR TRACKS

System ID: AN04126

EID File #: 1020.001

Sample Type:COMPOSITELocCode:PORTHARISample Matrix:SEDIMENTCollected By:JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzyl alcohol	<300	μg/Kg dry wt	300	EPÁ 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Bis(2-chloroethyl) ether	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Bis(2-ethylhexyl) phthalate	1700	μg/Kg dry wt	1500	EPA 8270 LV	04/16/09
Butyl benzyl phthalate	160	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Chrysene	260	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Dibenzo(a,h)anthracene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Dibenzofuran	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Diethyl phthalate	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Dimethyl phthalate	<150	μ g/Kg dry wt	150	EPA 8270 LV	04/16/09
Di-n-butyl phthalate	<300	μg/Kg dry wt	300	EPA 8270 LV	04/16/09
Di-n-octyl phthalate	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Fluoranthene	300	μg/Kg dry wt	150 ⁻	EPA 8270 LV	04/16/09
Fluorene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Hexachlorobenzene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Hexachlorobutadiene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene	<730	μg/Kg dry wt	730	EPA 8270 LV	04/16/09
Hexachloroethane	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene	190	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Isophorone	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Naphthalene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Nitrobenzene	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine	<150	μ g/Kg dry wt	150	EPA 8270 LV	04/16/09
N-Nitrosodiphenylamine	<150	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Pentachlorophenol	<1500	μg/Kg dry wt	1500	EPA 8270 LV	04/16/09
Phenanthrene	160	μg/Kg dry wt	150	EPA 8270 LV	04/16/09
Phenol	<440	μg/Kg dry wt	440	EPA 8270 LV	04/16/09
Pyrene	280	μg/Kg dry wt	150	EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095469

Report Date: 05/21/09 Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: **FO095470**

Sample Collected: 04/07/09 Sample Received: 04/10/09 13:11

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC259-CBtoNW-0409 #10 SIEVED

N CLARK & RR TRACKS

Sample Point Code:

44_4

COMPOSITE

SEDIMENT

UPDATED DATA

REASON: Location Description

Report Page:

Page 1 of 4

System ID: EID File #:

AN04127

LocCode:

1020.001 PORTHARI

Collected By: JXB/MJS

Comments:

Sample Type:

Sample Matrix:

DATE:6/4/09 5

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Reporting limits are raised for PCB Aroclors because of dilution necessary to quantify the results.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	81.2	% W/W	0.01	SM 2540 G	04/13/09
METALS					
ARSENIC	2.57	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	2.71	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	53.6	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	148	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	72.9	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.528	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	37.9	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	0.40	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	656	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS					
NWTPH-Dx				•	
DIESEL RANGE HYDROCARBONS (C12-C24)	<250	mg/Kg dry wt	250	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	8150	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)			4		
Aroclor 1016/1242	<100	μg/Kg dry wt	100	EPA 8082	05/05/09
Aroclor 1221	<200	μg/Kg dry wt	200	EPA 8082	05/05/09
Aroclor 1232	<100 ⁻	μg/Kg dry wt	100	EPA 8082	05/05/09
Aroclor 1248	<100	μg/Kg dry wt	100	EPA 8082	05/05/09
Aroclor 1254	<100	μg/Kg dry wt	100	EPA 8082	05/05/09
Aroclor 1260	2340	μg/Kg dry wt	100	EPA 8082	05/05/09
Aroclor 1262	<100	μg/Kg dry wt	100	EPA 8082	05/05/09
Aroclor 1268	<100	μg/Kg dry wt	100	EPA 8082	05/05/09
OUTSIDE ANALYSIS		-			
TOTAL ORGANIC CARBON	64100	mg/Kg dry wt	50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 μm)	1.6	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μ m)	11.4	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 μ m)	11.7	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 μ m)	16.3	Fract %	0.1	ASTM D421/422	04/15/09
					•

Report Date: 06/04/09

Validated By:

A



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LABORATORY ANALYSIS REPORT

Sample ID: FO095470

Sample Collected: 04/07/09

13:11

Sample Status: COMPLETE AND

Sample Received: 04/10/09

VALIDATED

Report Page: Page 2 of 4

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC259-CBtoNW-0409 #10 SIEVED

N CLARK & RR TRACKS

Sample Point Code:

44_4

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #: AN04127

LocCode:

1020.001 **PORTHARI**

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Reporting limits are raised for PCB Aroclors because of dilution necessary to quantify the results.

Gravel (>4750 μm) Medium Sand (2000-850 μm)	<0.1 12.3 18.9 3.1	Fract % Fract % Fract %	0.1 0.1	ASTM D421/422	04/15/09
· · · · · · · · · · · · · · · · · · ·	12.3 18.9		0.1	·	0.17 1.07.00
		Exact 9/		ASTM D421/422	04/15/09
Medium Sand (850-425 μm)	3.1	riaci 70	0.1	ASTM D421/422	04/15/09
Silt (13-9 μm)		Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 µm)	3.1	Fract %	0.1.	ASTM D421/422	04/15/09
Silt (32-22 μm)	4.7	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 µm)	3.1	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 μm)	10.8	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 μm)	3.1	Fract %	0.1	ASTM D421/422	04/15/09
POLYNUCLEAR AROMATICS & PHTHALATES -	TA				•
Acenaphthene	<83.2	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Acenaphthylene	<83.2	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Anthracene	133	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	221	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	238	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	341	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	402	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	275	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	59900	μ g/Kg dry wt	4160	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	4170	μ g/Kg dry wt	4160	EPA8270M-SIM	04/17/09
Chrysene	750	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<83.2	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Diethyl phthalate	<4160	μ g/Kg dry wt	4160	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<4160	μ g/Kg dry wt	4160	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<4160	μ g/Kg dry wt	4160	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<4160	μ g/Kg dry wt	4160	EPA8270M-SIM	04/17/09
Fluoranthene	921	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Fluorene	<83.2	μ g/Kg dry wt	83.2	EPA8270M-SIM	.04/17/09
Indeno(1,2,3-cd)pyrene	199	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Naphthalene	<83.2	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Phenanthrene	560	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
Pyrene	837	μ g/Kg dry wt	83.2	EPA8270M-SIM	04/17/09
SEMI-VOLATILE ORGANICS - CAS			•		
1,2,4-Trichlorobenzene	<620	μ g/Kg dry wt	620	EPA 8270 LV	04/16/09
1,2-Dichlorobenzene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09

Report Date: 06/04/09





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AN04127

1020.001

Analysis

LABORATORY ANALYSIS REPORT

Sample ID: FO095470 Sample Collected: 04/07/09 13:11 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 3 of 4

Address/Location: IL-44-ABC259-CBtoNW-0409 #10 SIEVED

N CLARK & RR TRACKS

System ID:
Sample Point Code: 44_4

EID File #:

Sample Type:COMPOSITELocCode:PORTHARISample Matrix:SEDIMENTCollected By:JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Reporting limits are raised for PCB Aroclors because of dilution necessary to quantify the results.

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,3-Dichlorobenzene	<620	μ g/Kg dry wt	620	EPA 8270 LV	04/16/09
1,4-Dichlorobenzene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<3100	μg/Kg dry wt	3100	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<13000	μg/Kg dry wt	13000	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2-Chloronaphthalene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2-Chlorophenol	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2-Methylphenol	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
2-Nitroaniline	<1300	μg/Kg dry wt	1300	EPA 8270 LV	04/16/09
2-Nitrophenol	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<6200	μg/Kg dry wt	6200	EPA 8270 LV	04/16/09
3-Nitroaniline	<1300	μg/Kg dry wt	1300	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<6200	μg/Kg dry wt	6200	EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
4-Chloroaniline	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<620	μ g/Kg dry wt	620	EPA 8270 LV	04/16/09
4-Methylphenol	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
4-Nitroaniline	<1300	μ g/Kg dry wt	1300	EPA 8270 LV	04/16/09
4-Nitrophenol	<6200	μg/Kg dry wt	6200	EPA 8270 LV	04/16/09
Acenaphthene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
Acenaphthylene	<620	µg/Kg dry wt	620	EPA 8270 LV	04/16/09
Anthracene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
Benzo(a)anthracene	<620	μ g/Kg dry wt	620	EPA 8270 LV	04/16/09
Benzo(a)pyrene	<620	μ g/Kg dry wt	620	EPA 8270 LV	04/16/09
Benzo(b)fluoranthene	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09
Benzo(g,h,i)perylene	<620	μ g/Kg dry wt	620	EPA 8270 LV	04/16/09
Benzo(k)fluoranthene	<620	μ g/Kg dry wt	620	EPA 8270 LV	04/16/09
Benzoic acid	<13000	μ g/Kg dry wt	13000	EPA 8270 LV	04/16/09
Benzyl alcohol	<1300	μ g/Kg dry wt	1300	EPA 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<620	μg/Kg dry wt	620	EPA 8270 LV	04/16/09

Report Date: 06/04/09

Validated By:

A



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

13:11

Sample ID: FO095470

Sample Collected: 04/07/09

Sample Received: 04/10/09

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC259-CBtoNW-0409 #10 SIEVED

N CLARK & RR TRACKS

Sample Point Code:

44_4

Sample Type: Sample Matrix:

COMPOSITE SEDIMENT

System ID:

Report Page:

AN04127

Page 4 of 4

EID File #: LocCode: 1020.001

Collected By: JXB/MJS

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Reporting limits are raised for PCB Aroclors because of dilution necessary to quantify the results.

Test Parameter Res	ult Units	MRL	Method	Analysis Date
Bis(2-chloroethyl) ether <6		y wt 620	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether <6			EPA 8270 LV	
Bis(2-ethylhexyl) phthalate 360			EPA 8270 LV	04/16/09
Butyl benzyl phthalate 38			EPA 8270 LV	
=y,y, p	μ g/Kg dr	,	EPA 8270 LV	·
Dibenzo(a,h)anthracene <6			EPA 8270 LV	04/16/09
Dibenzofuran <6			EPA 8270 LV	04/16/09
Diethyl phthalate <6		,	EPA 8270 LV	04/16/09
Dimethyl phthalate <6	, , ,		EPA 8270 LV	04/16/09
Di-n-butyl phthalate <13			EPA 8270 LV	
Di-n-octyl phthalate <6		,	EPA 8270 LV	04/16/09
Fluoranthene 110			EPA 8270 LV	04/16/09
Fluorene <6			EPA 8270 LV	04/16/09
Hexachlorobenzene <6			EPA 8270 LV	04/16/09
Hexachlorobutadiene <6		,	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene <310			EPA 8270 LV	04/16/09
Hexachloroethane <62			EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene <6			EPA 8270 LV	04/16/09
Isophorone <6			EPA 8270 LV	04/16/09
Naphthalene <6			EPA 8270 LV	04/16/09
Nitrobenzene <6	μ g/Kg dr	y wt 620	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine <6	μ g/Kg dr	y wt 620	EPA-8270 LV	04/16/09
N-Nitrosodiphenylamine <6	μ g/Kg dr	y wt 620	EPA 8270 LV	04/16/09
Pentachlorophenol <620	μ g/Kg dr	y wt 6200	EPA 8270 LV	04/16/09
Phenanthrene 66	μ g/Kg dr		EPA 8270 LV	04/16/09
Phenol <196	μ g/Kg dr	y wt 1900	EPA 8270 LV	04/16/09
Pyrene 100			EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095470

Report Date: 06/04/09 Validated By:





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Sample ID: FO095471

Sample Collected: 04/07/09 Sample Received: 04/10/09 13:48

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC261-0409 #10 SIEVED

N LEWIS & RR TRACKS

Sample Point Code:

44 6

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #: AN04128

Page 1 of 4

Report Page:

1020.001

LocCode: Collected By: JXB/MJS

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	71.7	% W/W	0.01	SM 2540 G	04/13/09
METALS					
ARSENIC	3.70	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	1.60	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	182	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	69.1	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	66.8	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.053	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	29.2	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	0.40	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	314	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS					**************************************
NWTPH-Dx		-			
DIESEL RANGE HYDROCARBONS (C12-C24)	<250	mg/Kg dry wt	250	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	697	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1254	28	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1260	19	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	36800	mg/Kg dry wt	- 50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI	•				
Clay (<3.2 µm)	1.5	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 µm)	0.1	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μm)	7.9	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 μm)	9.3	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 µm)	15.4	Fract %	0.1	ASTM D421/422	04/15/09

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095471

Sample Collected: 04/07/09 Sample Received: 04/10/09 13:48

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC261-0409 #10 SIEVED

N LEWIS & RR TRACKS

Sample Point Code:

44.6

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID: EID File # :

Report Page:

AN04128

Page 2 of 4

LocCode:

1020.001 PORTHARI

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μ m)	25.6	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 μm)	21.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 μm)	1.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 μm)	1.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 μm)	1.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	3.1	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 µm)	7.9	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 μ m)	3.1	Fract %	0.1	ASTM D421/422	04/15/09
POLYNUCLEAR AROMATICS & PHTHALATES	S - TA				
Acenaphthene	<94.9	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Acenaphthylene	<94.9	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Anthracene	141	μ g/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	158	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	239	μ g/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	281	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	414	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	183	µg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	2580	μg/Kg dry wt	1900	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<1900	µg/Kg dry wt	1900	EPA8270M-SIM	04/17/09
Chrysene	365	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<94.9	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Diethyl phthalate	<1900	μg/Kg dry wt	1900	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<1900	μg/Kg dry wt	1900	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<1900	μg/Kg dry wt	1900	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<1900	μ g/Kg dry wt	1900	EPA8270M-SIM	04/17/09
Fluoranthene	495	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Fluorene	<94.9	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Indeno(1,2,3-cd)pyrene	253	μ g/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Naphthalene	<94.9	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Phenanthrene	311	μg/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
Pyrene	422	μ g/Kg dry wt	94.9	EPA8270M-SIM	04/17/09
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09

Report Date: 05/21/09





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Sample ID: **FO095471**

Sample Collected: 04/07/09 Sample Received: 04/10/09 13:48

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC261-0409 #10 SIEVED

N LEWIS & RR TRACKS

Sample Point Code:

44 6

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID: EID File # : LocCode:

Report Page:

AN04128

Page 3 of 4

1020.001 PORTHARI

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Dan-II	Unito	MDI	Mothed	Analysis Date
,				
<420	μ g/Kg dry wt			04/16/09
				04/16/09
	μ g/Kg dry wt			04/16/09
<420	μ g/Kg dry wt			04/16/09
<420	μ g/Kg dry wt			04/16/09
<420	μ g/Kg dry wt	420		04/16/09
<2100	μ g/Kg dry wt	2100	EPA 8270 LV	04/16/09
<8400	µg/Kg dry wt	8400	EPA 8270 LV	04/16/09
<420	μ g/Kg dry wt	420	EPA 8270 LV	04/16/09
<420	μ g/Kg dry wt	420	EPA 8270 LV	04/16/09
<420	μ g/Kg dry wt	420	EPA 8270 LV	04/16/09
<420	μ g/Kg dry wt	420	EPA 8270 LV	04/16/09
<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
<840	μg/Kg dry wt	840	EPA 8270 LV	04/16/09
<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
<4200	μg/Kg dry wt	4200	EPA 8270 LV	04/16/09
<840	μ g/Kg dry wt	840	EPA 8270 LV	04/16/09
<4200	μg/Kg dry wt	4200	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<840		840	EPA 8270 LV	04/16/09
<4200		4200	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<420		the state of the s	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<420			EPA 8270 LV	04/16/09
<420		420	EPA 8270 LV	04/16/09
<8400	μ g/Kg dry wt	8400	EPA 8270 LV	04/16/09
	<420 <420 <420 <420 <420 <2100 <8400 <420 <420 <420 <420 <420 <420 <420 <	<420	<420	<420

Report Date: 05/21/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095471 Sample Collected: 04/07/09 13:48 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 4 of 4

Address/Location: IL-44-ABC261-0409 #10 SIEVED

N LEWIS & RR TRACKS

System ID: AN04128

Sample Point Code: 44_6

EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI

Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzyl alcohol	<840	μg/Kg dry wt	840	EPA 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Bis(2-chloroethyl) ether	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Bis(2-ethylhexyl) phthalate	<4200	μg/Kg dry wt	4200	EPA 8270 LV	04/16/09
Butyl benzyl phthalate	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Chrysene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Dibenzo(a,h)anthracene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Dibenzofuran	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Diethyl phthalate	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Dimethyl phthalate	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Di-n-butyl phthalate	<840	μg/Kg dry wt	840	EPA 8270 LV	04/16/09
Di-n-octyl phthalate	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Fluoranthene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Fluorene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Hexachlorobenzene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Hexachlorobutadiene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene	<2100	μg/Kg dry wt	2100	EPA 8270 LV	04/16/09
Hexachloroethane	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Isophorone	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Naphthalene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Nitrobenzene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine	<420	μ g/Kg dry wt	420	EPA 8270 LV	04/16/09
N-Nitrosodiphenylamine	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Pentachlorophenol	<4200	μg/Kg dry wt	4200	EPA 8270 LV	04/16/09
Phenanthrene	<420	μg/Kg dry wt	420	EPA 8270 LV	04/16/09
Phenol	<1300	μg/Kg dry wt	1300	EPA 8270 LV	04/16/09
Pyrene	<420	μ g/Kg dry wt	420	EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095471

Report Date: 05/21/09 Validated By:





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095472

Sample Collected: 04/08/09 Sample Received: 04/10/09 07:52

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-NLORING-CBtoS-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_7

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID:

Report Page:

AN04129

EID File #: LocCode: 1020.001

Page 1 of 4

Collected By: JXB/MJS

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					2.1
TOTAL SOLIDS	72.5	% W/W	0.01	SM 2540 G	04/13/09
METALS				·	
ARSENIC	2.53	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	0.77	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	85.6	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	52.6	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	35.5	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.028	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	49.1	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	283	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS				•	
NWTPH-Dx				× .	
DIESEL RANGE HYDROCARBONS (C12-C24)	<250	mg/Kg dry wt	250	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	763	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)			•		
Aroclor 1016/1242	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1248	44	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1254	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1260	33	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	24700	mg/Kg dry wt	50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI		•			
Clay (<3.2 µm)	3.6	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 μm)	0.1	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μ m)	14.6	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 μm)	15.4	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 μm)	19.9	Fract %	0.1	ASTM D421/422	04/15/09

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095472

Sample Collected: 04/08/09

Sample Status: COMPLETE AND

Sample Received: 04/10/09

07:52

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-NLORING-CBtoS-0409 #10 SIEVED

System ID:

AN04129

Page 2 of 4

Sample Point Code:

44_7

EID File #:

Report Page:

1020.001

Sample Type: Sample Matrix:

COMPOSITE **SEDIMENT**

N LORING & CLARK

LocCode: Collected By: JXB/MJS

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	' MRL	Method	Analysis Date
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μm)	9.3	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 μm)	17.8	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 μm)	1.4	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 μm)	2.9	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 μm)	2.9	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	2.2	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 μm)	8.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 μm)	1.4	Fract %	0.1	ASTM D421/422	04/15/09
POLYNUCLEAR AROMATICS & PHTHALATES -	TA			•	
Acenaphthene	<94.3	μg/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Acenaphthylene	<94.3	μg/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Anthracene	<94.3	μg/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	<94.3	μg/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	<94.3	μg/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	125	μg/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	129	μ g/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	<94.3	μg/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	3480	μ g/Kg dry wt	1890	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<1890	μ g/Kg dry wt	1890	EPA8270M-SIM	04/17/09
Chrysene	183	μg/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<94.3	μ g/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Diethyl phthalate	<1890	μg/Kg dry wt	1890	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<1890	µg/Kg dry wt	1890	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<1890	μ g/Kg dry wt	1890	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<1890	μ g/Kg dry wt	1890	EPA8270M-SIM	04/17/09
Fluoranthene	252	μ g/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Fluorene	<94.3	μ g/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Indeno(1,2,3-cd)pyrene	<94.3	μ g/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Naphthalene	<94.3	μ g/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Phenanthrene	148	μ g/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
Pyrene	229	μ g/Kg dry wt	94.3	EPA8270M-SIM	04/17/09
SEMI-VOLATILE ORGANICS - CAS				•	
1,2,4-Trichlorobenzene	<180	μ g/Kg dry wt	180	EPA 8270 LV	04/16/09
1,2-Dichlorobenzene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

07:52

Sample ID: FO095472

Sample Collected: 04/08/09 Sample Received: 04/10/09

Sample Status: COMPLETE AND

VALIDATED

Report Page: Page 3 of 4

Collected By: JXB/MJS

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-NLORING-CBtoS-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_7

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #:

AN04129

LocCode:

1020,001 **PORTHARI**

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,3-Dichlorobenzene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
1,4-Dichlorobenzene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<870	μg/Kg dry wt	870	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<3500	μg/Kg dry wt	3500	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2-Chloronaphthalene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2-Chlorophenol	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2-Methylphenol	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
2-Nitroaniline	<350	μ g/Kg dry wt	350	EPA 8270 LV	04/16/09
2-Nitrophenol	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<1800	μg/Kg dry wt	1800	EPA 8270 LV	04/16/09
3-Nitroaniline	<350	μg/Kg dry wt	350	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<1800	μ g/Kg dry wt	1800	EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
4-Chloroaniline	<180	μ g/Kg dry wt	180	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
4-Methylphenol	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
4-Nitroaniline	<350	μg/Kg dry wt	350	EPA 8270 LV	04/16/09
4-Nitrophenol	<1800	μg/Kg dry wt	1800	EPA 8270 LV	04/16/09
Acenaphthene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
Acenaphthylene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
Anthracene	<180	μ g/Kg dry wt	180	EPA 8270 LV	04/16/09
Benzo(a)anthracene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
Benzo(a)pyrene	<180	μ g/Kg dry wt	180	EPA 8270 LV	04/16/09
Benzo(b)fluoranthene	<180	μ g/Kg dry wt	180	EPA 8270 LV	04/16/09
Benzo(g,h,i)perylene	<180	μ g/Kg dry wt	180	EPA 8270 LV	04/16/09
Benzo(k)fluoranthene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09
Benzoic acid	<3500	μg/Kg dry wt	3500 ′	EPA 8270 LV	04/16/09
Benzyl alcohol	<350	μg/Kg dry wt	350	EPA 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09

Report Date: 05/21/09





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Sample ID: FO095472

Sample Collected: 04/08/09

07:52

Sample Status: COMPLETE AND

Sample Received: 04/10/09

VALIDATED

Proj./Company Name: Address/Location:

PORTLAND HARBOR INLINE SAMP

IL-44-NLORING-CBtoS-0409 #10 SIEVED

Report Page:

Page 4 of 4

Sample Point Code:

N LORING & CLARK

System ID:

AN04129

Sample Type:

44.7

EID File #: LocCode:

1020.001 **PORTHARI**

Sample Matrix:

COMPOSITE **SEDIMENT**

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Date	
Bis(2-chloroethyl) ether	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Bis(2-chloroisopropyl) ether	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Bis(2-ethylhexyl) phthalate	<1800	μg/Kg dry wt	1800	EPA 8270 LV	04/16/09	
Butyl benzyl phthalate	510	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Chrysene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Dibenzo(a,h)anthracene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Dibenzofuran	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Diethyl phthalate	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Dimethyl phthalate	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Di-n-butyl phthalate	<350	μg/Kg dry wt	350	EPA 8270 LV	04/16/09	
Di-n-octyl phthalate	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Fluoranthene	190	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Fluorene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Hexachlorobenzene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Hexachlorobutadiene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Hexachlorocyclopentadiene	<870	μg/Kg dry wt	870	EPA 8270 LV	04/16/09	
Hexachloroethane	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Indeno(1,2,3-cd)pyrene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Isophorone	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Naphthalene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Nitrobenzene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
N-Nitrosodi-n-propylamine	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
N-Nitrosodiphenylamine	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Pentachlorophenol	<1800	μg/Kg dry wt	1800	EPA 8270 LV	04/16/09	
Phenanthrene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	
Phenol	<520	μg/Kg dry wt	520	EPA 8270 LV	04/16/09	
Pyrene	<180	μg/Kg dry wt	180	EPA 8270 LV	04/16/09	

End of Report for Sample ID: FO095472

Report Date: 05/21/09



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: **FO095473**

Sample Collected: 04/08/09 Sample Received: 04/10/09

08:18

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-NLORING-CBtoN-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_8

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID: EID File #: LocCode:

Report Page:

AN04130

Page 1 of 4

1020.001 **PORTHARI**

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

T1-D	D		MOI	***	Analysis Date
Test Parameter	Result	Units	MRL	Method	Date
GENERAL	•			•	
TOTAL SOLIDS	70.5	% W/W	0.01	SM 2540 G	04/13/09
METALS					
ARSENIC	2.88	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	0.80	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	119	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	63.1	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	42.4	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.039	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	65.8	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	0.11	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	273	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS	•				
NWTPH-Dx					
DIESEL RANGE HYDROCARBONS (C12-C24)	<250	mg/Kg dry wt	250	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	562	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Arocior 1248	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1254	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1260	21	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	28100	mg/Kg dry wt	50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 \(\mu\mathrm{m}\))	4.5	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 µm)	0.1	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μm)	15.2	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 µm)	15.4	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 μm)	18.6	Fract %	0.1	ASTM D421/422	04/15/09

Report Date: 05/21/09





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Sample ID: FO095473

Sample Collected: 04/08/09 Sample Received: 04/10/09

08:18

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-NLORING-CBtoN-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_8

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

System ID:

Page 2 of 4 Report Page:

EID File #:

AN04130 1020.001

LocCode: Collected By: JXB/MJS

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μm)	8.8	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 μm)	14.9	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 μm)	2.2	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 µm)	4.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 μm)	3.0	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	2.2	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 µm)	9.0	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 µm)	1.5	Fract %	0.1	ASTM D421/422	04/15/09
POLYNUCLEAR AROMATICS & PHTHALAT	TES - TA				
Acenaphthene	<96.3	μ g/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Acenaphthylene	<96.3	μ g/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Anthracene	<96.3	μ g/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	<96.3	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	<96.3	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	121	μ g/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	135	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	<96.3	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	2490	μ g/Kg dry wt	1930	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<1930	μg/Kg dry wt	1930	EPA8270M-SIM	04/17/09
Chrysene	174	μ g/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<96.3	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Diethyl phthalate	<1930	μ g/Kg dry wt	1930	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<1930	μg/Kg dry wt	1930	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<1930	μ g/Kg dry wt	1930	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<1930	μg/Kg dry wt	1930	EPA8270M-SIM	04/17/09
Fluoranthene	173	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Fluorene	<96.3	μ g/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Indeno(1,2,3-cd)pyrene	<96.3	μ g/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Naphthalene	<96.3	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Phenanthrene	108	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
Pyrene	177	μg/Kg dry wt	96.3	EPA8270M-SIM	04/17/09
SEMI-VOLATILE ORGANICS - CAS			· ·		
1,2,4-Trichlorobenzene	<190	μ g/Kg dry wt	190	EPA 8270 LV	04/16/09
1,2-Dichlorobenzene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09

Report Date: 05/21/09



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LABORATORY ANALYSIS REPORT

Sample ID: **FO095473**

Sample Collected: 04/08/09

Sample Status: COMPLETE AND

Sample Received: 04/10/09

08:18

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-NLORING-CBtoN-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_8

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID:

Report Page:

AN04130

Page 3 of 4

EID File #: LocCode:

1020.001 **PORTHARI**

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Геst Parameter	Result	Units	MRL	Method	Analysis Date
1,3-Dichlorobenzene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
1,4-Dichlorobenzene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<920	μg/Kg dry wt	920	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<3700	μg/Kg dry wt	3700	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<190	μg/Kg dry wt	. 190	EPA 8270 LV	04/16/09
2-Chloronaphthalene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2-Chlorophenol	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2-Methylphenol	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
2-Nitroaniline	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2-Nitrophenol	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<1900	μg/Kg dry wt	1900	EPA 8270 LV	04/16/09
3-Nitroaniline	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<1900	μg/Kg dry wt	1900	EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
4-Chloroaniline	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
4-Methylphenol	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
4-Nitroaniline	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
4-Nitrophenol	<1900	μg/Kg dry wt	1900	EPA 8270 LV	04/16/09
Acenaphthene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Acenaphthylene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Anthracene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Benzo(a)anthracene	<190	µg/Kg dry wt	190	EPA 8270 LV	04/16/09
Benzo(a)pyrene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Benzo(b)fluoranthene	<190	μ g/Kg dry wt	190	EPA 8270 LV	04/16/09
Benzo(g,h,i)perylene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Benzo(k)fluoranthene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Benzoic acid	<3700	μg/Kg dry wt	3700	EPA 8270 LV	04/16/09
Benzyl alcohol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09

Report Date: 05/21/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095473

Sample Collected: 04/08/09 Sample Received: 04/10/09

08:18

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-NLORING-CBtoN-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_8

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Page 4 of 4 Report Page:

System ID:

AN04130

EID File #:

1020.001 **PORTHARI**

LocCode: Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Bis(2-chloroethyl) ether	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Bis(2-ethylhexyl) phthalate	<1900	μg/Kg dry wt	1900	EPA 8270 LV	04/16/09
Butyl benzyl phthalate	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Chrysene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Dibenzo(a,h)anthracene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Dibenzofuran	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Diethyl phthalate	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Dimethyl phthalate	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Di-n-butyl phthalate	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Di-n-octyl phthalate	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Fluoranthene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Fluorene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Hexachlorobenzene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Hexachlorobutadiene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene	<920	μg/Kg dry wt	920	EPA 8270 LV	04/16/09
Hexachloroethane	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Isophorone	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Naphthalene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Nitrobenzene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
N-Nitrosodiphenylamine	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Pentachlorophenol	<1900	μg/Kg dry wt	1900	EPA 8270 LV	04/16/09
Phenanthrene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09
Phenol	<550	μg/Kg dry wt	550	EPA 8270 LV	04/16/09
Pyrene	<190	μg/Kg dry wt	190	EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095473

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample ID: **FO095474** 09:21 Sample Collected: 04/08/09 **VALIDATED**

Sample Received: 04/10/09

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 1 of 4

Address/Location: IL-44-ABC352-CBtoN-0409 #10 SIEVED

N RIVER CB NEAR ABC352 AN04131 System ID: Sample Point Code: 44 9 EID File #: 1020.001

COMPOSITE **PORTHARI** Sample Type: LocCode:

Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	71.4	% W/W	0.01	SM 2540 G	04/13/09
METALS					
ARSENIC	2.36	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	0.35	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	46.8	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	37.6	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	48.0	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.069	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	32.9	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	156	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS		·			· ·
NWTPH-Dx					
DIESEL RANGE HYDROCARBONS (C12-C24)	1800	mg/Kg dry wt	250	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	2390	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μ g/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1248	. 71	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1254	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1260	166	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
OUTSIDE ANALYSIS		•			
TOTAL ORGANIC CARBON	30000	mg/Kg dry wt	50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 μm)	6.2	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μ m)	12.7	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 μ m)	15.5	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 μm)	21.5	Fract %	0.1	ASTM D421/422	04/15/09

Report Date: 05/21/09





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Sample ID: FO095474

Sample Collected: 04/08/09 Sample Received: 04/10/09

09:21

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC352-CBtoN-0409 #10 SIEVED

N RIVER CB NEAR ABC352

Sample Point Code:

44_9

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID: EID File#: LocCode:

Report Page:

AN04131

Page 2 of 4

1020.001 **PORTHARI**

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Fest Parameter	Result	Units	MRL	Method	Analysis Date
	· · · · · · · · · · · · · · · · · · ·				
Gravel (>4750 μ m)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μm)	8.2	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 μ m)	17.8	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 μ m)	1.6	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 µm)	2.3	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 μm)	2.3	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	3.1	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 μm)	5.7	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 μm)	3.1	Fract %	0.1	ASTM D421/422	04/15/09
POLYNUCLEAR AROMATICS & PHTHA	-				
Acenaphthene	<97.9	μ g/Kg dry wt	97.9	EPA8270M-SIM	04/17/09
Acenaphthylene	<97.9	μ g/Kg dry wt	97.9	EPA8270M-SIM	04/17/09
Anthracene	103	μ g/Kg dry wt	97.9	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	<97.9	μ g/Kg dry wt	97.9	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	103	μ g/Kg dry wt	97.9	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	148	μg/Kg dry wt	97.9	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	146	μ g/Kg dry wt	97.9	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	<97.9	μ g/Kg dry wt	97.9	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	10900	μ g/Kg dry wt	4900	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<4900	μ g/Kg dry wt	4900	EPA8270M-SIM	04/17/0
Chrysene	258	μg/Kg dry wt	97.9	EPA8270M-SIM	04/17/0
Dibenzo(a,h)anthracene	<97.9	μ g/Kg dry wt	97.9	EPA8270M-SIM	04/17/0
Diethyl phthalate	<4900	μg/Kg dry wt	4900	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<4900	μg/Kg dry wt	4900	EPA8270M-SIM	04/17/0
Di-n-butyl phthalate	<4900	μ g/Kg dry wt	4900	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<4900	μ g/Kg dry wt	4900	EPA8270M-SIM	04/17/0
Fluoranthene	184	μg/Kg dry wt	97.9	EPA8270M-SIM	04/17/0
Fluorene	212	μg/Kg dry wt	97.9	EPA8270M-SIM	04/17/0
Indeno(1,2,3-cd)pyrene	<97.9	μg/Kg dry wt	97.9	EPA8270M-SIM	04/17/0
Naphthalene	<97.9	μg/Kg dry wt	97.9	EPA8270M-SIM	04/17/0
Phenanthrene	468	μg/Kg dry wt	97.9	EPA8270M-SIM	04/17/0
Pyrene	386	μg/Kg dry wt	97.9	EPA8270M-SIM	04/17/0
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<370	μ g/Kg dry wt	370	EPA 8270 LV	04/16/09
1,2-Dichlorobenzene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/0

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095474

Sample Collected: 04/08/09 Sample Received: 04/10/09 09:21

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC352-CBtoN-0409 #10 SIEVED

N RIVER CB NEAR ABC352

Sample Point Code:

44_9

Sample Type:

COMPOSITE

Sample Matrix: **SEDIMENT** Report Page: Page 3 of 4

AN04131

System ID: EID File #:

1020.001

LocCode: Collected By: JXB/MJS

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,3-Dichlorobenzene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
1,4-Dichlorobenzene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<1900	μg/Kg dry wt	1900	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<7400	μ g/Kg dry wt	7400	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2-Chloronaphthalene	<370	μ g/Kg dry wt	370	EPA 8270 LV	04/16/09
2-Chlorophenol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2-Methylphenol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
2-Nitroaniline	<740	μg/Kg dry wt	740	EPA 8270 LV	04/16/09
2-Nitrophenol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<3700	μg/Kg dry wt	3700	EPA 8270 LV	04/16/09
3-Nitroaniline	<740	μ g/Kg dry wt	740	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<3700	μg/Kg dry wt	3700	EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
4-Chloroaniline	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
4-Methylphenol	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
4-Nitroaniline	<740	μ g/Kg dry wt	740	EPA 8270 LV	04/16/09
4-Nitrophenol	<3700	μg/Kg dry wt	3700	EPA 8270 LV	04/16/09
Acenaphthene	<370	μ g/Kg dry wt	370	EPA 8270 LV	04/16/09
Acenaphthylene	<370	μ g/Kg dry wt	370	EPA 8270 LV	04/16/09
Anthracene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Benzo(a)anthracene	<370	μ g/Kg dry wt	370	·EPA 8270 LV	04/16/09
Benzo(a)pyrene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Benzo(b)fluoranthene	<370	μ g/Kg dry wt	370	EPA 8270 LV	04/16/09
Benzo(g,h,i)perylene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Benzo(k)fluoranthene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Benzoic acid	<7400	μg/Kg dry wt	7400	EPA 8270 LV	04/16/09
Benzyl alcohol	<740	μg/Kg dry wt	740	EPA 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09

Report Date: 05/21/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095474

Sample Collected: 04/08/09 Sample Received: 04/10/09 09:21

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC352-CBtoN-0409 #10 SIEVED

N RIVER CB NEAR ABC352

Sample Point Code:

44_9

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

System ID:

Report Page:

AN04131

EID File #:

1020.001

Page 4 of 4

LocCode: Collected By: JXB/MJS

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Fest Parameter	Result	Units	MRL	Method	Analysis Date
Bis(2-chloroethyl) ether	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Bis(2-ethylhexyl) phthalate	<3700	μg/Kg dry wt	3700	EPA 8270 LV	04/16/09
Butyl benzyl phthalate	<370	μg/Kg dry wt	370	EPA 8270 LV	.04/16/09
Chrysene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Dibenzo(a,h)anthracene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Dibenzofuran	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Diethyl phthalate	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Dimethyl phthalate	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Di-n-butyl phthalate	<740	μg/Kg dry wt	740	EPA 8270 LV	04/16/09
Di-n-octyl phthalate	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Fluoranthene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Fluorene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Hexachlorobenzene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Hexachlorobutadiene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene	<1900	μg/Kg dry wt	1900	EPA 8270 LV	04/16/09
Hexachloroethane	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Isophorone	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Naphthalene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Nitrobenzene	<370	μ g/Kg dry wt	370	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
N-Nitrosodiphenylamine	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Pentachlorophenol	<3700	μg/Kg dry wt	3700	EPA 8270 LV	04/16/09
Phenanthrene	<370	μg/Kg dry wt	370	EPA 8270 LV	04/16/09
Phenol	<1100	μg/Kg dry wt	1100	EPA 8270 LV	04/16/09
Pyrene	<370	μ g/Kg dry wt	370	EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095474

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095475

Sample Collected: 04/08/09 Sample Received: 04/10/09 13:31

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMQ287-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_10

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID:

Report Page:

AN04132

Page 1 of 4

EID File #: LocCode:

1020.001

Collected By: JXB/MJS

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					•
TOTAL SOLIDS	52.0	% W/W	0.01	SM 2540 G	04/13/09
METALS					
ARSENIC	2.35	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	1.68	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	71.0	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	78.5	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	62.4	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.037	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	41.5	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	0.11	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	450	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS					
NWTPH-Dx			•	ė.	
DIESEL RANGE HYDROCARBONS (C12-C24)	<500	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	4470	mg/Kg dry wt	1000	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	04/29/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1254	18	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1260	29	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	04/29/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	56100	mg/Kg dry wt	50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 µm)	4.4	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μ m)	14.2	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 μm)	14.3	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 μm)	16.7	Fract %	0.1	ASTM D421/422	04/15/09

Report Date: 05/21/09



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LABORATORY ANALYSIS REPORT

Sample ID: FO095475

Sample Collected: 04/08/09 Sample Received: 04/10/09 13:31

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMQ287-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_10

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID:

AN04132

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EID File #: LocCode:

Report Page:

1020.001 PORTHARI

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μm)	9.0	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 μm)	15.7	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 μm)	2.9	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 µm)	7.3	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 μm)	4.4	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	1.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 μm)	6.7	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 μm)	2.9	Fract %	0.1	ASTM D421/422	04/15/09
POLYNUCLEAR AROMATICS & PHTHAL					
Acenaphthene	<127	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Acenaphthylene	<127	μ g/Kg dry wt	127	EPA8270M-SIM	04/17/09
Anthracene	<127	μ g/Kg dry wt	127	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	199	µg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	245	µg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	316	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	390	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	217	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	19700	μg/Kg dry wt	6370	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<6370	μg/Kg dry wt	6370	EPA8270M-SIM	04/17/09
Chrysene	545	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<127	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Diethyl phthalate	<6370	μg/Kg dry wt	6370	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<6370	μg/Kg dry wt	6370	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<6370	μg/Kg dry wt	6370	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	14400	μg/Kg dry wt	6370	EPA8270M-SIM	04/17/09
Fluoranthene	935	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Fluorene	<127	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Indeno(1,2,3-cd)pyrene	194	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Naphthalene	. 553	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Phenanthrene	738	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
Pyrene	813	μg/Kg dry wt	127	EPA8270M-SIM	04/17/09
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09

Report Date: 05/21/09



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LABORATORY ANALYSIS REPORT

13:31

Sample ID: FO095475

Sample Collected: 04/08/09

Sample Status: COMPLETE AND

Sample Received: 04/10/09

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMQ287-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code:

44_10

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #: LocCode:

Report Page:

AN04132

Page 3 of 4

1020.001 **PORTHARI**

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,2-Dichlorobenzene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
1,3-Dichlorobenzene	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
1,4-Dichlorobenzene	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<2600	μg/Kg dry wt	2600	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<11000	μg/Kg dry wt	11000	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
2-Chloronaphthalene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
2-Chlorophenol	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
2-Methylphenol	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
2-Nitroaniline	<1100	μg/Kg dry wt	1100	EPA 8270 LV	04/16/09
2-Nitrophenol	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<5100	μg/Kg dry wt	5100	EPA 8270 LV	04/16/09
3-Nitroaniline	<1100	μg/Kg dry wt	1100	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<5100	μg/Kg dry wt	5100	EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
4-Chloroaniline	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
4-Methylphenol	4600	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
4-Nitroaniline	<1100	μg/Kg dry wt	1100	EPA 8270 LV	04/16/09
4-Nitrophenol	<5100	μg/Kg dry wt	5100	EPA 8270 LV	04/16/09
Acenaphthene	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
Acenaphthylene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Anthracene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Benzo(a)anthracene	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
Benzo(a)pyrene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Benzo(b)fluoranthene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Benzo(g,h,i)perylene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Benzo(k)fluoranthene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Benzoic acid	<11000	μg/Kg dry wt	11000	EPA 8270 LV	04/16/09

Report Date: 05/21/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095475 13:31 Sample Status: COMPLETE AND Sample Collected: 04/08/09 **VALIDATED**

Sample Received: 04/10/09

System ID:

AN04132

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 4 of 4

Address/Location: IL-44-AMQ287-0409 #10 SIEVED

N LORING & CLARK

Sample Point Code: 44 10

EID File #: 1020.001 Sample Type: **COMPOSITE PORTHARI** LocCode: Sample Matrix: SEDIMENT Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Precision of the PCB Aroclor quantifications may have been affected by overlapping components of the mixed Aroclors.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzyl alcohol	<1100	μg/Kg dry wt	1100	EPA 8270 LV	04/16/09
Bis(2-chloroethoxy) methane	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Bis(2-chloroethyl) ether	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Bis(2-ethylhexyl) phthalate	13000	μg/Kg dry wt	5100	EPA 8270 LV	04/16/09
Butyl benzyl phthalate	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Chrysene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Dibenzo(a,h)anthracene	<510	μg/Kg dry wt	. 510	EPA 8270 LV	04/16/09
Dibenzofuran	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Diethyl phthalate	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Dimethyl phthalate	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Di-n-butyl phthalate	<1100	μg/Kg dry wt	1100	EPA 8270 LV	04/16/09
Di-n-octyl phthalate	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Fluoranthene	630	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Fluorene	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
Hexachlorobenzene	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
Hexachlorobutadiene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene	<2600	μg/Kg dry wt	2600	EPA 8270 LV	04/16/09
Hexachloroethane	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene	<510 ·	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
Isophorone	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Naphthalene	<510	μg/Kg dry wt	510	EPA 8270 LV	04/16/09
Nitrobenzene	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
N-Nitrosodiphenylamine	<510	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
Pentachlorophenol	<5100	μg/Kg dry wt	5100	EPA 8270 LV	04/16/09
Phenanthrene	550	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09
Phenol	<1600	μ g/Kg dry wt	1600	EPA 8270 LV	04/16/09
Pyrene	720	μ g/Kg dry wt	510	EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095475

Report Date: 05/21/09 Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: FO095476

Sample Collected: 04/08/09 Sample Received: 04/10/09 12:13

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC348-CBtoS-0409 #10 SIEVED

N LORING & HARDING

Sample Point Code:

44_12

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Report Page:

Page 1 of 4

System ID: EID File #:

AN04133 1020.001

LocCode:

PORTHARI

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Reporting limits are raised for PCB Aroclors because of dilution necessary to quantify the results.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	72.5	% W/W	0.01	SM 2540 G	04/14/09
METALS					
ARSENIC	3.45	mg/Kg dry wt	0.50	EPA 6020	04/22/09
CADMIUM	1.37	mg/Kg dry wt	0.10	EPA 6020	04/22/09
CHROMIUM	90.9	mg/Kg dry wt	0.50	EPA 6020	04/22/09
COPPER	65.7	mg/Kg dry wt	0.25	EPA 6020	04/22/09
LEAD	82.3	mg/Kg dry wt	0.10	EPA 6020	04/22/09
MERCURY	0.043	mg/Kg dry wt	0.010	EPA 6020	04/22/09
NICKEL	49.4	mg/Kg dry wt	0.25	EPA 6020	04/22/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	04/22/09
ZINC	616	mg/Kg dry wt	0.50	EPA 6020	04/22/09
GC ANALYSIS					
NWTPH-Dx					
DIESEL RANGE HYDROCARBONS (C12-C24)	<250	mg/Kg dry wt	250	NWTPH-Dx	04/16/09
OIL RANGE HYDROCARBONS (>C24)	2160	mg/Kg dry wt	500	NWTPH-Dx	04/16/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<200	μ g/Kg dry wt .	200	EPA 8082	05/06/09
Aroclor 1221	<400	μ g/Kg dry wt	400	EPA 8082	05/06/09
Aroclor 1232	<200	μ g/Kg dry wt	200	EPA 8082	05/06/09
Aroclor 1248	<200	μ g/Kg dry wt	200	EPA 8082	05/06/09
Aroclor 1254	<200	μg/Kg dry wt∍	200	EPA 8082	05/06/09
Aroclor 1260	4390	μ g/Kg dry wt	200	EPA 8082	05/06/09
Aroclor 1262	<200	μ g/Kg dry wt	200	EPA 8082	05/06/09
Aroclor 1268	<200	μ g/Kg dry wt	200	EPA 8082	05/06/09
OUTSIDE ANALYSIS		•			
TOTAL ORGANIC CARBON	49500	mg/Kg dry wt	50	EPA 9060 MOD	04/21/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 µm)	4.6	Fract %	0.1	ASTM D421/422	04/15/09
Coarse Sand (4750-2000 μ m)	0.1	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (150-75 μ m)	13.5	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (250-150 μm)	13.7	Fract %	0.1	ASTM D421/422	04/15/09
Fine Sand (425-250 μ m)	16.9	Fract %	0.1	ASTM D421/422	04/15/09

Report Date: 05/21/09

Validated By:





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LABORATORY ANALYSIS REPORT

Sample ID: FO095476 Sample Collected: 04/08/09 12:13 Sample Status: COMPLETE AND

Sample Received: 04/10/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 2 of 4

Address/Location: IL-44-ABC348-CBtoS-0409 #10 SIEVED

N LORING & HARDING

Sample Point Code: 44_12

System ID: AN04133

EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI

Sample Matrix: SEDIMENT Loccode: FORTHARI

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Reporting limits are raised for PCB Aroclors because of dilution necessary to quantify the results.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Gravel (>4750 μm)	0,1	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (2000-850 μm)	11.6	Fract %	0.1	ASTM D421/422	04/15/09
Medium Sand (850-425 µm)	16.3	Fract %	0.1	ASTM D421/422	04/15/09
Silt (13-9 µm)	6.9	Fract %	0.1	ASTM D421/422	04/15/09
Silt (22-13 μm)	3.1	Fract %	0.1	ASTM D421/422	04/15/09
Silt (32-22 µm)	3.1	Fract %	0.1	ASTM D421/422	04/15/09
Silt (7-3.2 μm)	1.5	Fract %	0.1	ASTM D421/422	04/15/09
Silt (75-32 μm)	6.2	Fract %	0.1	ASTM D421/422	04/15/09
Silt (9-7 μm)	2.3	Fract %	0.1	ASTM D421/422	04/15/09
POLYNUCLEAR AROMATICS & PHTHAI		•			
Acenaphthene	<92.7	μg/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Acenaphthylene	<92.7	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Anthracene	<92.7	μg/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Benzo(a)anthracene	<92.7	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Benzo(a)pyrene	122	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Benzo(b)fluoranthene	179	μg/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Benzo(ghi)perylene	236	μg/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Benzo(k)fluoranthene	124	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Bis(2-ethylhexyl) phthalate	1350	μ g/Kg dry wt	927	EPA8270M-SIM	04/17/09
Butyl benzyl phthalate	<927	μ g/Kg dry wt	927	EPA8270M-SIM	04/17/09
Chrysene	200	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Dibenzo(a,h)anthracene	<92.7	μg/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Diethyl phthalate	<927	μ g/Kg dry wt	927	EPA8270M-SIM	04/17/09
Dimethyl phthalate	<927	μ g/Kg dry wt	927	EPA8270M-SIM	04/17/09
Di-n-butyl phthalate	<927	μ g/Kg dry wt	927	EPA8270M-SIM	04/17/09
Di-n-octyl phthalate	<927	μ g/Kg dry wt	927	EPA8270M-SIM	04/17/09
Fluoranthene	336	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Fluorene	<92.7	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Indeno(1,2,3-cd)pyrene	135	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Naphthalene	<92.7	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Phenanthrene	315	μ g/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
Pyrene	253	μg/Kg dry wt	92.7	EPA8270M-SIM	04/17/09
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<450	μ g/Kg dry wt	450	EPA 8270 LV	04/16/09
1,2-Dichlorobenzene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09

Report Date: 05/21/09

Validated By:





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095476

Sample Collected: 04/08/09 Sample Received: 04/10/09 12:13

Sample Status: COMPLETE AND

Report Page:

System ID:

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC348-CBtoS-0409 #10 SIEVED

N LORING & HARDING

Sample Point Code:

44_12

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

EID File #: LocCode:

AN04133

Page 3 of 4

1020.001 **PORTHARI**

Collected By: JXB/MJS

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Reporting limits are raised for PCB Aroclors because of dilution necessary to quantify the results.

Test Parameter	Result	Units	MRL	Method	Analysis Date
1,3-Dichlorobenzene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
1,4-Dichlorobenzene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2,4,5-Trichlorophenol	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2,4,6-Trichlorophenol	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2,4-Dichlorophenol	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2,4-Dimethylphenol	<2300	μg/Kg dry wt	2300	EPA 8270 LV	04/16/09
2,4-Dinitrophenol	<8900	μg/Kg dry wt	8900	EPA 8270 LV	04/16/09
2,4-Dinitrotoluene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2,6-Dinitrotoluene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2-Chloronaphthalene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2-Chlorophenol	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2-Methylnaphthalene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2-Methylphenol	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
2-Nitroaniline	<890	μ g/Kg dry wt	890	EPA 8270 LV	04/16/09
2-Nitrophenol	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
3,3'-Dichlorobenzidine	<4500	μg/Kg dry wt	4500	EPA 8270 LV	04/16/09
3-Nitroaniline	<890	μg/Kg dry wt	890	EPA 8270 LV	04/16/09
4,6-Dinitro-2-methylphenol	<4500	μg/Kg dry wt	4500	EPA 8270 LV	04/16/09
4-Bromophenylphenyl ether	<450	µg/Kg dry wt	450	EPA 8270 LV	04/16/09
4-Chloro-3-methylphenol	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
4-Chloroaniline	· <450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
4-Chlorophenylphenyl ether	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
4-Methylphenol	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
4-Nitroaniline	<890	μg/Kg dry wt	890	EPA 8270 LV	04/16/09
4-Nitrophenol	<4500	μg/Kg dry wt	4500	EPA 8270 LV	04/16/09
Acenaphthene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Acenaphthylene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Anthracene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/0
Benzo(a)anthracene	<450	μg/Kg dry wt ∕	450	EPA 8270 LV	04/16/0
Benzo(a)pyrene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/0
Benzo(b)fluoranthene	450	μg/Kg dry wt	450	EPA 8270 LV	04/16/0
Benzo(g,h,i)perylene	470	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Benzo(k)fluoranthene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/0
Benzoic acid	<8900	μg/Kg dry wt	8900	EPA 8270 LV	04/16/0
Benzyl alcohol	<890	μg/Kg dry wt	890	EPA 8270 LV	04/16/0
Bis(2-chloroethoxy) methane	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09

Report Date: 05/21/09

Validated By:





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095476

Sample Collected: 04/08/09 Sample Received: 04/10/09

12:13

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC348-CBtoS-0409 #10 SIEVED

N LORING & HARDING

Sample Point Code:

44_12

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Report Page:

Page 4 of 4

System ID: EID File #: AN04133

LocCode:

1020.001 **PORTHARI**

Collected By: JXB/MJS

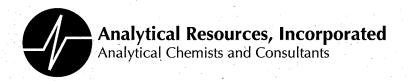
Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Reporting limits are raised for PCB Aroclors because of dilution necessary to quantify the results.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Bis(2-chloroethyl) ether	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Bis(2-chloroisopropyl) ether	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Bis(2-ethylhexyl) phthalate	<4500	μg/Kg dry wt	4500	EPA 8270 LV	04/16/09
Butyl benzyl phthalate	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Chrysene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Dibenzo(a,h)anthracene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Dibenzofuran	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Diethyl phthalate	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Dimethyl phthalate	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Di-n-butyl phthalate	<890	μg/Kg dry wt	890	EPA 8270 LV	04/16/09
Di-n-octyl phthalate	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Fluoranthene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Fluorene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Hexachlorobenzene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Hexachlorobutadiene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Hexachlorocyclopentadiene	<2300	μg/Kg dry wt	2300	EPA 8270 LV	04/16/09
Hexachloroethane	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Indeno(1,2,3-cd)pyrene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Isophorone	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Naphthalene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Nitrobenzene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
N-Nitrosodi-n-propylamine	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
N-Nitrosodiphenylamine	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Pentachlorophenol	<4500	μg/Kg dry wt	4500	EPA 8270 LV	04/16/09
Phenanthrene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09
Phenol	<1400	μg/Kg dry wt	1400	EPA 8270 LV	04/16/09
` Pyrene	<450	μg/Kg dry wt	450	EPA 8270 LV	04/16/09

End of Report for Sample ID: FO095476

Report Date: 05/21/09 Validated By:



April 24, 2009

Mr. Howard Holmes Test America, Inc. 9405 SW Nimbus Ave. Beaverton, OR 97008

Subject: Project No.: PSD0460;

ARI Project No.: OV47

Dear Mr. Holmes,

The following pages provide the grain size data you requested. Please call me to discuss any questions or comments you may have on the data or its presentation.

Best Regards,

Analytical Resources Incorporated

Guenna Smith

Geotechnical Laboratory Manager

206-695-6246

guennas@arilabs.com

Enclosures

cc: File OV47

SUBCONTRACT ORDER

TestAmerica Portland PSD0460

RECEIVING LABORATORY: SENDING LABORATORY: TestAmerica Portland Analytical Resources, Inc. (ARI) 4611 S 134th Place, Suite 100 9405 SW Nimbus Ave. Beaverton, OR 97008 Tukwilla, WA 98168 Phone: (503) 906-9200 Phone: (206) 621-6490 Fax: 206-621-7523 Fax: (503) 906-9210 Project Manager: Howard Holmes Project Location: OR - OREGON Receipt Temperature: Y / N Ice: needs Excel EDD Analysis Units Due **Expires** Comments Sample ID: PSD0460-01 Soil Sampled: 04/07/09 08:48 Grain Size (ASTM) - SUB 04/27/09 10/04/09 08:48 sub to Analytical Resources Inc (ARI) ug/l Containers Supplied: 8 oz. jar (A) Sample ID: PSD0460-02 Soil Sampled: 04/07/09 09:48 Grain Size (ASTM) - SUB 04/27/09 10/04/09 09:48 sub to Analytical Resources Inc (ARI) ug/l Containers Supplied: 8 oz. jar (A) Sample ID: PSD0460-03 Soil Sampled: 04/07/09 11:47 Grain Size (ASTM) - SUB ug/l 04/27/09 10/04/09 11:47 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A) Sample ID: PSD0460-04 Soil Sampled: 04/07/09 13:11 Grain Size (ASTM) - SUB ug/l 04/27/09 10/04/09 13:11 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A) Sample ID: PSD0460-05 Soil Sampled: 04/07/09 13:48 Grain Size (ASTM) - SUB ug/l 04/27/09 10/04/09 13:48 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A) Sample ID: PSD0460-06 Soil Sampled: 04/08/09 07:52 Grain Size (ASTM) - SUB ug/l 04/27/09 10/05/09 07:52 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A)

Mmama Eelley
Released By

Released By

41409 1240 Date/Time

Received By

4/15/09 930 Date/Time

Date/Time

Received By

Date/Time

Page 1 of 2

SUBCONTRACT ORDER

TestAmerica Portland PSD0460

Analysis	Units	Due	Expires	Comments
Sample ID: PSD0460-07	Soil		Sampled: 04/08/09 08:18	
Grain Size (ASTM) - SUB	ug/l	04/27/09	10/05/09 08:18	sub to Analytical Resources Inc (ARI)
Containers Supplied: 8 oz. jar (A)				
Sample ID: PSD0460-08	Soil		Sampled: 04/08/09 09:21	
Grain Size (ASTM) - SUB	ug/l	04/27/09	10/05/09 09:21	sub to Analytical Resources Inc (ARI)
Containers Supplied: 8 oz. jar (A)				
Sample ID: PSD0460-09	Soil		Sampled: 04/08/09 13:31	
Grain Size (ASTM) - SUB	ug/l	04/27/09	10/05/09 13:31	sub to Analytical Resources Inc (ARI)
Containers Supplied: 8 oz. jar (A)				
Sample ID: PSD0460-10	Soil		Sampled: 04/08/09 12:13	
Grain Size (ASTM) - SUB	ug/l	04/27/09	10/05/09 12:13	sub to Analytical Resources Inc (ARI)
Containers Supplied: 8 oz. jar (A)				
Sample ID: PSD0460-11	Soil		Sampled: 04/08/09 10:01	
Grain Size (ASTM) - SUB	ug/l	04/27/09	10/05/09 10:01	sub to Analytical Resources Inc (ARI)
Containers Supplied: 8 oz. jar (A)				
Sample ID: PSD0460-12	Soil		Sampled: 04/08/09 10:36	
Grain Size (ASTM) - SUB	ug/l	04/27/09	10/05/09 10:36	sub to Analytical Resources Inc (ARI)
Containers Supplied: 8 oz. jar (A)				

Client: Test America, Inc.

ARI Project No.: OV47

Client Project: PSD0460

Case Narrative

- 1. Twelve samples were received on April 15, 2009, and were in good condition.
- 2. The samples were submitted for grain size distribution, according to ASTM D422. The samples were prepared according to ASTM D421.
- 3. An assumed specific gravity of 2.65 was used in the calculations.
- 4. A standard milkshake mixer type device was used to disperse the sample.
- 5. The samples contained organic debris that may have broken down during the sieving process, affecting the grain size data.
- 6. The samples displayed and oily sheen and a fuel odor, which may have affected the grain size.
- 7. The data is provided in summary tables and plots.
- 8. There were no further anomalies in the samples or test method.

Approved by:

Title:

Geotechnical Division Manager

Data:

Test America, Inc. PSD0460

Percent Finer (Passing) Than the Indicated Size

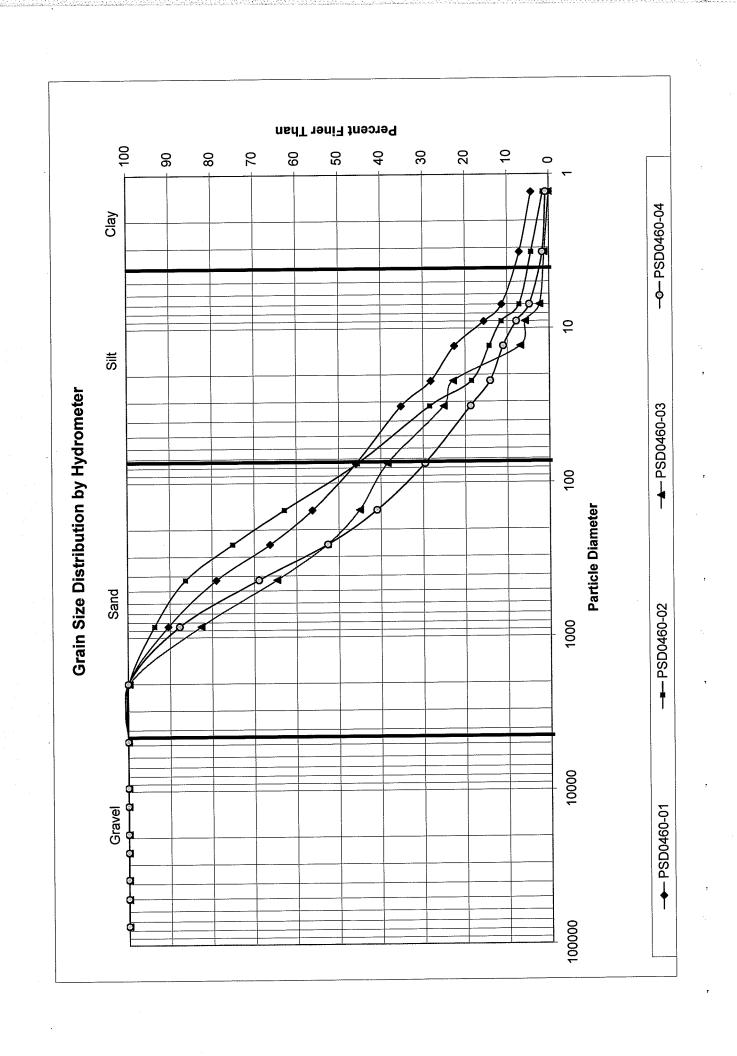
1.3	4.2	1.4	0.0	0.8	1.5	2.2	3.0	4.7	2.9	2.3	0.0	6.0	
3.2	7.0	4.3	1.1	1.6	7.	3.6	4.5	6.2	4.4	4.6	1.5	1.7	
7	11.3	7.1	2.3	4.7	4.6	5.8	6.7	9.3	5.9	6.2	6.0	6.9	
0	15.5	11.4	5.7	7.8	7.7	7.2	8.2	12.4	8.8	8.5	8.2	9.5	
13	22.5	14.2	6.8	10.9	9.3	8.7	10.5	14.0	11.7	15.4	11.9	15.5	
22	28.2	18.5	22.8	14.0	10.8	11.6	15.0	16.3	19.0	18.5	19.4	24.2	
32	35.2	28.4	25.1	18.7	12.4	14.5	18.0	18.6	23.4	21.6	22.4	31.1	
#200 (75)	45.9	45.5	38.4	29.5	20.3	23.0	27.0	24.3	30.1	27.7	32.0	40.2	
#100 (150)	56.2	62.8	45.0	40.9	28.2	37.5	42.2	37.0	44.3	41.3	44.9	46.4	
#60 (250)	66.3	75.1	52.6	52.5	37.5	52.9	57.6	52.5	58.6	55.0	57.1	52.8	
#40 (425)	78.9	6.98	64.6	8.89	52.8	72.8	76.2	74.0	75.3	71.9	71.8	63.6	
#20 (850)	90.4	93.7	82.6	7.78	74.3	9.06	91.0	91.8	91.0	88.1	86.2	80.3	
#10 (2000)	100.0	93.8	99.7	100.0	6.66	6.66	6.66	100.0	100.0	99.8	99.9	99.1	
#4 (4750)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	100.0	100.0	
3/8"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
1/2"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
3/4"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
1-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
1 1/2"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
2"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
 	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Sieve Size (microns)	PSD0460-01	PSD0460-02	PSD0460-03	PSD0460-04	PSD0460-05	PSD0460-06	PSD0460-07	PSD0460-08	PSD0460-09	PSD0460-10	PSD0460-11	PSD0460-12	

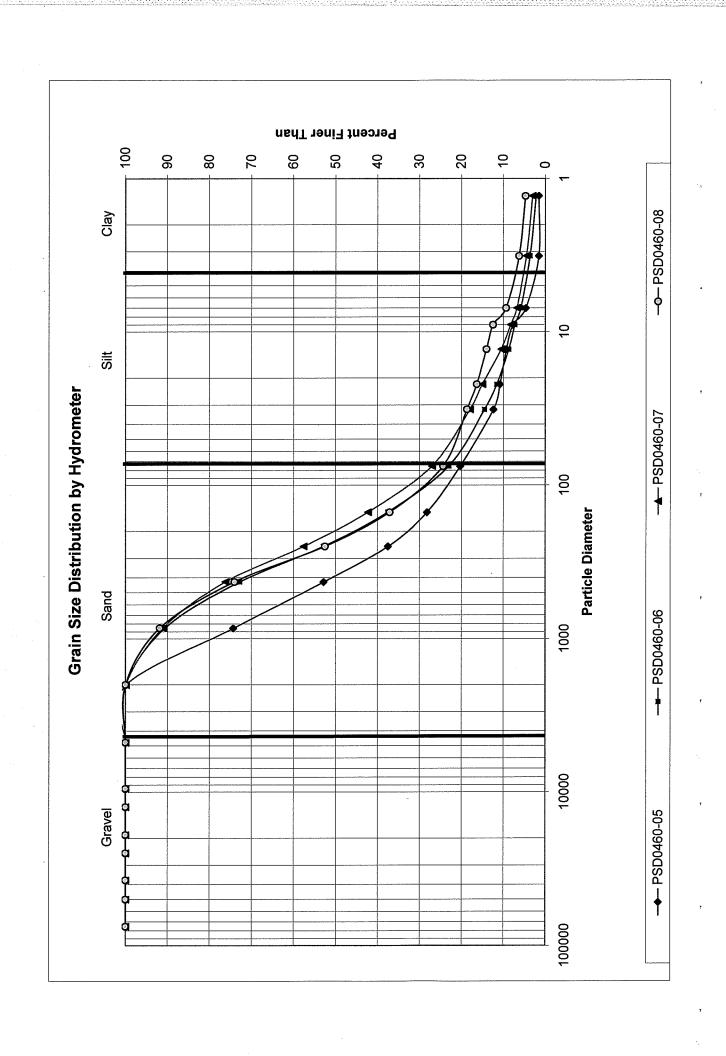
Testing performed according to ASTM D421/D422

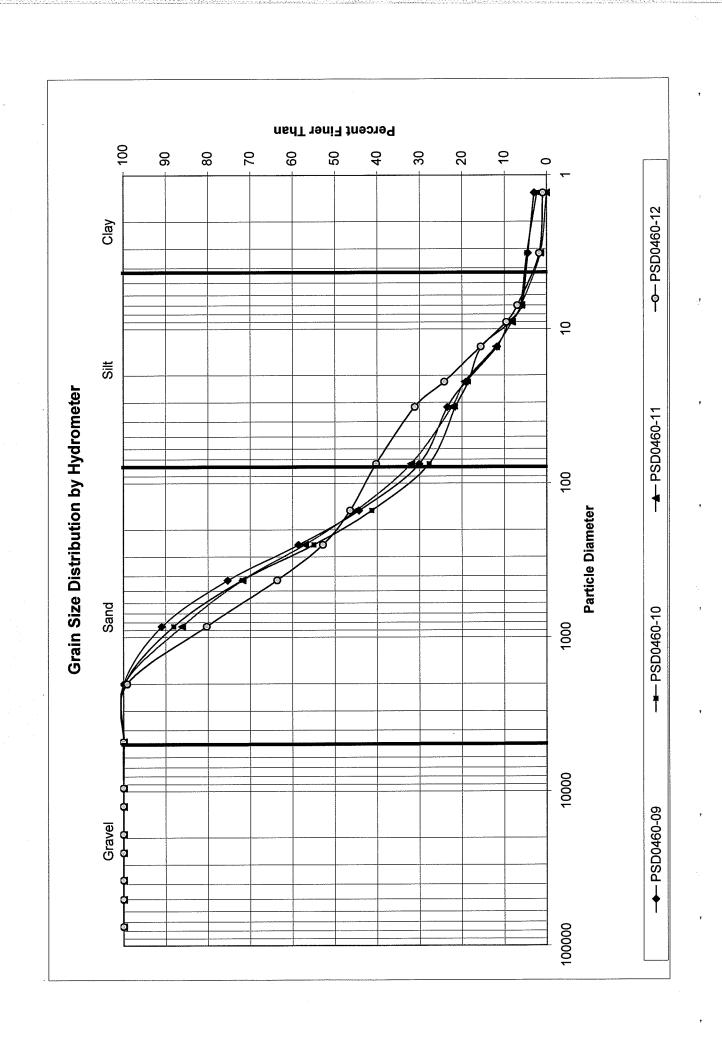
Test America, Inc. PSD0460

Percent Retained in Each Size Fraction

	П	Τ	F .		l · · ·	Т	T	Τ	Γ	T	_	1	
% Clay	<3.2	7.0	4.3	1.1	1.6	1.5	3.6	4.5	6.2	4.4	4.6	1.5	1.7
% Very Fine Silt	7-3.2	4.2	2.8	1.1	3.1	3.1	2.2	2.2	3.1	1.5	1.5	4.5	5.2
% Fine Silt	2-6	4.2	4.3	3.4	3.1	3.1	1.4	1.5	3.1	2.9	2.3	2.2	2.6
% Fine	13-9	7.0	2.8	1.1	3.1	1.5	1.4	2.2	1.6	2.9	6.9	3.7	6.0
% Medium Silt	22-13	5.6	4.3	16.0	3.1	1.5	2.9	4.5	2.3	7.3	3.1	7.5	9.8
% Coarse Silt	32-22	7.0	10.0	2.3	4.7	1.5	2.9	3.0	2.3	4.4	3.1	3.0	6.9
% Very Coarse Silt	75-32	10.7	17.1	13.3	10.8	7.9	8.5	9.0	2.2	6.7	6.2	9.6	9.1
Ъ	150-75	10.3	17.3	9.9	11.4	7.9	14.6	15.2	12.7	14.2	13.5	12.9	6.2
% Fine Sand	250-150	10.1	12.2	9.7	11.7	9.3	15.4	15.4	15.5	14.3	13.7	12.1	6.4
%	425-250	12.7	11.2	11.9	16.3	15.4	19.9	18.6	21.5	16.7	16.9	14.8	10.8
m Sand	850-425	11.5	7.4	18.0	18.9	21.5	17.8	14.9	17.8	15.7	16.3	14.3	16.7
% Medium Sand	2000-850	9.6	6.1	17.1	12.3	25.6	9.3	8.8	8.2	9.0	11.6	13.7	18.8
% Coarse Sand	4750- 2000	0.0	0.2	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.9
	3/8"-4750	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
% Gravel	1/2-3/8"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3/4-1/2"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1-3/4"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gravel	1 1/2"-1"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%Coarse Gravel	2-1 1/2"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3-2"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Description	Particle Size (microns)	PSD0460-01	PSD0460-02	PSD0460-03	PSD0460-04	PSD0460-05	PSD0460-06	PSD0460-07	PSD0460-08	PSD0460-09	PSD0460-10	PSD0460-11	PSD0460-12









June 4, 2009

Analytical Report for Service Request No: K0903237

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor - Inline Samp

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on April 14, 2009. For your reference, these analyses have been assigned our service request number K0903237.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/cb

Page 1 of

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

POL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- $U \quad \text{ The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.} \\$
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	_
Florida DOH	E87412
Hawaii DOH	
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-





Client:

Portland, City of

Service Request No.:

K0903237

Project:

Portland Harbor - Inline Samp

Date Received:

04/14/09

Sample Matrix:

Sediment

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Twelve sediment samples were received for analysis at Columbia Analytical Services on 04/14/09. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Semivolatile Organic Compounds by EPA Method 8270C

Surrogate Exceptions:

The control criteria for all surrogates in sample FO095470 were not applicable. The analysis of the sample required a dilution, which resulted in a surrogate concentration below the reporting limit. No further corrective action was appropriate.

The control criteria for Terpehnyl-d14 in few samples were not applicable. The analysis of the samples required dilutions, which resulted in surrogate concentrations below the reporting limit. No further corrective action was appropriate.

Relative Percent Difference (RPD) Exceptions:

The RPD criterion for 2,4-Dimethylphenol in the replicate Laboratory Control Samples (LCS/DLCS) KWG0903189-3 and KWG0903189-4 was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

Elevated Method Reporting Limits:

The detection limits were elevated for all samples. The sample extracts were diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extracts were highly colored and viscous, which indicated the need to perform dilutions prior to injection into the instrument. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. Semi-quantitative screens were performed prior to final analysis. The results of the screening indicated the need to perform dilutions.

No other anomalies associated with the analysis of these samples were observed.

Analytical Results

Client:

Portland, City of Portland Harbor - In

Project: Sample Matrix:

Sediment

Total Solids

Prep Method: Analysis Method: NONE 160.3M Units: PERCENT
Basis: Wet

Service Request: K0903237

Test Notes:

		Date	Date	Date		Result Notes
Sample Name	Lab Code	Collected	Received	Analyzed	Result	Mesuit 140tes
F0095467	K0903237-001	04/07/2009	04/14/2009	04/15/2009	63.7	
F0095468	K0903237-002	04/07/2009	04/14/2009	04/15/2009	77.0	
F0095469	K0903237-003	04/07/2009	04/14/2009	04/15/2009	68.5	
F0095470	K0903237-004	04/07/2009	04/14/2009	04/15/2009	80.8	
F0095471	K0903237-005	04/07/2009	04/14/2009	04/15/2009	59.9	
F0095472	K0903237-006	04/08/2009	04/14/2009	04/15/2009	72.2	
F0095473	K0903237-007	04/08/2009	04/14/2009	04/15/2009	68.2	
F0095474	K0903237-008	04/08/2009	04/14/2009	04/15/2009	68.4	
F0095475	K0903237-009	04/08/2009	04/14/2009	04/15/2009	49.0	
F0095476	K0903237-010	04/08/2009	04/14/2009	04/15/2009	56.5	
F0095477	K0903237-011	04/08/2009	04/14/2009	04/15/2009	88.9	
F0095478	K0903237-012	04/08/2009	04/14/2009	04/15/2009	22.2	

SuperSet Reference: W0903240

QA/QC Report

Client: Project:

Portland, City of Portland Harbor - In

Sample Matrix:

Sediment

Service Request: K0903237 **Date Collected:** 04/07/2009 **Date Received:** 04/14/2009

Date Analyzed: 04/15/2009

Duplicate Sample Summary Total Solids

Prep Method:

NONE

Units: PERCENT Basis: Wet

Analysis Method: 160.3M Test Notes:

Duplicate Relative Sample Percent Sample Result Notes

Result Difference Result Sample Name Lab Code Average K0903237-001 F0095467 63.7 63.0 63.4 Descrip

SuperSet Reference: W0903240

QA/QC Report

Client: Project: Portland, City of Portland Harbor - In

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/08/2009 **Date Received:** 04/14/2009 **Date Analyzed:** 04/15/2009

Duplicate Sample Summary Total Solids

Prep Method:

Analysis Method:

NONE

160.3M

Units: PERCENT

Basis: Wet

Test Notes:

Sample Name

Sample Result Lab Code

Result

23.8

Average

Percent Result Notes Difference

F0095478

K0903237-012

22.2

Duplicate

Sample

23.0

7

Relative

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SuperSet Reference: W0903240

8

Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Sample Matrix: Sediment

Service Request: K0903237

Date Collected: 04/07/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO095467 **Lab Code:** K0903237-001

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	0	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND		200	48	25	04/16/09	04/28/09	KWG0903189	11066
Phenol		JD	590	50	25	04/16/09	04/28/09	KWG0903189	
2-Chlorophenol	ND		200	50	25	04/16/09	04/28/09	KWG0903189	
	ND		200	75	25	04/16/09	04/28/09	KWG0903189	
1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND		200	73 73	25 25	04/16/09	04/28/09	KWG0903189	
1,4-Dichlorobenzene	ND ND		200	73	25 25	04/16/09	04/28/09	KWG0903189	
Benzyl Alcohol	ND		400	53	25	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND		200	65	25	04/16/09	04/28/09	KWG0903189	
2-Methylphenol	ND		200	38	25	04/16/09	04/28/09	KWG0903189	
Hexachloroethane	ND		200	78	25	04/16/09	04/28/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND		200	60	25	04/16/09	04/28/09	KWG0903189	
4-Methylphenol†	160	JD	200	38	25	04/16/09	04/28/09	KWG0903189	
Nitrobenzene	ND	U	200	55	25	04/16/09	04/28/09	KWG0903189	
Isophorone	ND	U	200	25	25	04/16/09	04/28/09	KWG0903189	
2-Nitrophenol	ND	U	200	38	25	04/16/09	04/28/09	KWG0903189	
2,4-Dimethylphenol	ND	U	980	140	25	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND		200	38	25	04/16/09	04/28/09	KWG0903189	
2,4-Dichlorophenol	ND	U	200	25	25	04/16/09	04/28/09	KWG0903189	
Benzoic Acid	ND	U	4000	2400	25	04/16/09	04/28/09	KWG0903189	
1,2,4-Trichlorobenzene	ND		200	65	25	04/16/09	04/28/09	KWG0903189	
Naphthalene	ND	U	200	58	25	04/16/09	04/28/09	KWG0903189	
4-Chloroaniline	ND	IJ	200	48	25	04/16/09	04/28/09	KWG0903189	
Hexachlorobutadiene	ND		200	63	25	04/16/09	04/28/09	KWG0903189	
4-Chloro-3-methylphenol	ND		200	35	25	04/16/09	04/28/09	KWG0903189	
2-Methylnaphthalene	ND	IJ	200	55	25	04/16/09	04/28/09	KWG0903189	
Hexachlorocyclopentadiene	ND		980	730	25	04/16/09	04/28/09	KWG0903189	
2,4,6-Trichlorophenol	ND		200	35	25	04/16/09	04/28/09	KWG0903189	
2,4,5-Trichlorophenol	ND		200	38	25	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene	ND		200	40	25	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene 2-Nitroaniline	ND		400	80	25	04/16/09	04/28/09	KWG0903189	
			200	30	25	04/16/09	04/28/09	KWG0903189	
Acenaphthylene	ND	JD	200	25	25 25	04/16/09	04/28/09	KWG0903189	
Dimethyl Phthalate	ND		200	50	25 25	04/16/09	04/28/09	KWG0903189	
2,6-Dinitrotoluene					25	04/16/09	04/28/09	KWG0903189	
Acenaphthene	ND	U	200	35	23	04/10/09	04/20/07	1111 30705107	

Comments:

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Form 1A - Organic 9

SuperSet Reference: RR101814

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095467

Lab Code:

K0903237-001

Extraction Method: EPA 3541

DDA 2541

Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND	U	400	63	25	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrophenol	ND	U	4000	430	25	04/16/09	04/28/09	KWG0903189	
Dibenzofuran	ND	U	200	30	25	04/16/09	04/28/09	KWG0903189	
4-Nitrophenol	ND	U	2000	450	25	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrotoluene	ND	U	200	38	25	04/16/09	04/28/09	KWG0903189	
Fluorene	ND	U	200	28	25	04/16/09	04/28/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND	U	200	35	25	04/16/09	04/28/09	KWG0903189	
Diethyl Phthalate	ND	U	200	33	25	04/16/09	04/28/09	KWG0903189	
4-Nitroaniline	ND	U	400	45	25	04/16/09	04/28/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND	U	2000	35	25	04/16/09	04/28/09	KWG0903189	
N-Nitrosodiphenylamine	ND	U	200	40	25	04/16/09	04/28/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND	U	200	40	25	04/16/09	04/28/09	KWG0903189	
Hexachlorobenzene	ND	U	200	30	25	04/16/09	04/28/09	KWG0903189	
Pentachlorophenol	ND	U	2000	500	25	04/16/09	04/28/09	KWG0903189	
Phenanthrene	85	JD	200	35	25	04/16/09	04/28/09	KWG0903189	
Anthracene	ND	U	200	40	25	04/16/09	04/28/09	KWG0903189	
Di-n-butyl Phthalate	ND	U	400	200	25	04/16/09	04/28/09	KWG0903189	
Fluoranthene	140		200	40	25	04/16/09	04/28/09	KWG0903189	
Pyrene	160		200	38	25	04/16/09	04/28/09	KWG0903189	
Butyl Benzyl Phthalate	260	D	200	80	25	04/16/09	04/28/09	KWG0903189	
3,3'-Dichlorobenzidine	ND	U	2000	93	25	04/16/09	04/28/09	KWG0903189	
Benz(a)anthracene	53	JD	200	43	25	04/16/09	04/28/09	KWG0903189	
Chrysene	80	JD	200	38	25	04/16/09	04/28/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	1200	JD	2000.	180	25	04/16/09	04/28/09	KWG0903189	
Di-n-octyl Phthalate	ND	U	200	43	25	04/16/09	04/28/09	KWG0903189	
Benzo(b)fluoranthene	120	JD	200	30	25	04/16/09	04/28/09	KWG0903189	
Benzo(k)fluoranthene	36	JD	200	35	25	04/16/09	04/28/09	KWG0903189	
Benzo(a)pyrene	82	JD	200	43	25	04/16/09	04/28/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	78	JD	200	38	25	04/16/09	04/28/09	KWG0903189	
Dibenz(a,h)anthracene	ND	U	200	38	25	04/16/09	04/28/09	KWG0903189	
Benzo(g,h,i)perylene	110	JD	200	38	25	04/16/09	04/28/09	KWG0903189	

Comments:

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SuperSet Reference: RR101814

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095467

Lab Code:

K0903237-001

Units: ug/Kg

Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	36	10-89	04/28/09	Acceptable
Phenol-d6	51	15-103	04/28/09	Acceptable
Nitrobenzene-d5	53	10-108	04/28/09	Acceptable
2-Fluorobiphenyl	66	10-105	04/28/09	Acceptable
2,4,6-Tribromophenol	52	16-122	04/28/09	Acceptable
Terphenyl-d14	87	31-126	04/28/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

3 of 3 Page

SuperSet Reference: RR101814

Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Sample Matrix: Sediment

Service Request: K0903237

Date Collected: 04/07/2009

Date Received: 04/14/2009

$Semi-Volatile\ Organic\ Compounds\ by\ GC/MS$

Sample Name: FO095468 **Lab Code:** K0903237-002

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	170	48	25	04/16/09	04/28/09	KWG0903189	
Phenol	ND	U	490	50	25	04/16/09	04/28/09	KWG0903189	
2-Chlorophenol	ND	U	170	50	25	04/16/09	04/28/09	KWG0903189	
1,3-Dichlorobenzene	ND	U	170	75	25	04/16/09	04/28/09	KWG0903189	
1,4-Dichlorobenzene	ND	U	170	73	25	04/16/09	04/28/09	KWG0903189	
1,2-Dichlorobenzene	ND	U	170	73	25	04/16/09	04/28/09	KWG0903189	
Benzyl Alcohol	ND		330	53	25	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND		170	65	25	04/16/09	04/28/09	KWG0903189	
2-Methylphenol	ND	U	170	38	25	04/16/09	04/28/09	KWG0903189	
Hexachloroethane	ND		170	78	25	04/16/09	04/28/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND		170	60	25	04/16/09	04/28/09	KWG0903189	
4-Methylphenol†	ND	U	170	38	25	04/16/09	04/28/09	KWG0903189	
Nitrobenzene	ND		170	55	25	04/16/09	04/28/09	KWG0903189	
Isophorone	ND		170	25	25	04/16/09	04/28/09	KWG0903189	
2-Nitrophenol	ND	U	170	38	25	04/16/09	04/28/09	KWG0903189	
2,4-Dimethylphenol	ND		820	140	25	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND		170	38	25	04/16/09	04/28/09	KWG0903189	
2,4-Dichlorophenol	ND	U	170	25	25	04/16/09	04/28/09	KWG0903189	
Benzoic Acid	ND		3300	2400	25	04/16/09	04/28/09	KWG0903189	
1,2,4-Trichlorobenzene	ND		170	65	25	04/16/09	04/28/09	KWG0903189	
Naphthalene	ND	U	170	58	25	04/16/09	04/28/09	KWG0903189	
4-Chloroaniline	ND		170	48	25	04/16/09	04/28/09	KWG0903189	
Hexachlorobutadiene	ND		170	63	25	04/16/09	04/28/09	KWG0903189	
4-Chloro-3-methylphenol	ND	U	170	35	25	04/16/09	04/28/09	KWG0903189	
2-Methylnaphthalene	ND	U	170	55	25	04/16/09	04/28/09	KWG0903189	
Hexachlorocyclopentadiene	ND	U	820	730	25	04/16/09	04/28/09	KWG0903189	
2,4,6-Trichlorophenol	ND	U	170	35	25	04/16/09	04/28/09	KWG0903189	
2,4,5-Trichlorophenol	ND	U	170	38	25	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene	ND	U	170	40	25	04/16/09	04/28/09	KWG0903189	
2-Nitroaniline	ND	U	330	80	25	04/16/09	04/28/09	KWG0903189	,,
Acenaphthylene	ND	U	170	30	25	04/16/09	04/28/09	KWG0903189	
Dimethyl Phthalate	69	JD	170	25	25	04/16/09	04/28/09	KWG0903189	
2,6-Dinitrotoluene	ND	U	170	50	25	04/16/09	04/28/09	KWG0903189	
Acenaphthene	ND	U	170	35	25	04/16/09	04/28/09	KWG0903189	

Comments:

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Form 1A - Organic

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SuperSet Reference: RR101814

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095468

Lab Code:

K0903237-002

Extraction Method:

EPA 3541

Units: ug/Kg Basis: Dry

Analysis Method:

8270C

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result		MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND		330	63	25	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrophenol	ND	U	3300	430	25	04/16/09	04/28/09	KWG0903189	
Dibenzofuran	ND	U	170	30	25	04/16/09	04/28/09	KWG0903189	
4-Nitrophenol	ND		1700	450	25	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrotoluene	ND	U	170	38	25	04/16/09	04/28/09	KWG0903189	
Fluorene	ND		170	28	25	04/16/09	04/28/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND	U	170	35	25	04/16/09	04/28/09	KWG0903189	
Diethyl Phthalate	ND	U	170	33	25	04/16/09	04/28/09	KWG0903189	
4-Nitroaniline	ND	U	330	45	25	04/16/09	04/28/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND		1700	35	25	04/16/09	04/28/09	KWG0903189	
N-Nitrosodiphenylamine	ND	U	170	40	25	04/16/09	04/28/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND	U	170	40	25	04/16/09	04/28/09	KWG0903189	
Hexachlorobenzene	ND	U	170	30	25	04/16/09	04/28/09	KWG0903189	
Pentachlorophenol	ND	U	1700	500	25	04/16/09	04/28/09	KWG0903189	
Phenanthrene	38	JD	170	35	25	04/16/09	04/28/09	KWG0903189	
Anthracene	ND	U	170	40	25	04/16/09	04/28/09	KWG0903189	
Di-n-butyl Phthalate	ND	U	330	200	25	04/16/09	04/28/09	KWG0903189	
Fluoranthene		JD	170	40	25	04/16/09	04/28/09	KWG0903189	
Pyrene	130	JD	170	38	25	04/16/09	04/28/09	KWG0903189	
Butyl Benzyl Phthalate	ND	U	170	80	25	04/16/09	04/28/09	KWG0903189	
3,3'-Dichlorobenzidine	ND	U	1700	93	25	04/16/09	04/28/09	KWG0903189	
Benz(a)anthracene	ND		170	43	25	04/16/09	04/28/09	KWG0903189	
Chrysene	53	JD	170	38	25	04/16/09	04/28/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	820	JD	1700	180	25	04/16/09	04/28/09	KWG0903189	
Di-n-octyl Phthalate	ND		170	43	25	04/16/09	04/28/09	KWG0903189	
Benzo(b)fluoranthene	74	JD	170	30	25	04/16/09	04/28/09	KWG0903189	
Benzo(k)fluoranthene	ND	U	170	35	25	04/16/09	04/28/09	KWG0903189	
Benzo(a)pyrene	51	JD	170	43	25	04/16/09	04/28/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	52	JD	170	38	25	04/16/09	04/28/09	KWG0903189	
Dibenz(a,h)anthracene	ND	U	170	38	25	04/16/09	04/28/09	KWG0903189	
Benzo(g,h,i)perylene	97	JD	170	38	25	04/16/09	04/28/09	KWG0903189	

Comments:

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RR101814

SuperSet Reference:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095468

Lab Code:

K0903237-002

Units: ug/Kg

Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	44	10-89	04/28/09	Acceptable
Phenol-d6	56	15-103	04/28/09	Acceptable
Nitrobenzene-d5	57	10-108	04/28/09	Acceptable
2-Fluorobiphenyl	69	10-105	04/28/09	Acceptable
2,4,6-Tribromophenol	65	16-122	04/28/09	Acceptable
Terphenyl-d14	92	31-126	04/28/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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Page 3 of 3

SuperSet Reference: RR101814

Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Sample Matrix: Sediment

Service Request: K0903237

Date Collected: 04/07/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

 Sample Name:
 FO095469

 Lab Code:
 K0903237-003

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Basis: Dry
Level: Low

Units: ug/Kg

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND		150	38	20	04/16/09	04/29/09	KWG0903189	
Phenol	ND		440	40	20	04/16/09	04/29/09	KWG0903189	
2-Chlorophenol	ND	U	150	40	20	04/16/09	04/29/09	KWG0903189	
1,3-Dichlorobenzene	ND		150	60	20	04/16/09	04/29/09	KWG0903189	
1,4-Dichlorobenzene	ND		150	58	20	04/16/09	04/29/09	KWG0903189	
1,2-Dichlorobenzene	ND	U	150	58	20	04/16/09	04/29/09	KWG0903189	
Benzyl Alcohol	ND		300	42	20	04/16/09	04/29/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND	U	150	52	20	04/16/09	04/29/09	KWG0903189	
2-Methylphenol	ND	U	150	30	20	04/16/09	04/29/09	KWG0903189	
Hexachloroethane	ND		150	62	20	04/16/09	04/29/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND		150	48	20	04/16/09	04/29/09	KWG0903189	
4-Methylphenol†	ND	U	150	30	20	04/16/09	04/29/09	KWG0903189	
Nitrobenzene	ND		150	44	20	04/16/09	04/29/09	KWG0903189	
Isophorone	ND		150	20	20	04/16/09	04/29/09	KWG0903189	
2-Nitrophenol	ND	U	150	30	20	04/16/09	04/29/09	KWG0903189	
2,4-Dimethylphenol	ND		730	110	20	04/16/09	04/29/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND		150	30	20	04/16/09	04/29/09	KWG0903189	
2,4-Dichlorophenol	ND	U	150	20	20	04/16/09	04/29/09	KWG0903189	
Benzoic Acid	ND		3000	2000	20	04/16/09	04/29/09	KWG0903189	
1,2,4-Trichlorobenzene	ND		150	52	20	04/16/09	04/29/09	KWG0903189	
Naphthalene	ND	U	150	46	20	04/16/09	04/29/09	KWG0903189	
4-Chloroaniline	ND		150	38	20	04/16/09	04/29/09	KWG0903189	
Hexachlorobutadiene	ND		150	50	20	04/16/09	04/29/09	KWG0903189	
4-Chloro-3-methylphenol	ND	U	150	28	20	04/16/09	04/29/09	KWG0903189	
2-Methylnaphthalene	ND		150	44	20	04/16/09	04/29/09	KWG0903189	
Hexachlorocyclopentadiene	ND	U	730	580	20	04/16/09	04/29/09	KWG0903189	
2,4,6-Trichlorophenol	ND	U	150	28	20	04/16/09	04/29/09	KWG0903189	
2,4,5-Trichlorophenol	ND	U	150	30	20	04/16/09	04/29/09	KWG0903189	
2-Chloronaphthalene	ND	U	150	32	20	04/16/09	04/29/09	KWG0903189	
2-Nitroaniline	ND	U	300	64	20	04/16/09	04/29/09	KWG0903189	.,
Acenaphthylene	ND		150	24	20	04/16/09	04/29/09	KWG0903189	
Dimethyl Phthalate		JD	150	20	20	04/16/09	04/29/09	KWG0903189	
2,6-Dinitrotoluene	ND	U	150	40	20	04/16/09	04/29/09	KWG0903189	
Acenaphthene	ND	U	150	28	20	04/16/09	04/29/09	KWG0903189	

Comments:

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SuperSet Reference: RR101814

Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Sample Matrix: Sediment

Service Request: K0903237 Date Collected: 04/07/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO095469 **Lab Code:** K0903237-003

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg
Basis: Dry
Level: Low

Dilution Date Date Extraction Result Q MRL MDL Factor Extracted Analyzed Lot Note Analyte Name KWG0903189 ND U 300 50 20 04/16/09 04/29/09 3-Nitroaniline ND U 3000 340 20 04/29/09 KWG0903189 2,4-Dinitrophenol 04/16/09 ND U 24 20 KWG0903189 150 04/16/09 04/29/09 Dibenzofuran 20 04/29/09 KWG0903189 4-Nitrophenol ND U 1500 360 04/16/09 ND U 30 20 04/16/09 04/29/09 KWG0903189 2,4-Dinitrotoluene 150 22 20 KWG0903189 ND U 150 04/16/09 04/29/09 Fluorene 28 04/29/09 KWG0903189 4-Chlorophenyl Phenyl Ether ND U 150 20 04/16/09 04/29/09 KWG0903189 Diethyl Phthalate ND U 150 26 20 04/16/09 4-Nitroaniline ND U 300 36 20 04/16/09 04/29/09 KWG0903189 1500 28 20 04/16/09 04/29/09 KWG0903189 2-Methyl-4,6-dinitrophenol ND U 32 20 04/29/09 KWG0903189 04/16/09 N-Nitrosodiphenylamine ND U 150 04/29/09 KWG0903189 4-Bromophenyl Phenyl Ether 150 32 20 04/16/09 ND U 24 20 04/16/09 04/29/09 KWG0903189 Hexachlorobenzene ND U 150 KWG0903189 ND U 1500 400 20 04/16/09 04/29/09 Pentachlorophenol 20 04/16/09 04/29/09 KWG0903189 160 D 150 28 Phenanthrene KWG0903189 32 20 04/16/09 04/29/09 38 JD 150 Anthracene KWG0903189 160 20 04/16/09 04/29/09 ND U 300 Di-n-butyl Phthalate KWG0903189 20 04/29/09 32 04/16/09 300 D 150 Fluoranthene 04/16/09 04/29/09 KWG0903189 30 20 280 D 150 Pyrene 20 04/29/09 KWG0903189 160 D 150 64 04/16/09 **Butyl Benzyl Phthalate** 20 KWG0903189 74 04/29/09 ND U 1500 04/16/09 3.3'-Dichlorobenzidine KWG0903189 34 20 04/16/09 04/29/09 150 150 JD Benz(a)anthracene KWG0903189 30 20 04/16/09 04/29/09 260 D 150 Chrysene 20 04/29/09 KWG0903189 140 04/16/09 1700 D 1500 Bis(2-ethylhexyl) Phthalate 04/29/09 KWG0903189 34 20 04/16/09 150 Di-n-octyl Phthalate ND U KWG0903189 04/29/09 20 04/16/09 270 D 150 24 Benzo(b)fluoranthene KWG0903189 20 04/16/09 04/29/09 28 89 JD 150 Benzo(k)fluoranthene KWG0903189 170 D 150 34 20 04/16/09 04/29/09 Benzo(a)pyrene 04/29/09 30 20 04/16/09 KWG0903189 190 D 150 Indeno(1,2,3-cd)pyrene 20 04/16/09 04/29/09 KWG0903189 30 46 JD 150 Dibenz(a,h)anthracene KWG0903189 04/29/09 150 30 20 04/16/09 230 D Benzo(g,h,i)perylene

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: FO095469

K0903237-003

Units: ug/Kg
Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	33	10-89	04/29/09	Acceptable
Phenol-d6	51	15-103	04/29/09	Acceptable
Nitrobenzene-d5	64	10-108	04/29/09	Acceptable
2-Fluorobiphenyl	75	10-105	04/29/09	Acceptable
2,4,6-Tribromophenol	66	16-122	04/29/09	Acceptable
Terphenyl-d14	104	31-126	04/29/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: FO095470 K0903237-004

Extraction Method:
Analysis Method:

EPA 3541 8270C Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	620	120	50	04/16/09	04/29/09	KWG0903189	COLUMN TO SHARE
Phenol	ND	U	1900	130	50	04/16/09	04/29/09	KWG0903189	
2-Chlorophenol	ND	U	620	130	50	04/16/09	04/29/09	KWG0903189	
1,3-Dichlorobenzene	ND	U	620	190	50	04/16/09	04/29/09	KWG0903189	
1,4-Dichlorobenzene	ND	U	620	180	50	04/16/09	04/29/09	KWG0903189	
1,2-Dichlorobenzene	ND	U	620	180	50	04/16/09	04/29/09	KWG0903189	
Benzyl Alcohol	ND	U	1300	130	50	04/16/09	04/29/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND	U	620	170	50	04/16/09	04/29/09	KWG0903189	
2-Methylphenol	ND	U	620	93	50	04/16/09	04/29/09	KWG0903189	
Hexachloroethane	ND	U	620	200	50	04/16/09	04/29/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND		620	150	50	04/16/09	04/29/09	KWG0903189	
4-Methylphenol†	ND	U	620	93	50	04/16/09	04/29/09	KWG0903189	
Nitrobenzene	ND		620	140	50	04/16/09	04/29/09	KWG0903189	
Isophorone	ND	U	620	62	50	04/16/09	04/29/09	KWG0903189	
2-Nitrophenol	ND	U	620	93	50	04/16/09	04/29/09	KWG0903189	
2,4-Dimethylphenol	ND	U	3100	350	50	04/16/09	04/29/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND		620	93	50	04/16/09	04/29/09	KWG0903189	
2,4-Dichlorophenol	ND	U	620	62	50	04/16/09	04/29/09	KWG0903189	
Benzoic Acid	ND		13000	6000	50	04/16/09	04/29/09	KWG0903189	
1,2,4-Trichlorobenzene	ND		620	170	50	04/16/09	04/29/09	KWG0903189	
Naphthalene	170	JD	620	150	50	04/16/09	04/29/09	KWG0903189	
4-Chloroaniline	ND		620	120	50	04/16/09	04/29/09	KWG0903189	
Hexachlorobutadiene	ND		620	160	50	04/16/09	04/29/09	KWG0903189	
4-Chloro-3-methylphenol	ND	U	620	87	50	04/16/09	04/29/09	KWG0903189	
2-Methylnaphthalene	ND		620	140	50	04/16/09	04/29/09	KWG0903189	
Hexachlorocyclopentadiene	ND		3100	1800	50	04/16/09	04/29/09	KWG0903189	
2,4,6-Trichlorophenol	ND	U	620	87	50	04/16/09	04/29/09	KWG0903189	
2,4,5-Trichlorophenol	ND	U	620	93	50	04/16/09	04/29/09	KWG0903189	
2-Chloronaphthalene	ND	U	620	99	50	04/16/09	04/29/09	KWG0903189	
2-Nitroaniline	ND	U	1300	200	50	04/16/09	04/29/09	KWG0903189	
Acenaphthylene	ND		620	75	50	04/16/09	04/29/09	KWG0903189	
Dimethyl Phthalate	190		620	62	50	04/16/09	04/29/09	KWG0903189	
2,6-Dinitrotoluene	ND	U	620	130	50	04/16/09	04/29/09	KWG0903189	
Acenaphthene	ND	U	620	87	50	04/16/09	04/29/09	KWG0903189	

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: FO095470 K0903237-004

Extraction Method:
Analysis Method:

EPA 3541 8270C Units: ug/Kg Basis: Dry

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND	U	1300	160	50	04/16/09	04/29/09	KWG0903189	
2,4-Dinitrophenol	ND	U	13000	1100	50	04/16/09	04/29/09	KWG0903189	
Dibenzofuran	ND	U	620	75	50	04/16/09	04/29/09	KWG0903189	
4-Nitrophenol	ND	U	6200	1200	50	04/16/09	04/29/09	KWG0903189	
2,4-Dinitrotoluene	ND	U	620	93	50	04/16/09	04/29/09	KWG0903189	
Fluorene	ND		620	69	50	04/16/09	04/29/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND	U	620	87	50	04/16/09	04/29/09	KWG0903189	
Diethyl Phthalate	ND	U	620	81	50	04/16/09	04/29/09	KWG0903189	
4-Nitroaniline	ND		1300	120	50	04/16/09	04/29/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND		6200	87	50	04/16/09	04/29/09	KWG0903189	
N-Nitrosodiphenylamine	ND	U	620	99	50	04/16/09	04/29/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND	U	620	99	50	04/16/09	04/29/09	KWG0903189	
Hexachlorobenzene	ND	U	620	75	50	04/16/09	04/29/09	KWG0903189	
Pentachlorophenol	ND	U	6200	1300	50	04/16/09	04/29/09	KWG0903189	
Phenanthrene	680	D	620	87	50	04/16/09	04/29/09	KWG0903189	
Anthracene	120		620	99	50	04/16/09	04/29/09	KWG0903189	
Di-n-butyl Phthalate	ND	U	1300	490	50	04/16/09	04/29/09	KWG0903189	
Fluoranthene	1100		620	99	50	04/16/09	04/29/09	KWG0903189	
Pyrene	1000		620	93	50	04/16/09	04/29/09	KWG0903189	
Butyl Benzyl Phthalate	3800	D	620	200	50	04/16/09	04/29/09	KWG0903189	
3,3'-Dichlorobenzidine	ND		6200	230	50	04/16/09	04/29/09	KWG0903189	
Benz(a)anthracene	240		620	110	50	04/16/09	04/29/09	KWG0903189	
Chrysene	620	D	620	93	50	04/16/09	04/29/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	36000	D	6200	440	50	04/16/09	04/29/09	KWG0903189	
Di-n-octyl Phthalate	ND	U	620	110	50	04/16/09	04/29/09	KWG0903189	
Benzo(b)fluoranthene	500	JD	620	75	50	04/16/09	04/29/09	KWG0903189	
Benzo(k)fluoranthene	150	JD	620	87	50	04/16/09	04/29/09	KWG0903189	
Benzo(a)pyrene	270	JD	620	110	50	04/16/09	04/29/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	270	JD	620	93	50	04/16/09	04/29/09	KWG0903189	
Dibenz(a,h)anthracene	ND	U	620	93	50	04/16/09	04/29/09	KWG0903189	
Benzo(g,h,i)perylene	430	JD	620	93	50	04/16/09	04/29/09	KWG0903189	

Comments:

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Form 1A - Organic 19

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SuperSet Reference: RR101814

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095470

Lab Code:

K0903237-004

Units: ug/Kg

Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	0	10-89	04/29/09	Outside Control Limits
Phenol-d6	45	15-103	04/29/09	Acceptable
Nitrobenzene-d5	82	10-108	04/29/09	Acceptable
2-Fluorobiphenyl	78	10-105	04/29/09	Acceptable
2,4,6-Tribromophenol	57	16-122	04/29/09	Acceptable
Terphenyl-d14	123	31-126	04/29/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 20

Page 3 of 3

SuperSet Reference: RR101814

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

FO095471 K0903237-005

Extraction Method: Analysis Method:

EPA 3541 8270C

Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	420	95	50	04/16/09	04/28/09	KWG0903189	
Phenol	ND U	1300	100	50	04/16/09	04/28/09	KWG0903189	
2-Chlorophenol	ND U	420	100	50	04/16/09	04/28/09	KWG0903189	
1,3-Dichlorobenzene	ND U	420	150	50	04/16/09	04/28/09	KWG0903189	
1,4-Dichlorobenzene	ND U	420	150	50	04/16/09	04/28/09	KWG0903189	
1,2-Dichlorobenzene	ND U	420	150	50	04/16/09	04/28/09	KWG0903189	
Benzyl Alcohol	ND U	840	110	50	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND U	420	130	50	04/16/09	04/28/09	KWG0903189	
2-Methylphenol	ND U	420	75	50	04/16/09	04/28/09	KWG0903189	
Hexachloroethane	ND U	420	160	50	04/16/09	04/28/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND U	420	120	50	04/16/09	04/28/09	KWG0903189	
4-Methylphenol†	ND U	420	75	50	04/16/09	04/28/09	KWG0903189	
Nitrobenzene	ND U	420	110	50	04/16/09	04/28/09	KWG0903189	
Isophorone	ND U	420	50	50	04/16/09	04/28/09	KWG0903189	
2-Nitrophenol	ND U	420	75	50	04/16/09	04/28/09	KWG0903189	
2,4-Dimethylphenol	ND U	2100	280	50	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND U	420	75	50	04/16/09	04/28/09	KWG0903189	
2,4-Dichlorophenol	ND U	420	50	50	04/16/09	04/28/09	KWG0903189	
Benzoic Acid	ND U	8400	4800	50	04/16/09	04/28/09	KWG0903189	
1,2,4-Trichlorobenzene	ND U	420	130	50	04/16/09	04/28/09	KWG0903189	
Naphthalene	ND U	420	120	50	04/16/09	04/28/09	KWG0903189	
4-Chloroaniline	ND U	420	95	50	04/16/09	04/28/09	KWG0903189	
Hexachlorobutadiene	ND U	420	130	50	04/16/09	04/28/09	KWG0903189	
4-Chloro-3-methylphenol	ND U	420	70	50	04/16/09	04/28/09	KWG0903189	
2-Methylnaphthalene	ND U	420	110	50	04/16/09	04/28/09	KWG0903189	
Hexachlorocyclopentadiene	ND U	2100	1500	50	04/16/09	04/28/09	KWG0903189	
2,4,6-Trichlorophenol	ND U	420	70	50	04/16/09	04/28/09	KWG0903189	
2,4,5-Trichlorophenol	ND U	420	75	50	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene	ND U	420	80	50	04/16/09	04/28/09	KWG0903189	
2-Nitroaniline	ND U	840	160	50	04/16/09	04/28/09	KWG0903189	
Acenaphthylene	ND U	420	60	50	04/16/09	04/28/09	KWG0903189	
Dimethyl Phthalate	110 JD	420	50	50	04/16/09	04/28/09	KWG0903189	
2,6-Dinitrotoluene	ND U	420	100	50	04/16/09	04/28/09	KWG0903189	
Acenaphthene	ND U	420	70	50	04/16/09	04/28/09	KWG0903189	

Comments:

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Form 1A - Organic 21

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RR101814

SuperSet Reference:

Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Sample Matrix: Sediment

Service Request: K0903237 **Date Collected:** 04/07/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO095471 **Lab Code:** K0903237-005

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg
Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND U	840	130	50	04/16/09	04/28/09	KWG0903189	JANUARY STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET,
2,4-Dinitrophenol	ND U	8400	850	50	04/16/09	04/28/09	KWG0903189	
Dibenzofuran	ND U	420	60	50	04/16/09	04/28/09	KWG0903189	
4-Nitrophenol	ND U	4200	900	50	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrotoluene	ND U	420	75	50	04/16/09	04/28/09	KWG0903189	
Fluorene	ND U	420	55	50	04/16/09	04/28/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND U	420	70	50	04/16/09	04/28/09	KWG0903189	
Diethyl Phthalate	ND U	420	65	50	04/16/09	04/28/09	KWG0903189	
4-Nitroaniline	ND U	840	90	50	04/16/09	04/28/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND U	4200	70	50	04/16/09	04/28/09	KWG0903189	
N-Nitrosodiphenylamine	ND U	420	80	50	04/16/09	04/28/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND U	420	80	50	04/16/09	04/28/09	KWG0903189	
Hexachlorobenzene	ND U	420	60	50	04/16/09	04/28/09	KWG0903189	
Pentachlorophenol	ND U	4200	1000	50	04/16/09	04/28/09	KWG0903189	
Phenanthrene	160 JD	420	70	50	04/16/09	04/28/09	KWG0903189	
Anthracene	87 JD	420	80	50	04/16/09	04/28/09	KWG0903189	
Di-n-butyl Phthalate	ND U	840	400	50	04/16/09	04/28/09	KWG0903189	
Fluoranthene	280 JD	420	80	50	04/16/09	04/28/09	KWG0903189	
Pyrene	280 JD	420	75	50	04/16/09	04/28/09	KWG0903189	
Butyl Benzyl Phthalate	ND U	420	160	50	04/16/09	04/28/09	KWG0903189	
3,3'-Dichlorobenzidine	ND U	4200	190	50	04/16/09	04/28/09	KWG0903189	
Benz(a)anthracene	140 JD	420	85	50	04/16/09	04/28/09	KWG0903189	
Chrysene	260 JD	420	75	50	04/16/09	04/28/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	840 JD	4200	350	50	04/16/09	04/28/09	KWG0903189	
Di-n-octyl Phthalate	ND U	420	85	50	04/16/09	04/28/09	KWG0903189	
Benzo(b)fluoranthene	270 JD	420	60	50	04/16/09	04/28/09	KWG0903189	
Benzo(k)fluoranthene	73 JD	420	70	50	04/16/09	04/28/09	KWG0903189	
Benzo(a)pyrene	210 JD	420	85	50	04/16/09	04/28/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	230 JD	420	75	50	04/16/09	04/28/09	KWG0903189	
Dibenz(a,h)anthracene	ND U	420	75	50	04/16/09	04/28/09	KWG0903189	
Benzo(g,h,i)perylene	310 JD	420	75	50	04/16/09	04/28/09	KWG0903189	

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/07/2009 Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095471

Lab Code:

K0903237-005

Units: ug/Kg

Basis: Dry

		Limits	Analyzed	Note
2-Fluorophenol	49	10-89	04/28/09	Acceptable
Phenol-d6	60	15-103	04/28/09	Acceptable
Nitrobenzene-d5	65	10-108	04/28/09	Acceptable
2-Fluorobiphenyl	75	10-105	04/28/09	Acceptable
2,4,6-Tribromophenol	87	16-122	04/28/09	Acceptable
Terphenyl-d14	106	31-126	04/28/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 23

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SuperSet Reference: RR101814

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237 Date Collected: 04/08/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095472

Lab Code:

K0903237-006

Extraction Method:
Analysis Method:

EPA 3541 8270C Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	180	48	25	04/16/09	04/28/09	KWG0903189	
Phenol	ND	U	520	50	25	04/16/09	04/28/09	KWG0903189	
2-Chlorophenol	ND	U	180	50	25	04/16/09	04/28/09	KWG0903189	
1,3-Dichlorobenzene	ND	U	180	75	25	04/16/09	04/28/09	KWG0903189	
1,4-Dichlorobenzene	ND	U	180	73	25	04/16/09	04/28/09	KWG0903189	
1,2-Dichlorobenzene	ND	U	180	73	25	04/16/09	04/28/09	KWG0903189	
Benzyl Alcohol	ND	U	350	53	25	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND	U	180	65	25	04/16/09	04/28/09	KWG0903189	
2-Methylphenol	ND	U	180	38	25	04/16/09	04/28/09	KWG0903189	
Hexachloroethane	ND		180	78	25	04/16/09	04/28/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND	U	180	60	25	04/16/09	04/28/09	KWG0903189	
4-Methylphenol†	50	JD	180	38	25	04/16/09	04/28/09	KWG0903189	
Nitrobenzene	ND	U	180	55	25	04/16/09	04/28/09	KWG0903189	
Isophorone		U	180	25	25	04/16/09	04/28/09	KWG0903189	
2-Nitrophenol	ND	U	180	38	25	04/16/09	04/28/09	KWG0903189	
2,4-Dimethylphenol	ND	U	870	140	25	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND	U	180	38	25	04/16/09	04/28/09	KWG0903189	
2,4-Dichlorophenol	ND	U	180	25	25	04/16/09	04/28/09	KWG0903189	
Benzoic Acid	ND		3500	2400	25	04/16/09	04/28/09	KWG0903189	
1,2,4-Trichlorobenzene	ND	U	180	65	25	04/16/09	04/28/09	KWG0903189	
Naphthalene	ND	U	180	58	25	04/16/09	04/28/09	KWG0903189	
4-Chloroaniline	ND		180	48	25	04/16/09	04/28/09	KWG0903189	
Hexachlorobutadiene	ND		180	63	25	04/16/09	04/28/09	KWG0903189	
4-Chloro-3-methylphenol	ND	U	180	35	25	04/16/09	04/28/09	KWG0903189	
2-Methylnaphthalene	ND		180	55	25	04/16/09	04/28/09	KWG0903189	
Hexachlorocyclopentadiene	ND		870	730	25	04/16/09	04/28/09	KWG0903189	
2,4,6-Trichlorophenol	ND	U	180	35	25	04/16/09	04/28/09	KWG0903189	
2,4,5-Trichlorophenol	ND		180	38	25	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene	ND		180	40	25	04/16/09	04/28/09	KWG0903189	
2-Nitroaniline	ND	U	350	80	25	04/16/09	04/28/09	KWG0903189	
Acenaphthylene	ND		180	30	25	04/16/09	04/28/09	KWG0903189	
Dimethyl Phthalate	120		180	25	25	04/16/09	04/28/09	KWG0903189	
2,6-Dinitrotoluene	ND	U	180	50	25	04/16/09	04/28/09	KWG0903189	
Acenaphthene	ND	U	180	35	25	04/16/09	04/28/09	KWG0903189	

Comments:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/08/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

FO095472

Extraction Method:

K0903237-006

Analysis Method:

EPA 3541 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND	U	350	63	25	04/16/09	04/28/09	KWG0903189	Ministrationomical
2,4-Dinitrophenol	ND	U	3500	430	25	04/16/09	04/28/09	KWG0903189	
Dibenzofuran	ND	U	180	30	25	04/16/09	04/28/09	KWG0903189	
4-Nitrophenol	ND	U	1800	450	25	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrotoluene	ND	U	180	38	25	04/16/09	04/28/09	KWG0903189	
Fluorene	ND	U	180	28	25	04/16/09	04/28/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND	U	180	35	25	04/16/09	04/28/09	KWG0903189	
Diethyl Phthalate	ND	U	180	33	25	04/16/09	04/28/09	KWG0903189	
4-Nitroaniline	ND	U	350	45	25	04/16/09	04/28/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND	U	1800	35	25	04/16/09	04/28/09	KWG0903189	
N-Nitrosodiphenylamine	ND	U	180	40	25	04/16/09	04/28/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND	U	180	40	25	04/16/09	04/28/09	KWG0903189	
Hexachlorobenzene	ND	U	180	30	25	04/16/09	04/28/09	KWG0903189	
Pentachlorophenol	1000	JD	1800	500	25	04/16/09	04/28/09	KWG0903189	
Phenanthrene	120	JD	180	35	25	04/16/09	04/28/09	KWG0903189	
Anthracene	ND	U	180	40	25	04/16/09	04/28/09	KWG0903189	
Di-n-butyl Phthalate	ND	U	350	200	25	04/16/09	04/28/09	KWG0903189	
Fluoranthene	190		180	40	25	04/16/09	04/28/09	KWG0903189	
Pyrene	180		180	38	25	04/16/09	04/28/09	KWG0903189	
Butyl Benzyl Phthalate	510	D	180	80	25	04/16/09	04/28/09	KWG0903189	
3,3'-Dichlorobenzidine	ND	U	1800	93	25	04/16/09	04/28/09	KWG0903189	
Benz(a)anthracene	60	JD	180	43	25	04/16/09	04/28/09	KWG0903189	
Chrysene	150	JD	180	38	25	04/16/09	04/28/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	1000	JD	1800	180	25	04/16/09	04/28/09	KWG0903189	
Di-n-octyl Phthalate	ND	U	180	43	25	04/16/09	04/28/09	KWG0903189	
Benzo(b)fluoranthene	140	JD	180	30	25	04/16/09	04/28/09	KWG0903189	
Benzo(k)fluoranthene	42	JD	180	35	25	04/16/09	04/28/09	KWG0903189	
Benzo(a)pyrene	81	JD	180	43	25	04/16/09	04/28/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	86	JD	180	38	25	04/16/09	04/28/09	KWG0903189	
Dibenz(a,h)anthracene	ND	U	180	38	25	04/16/09	04/28/09	KWG0903189	
Benzo(g,h,i)perylene	120	JD	180	38	25	04/16/09	04/28/09	KWG0903189	

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Form 1A - Organic 25

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RR101814 SuperSet Reference:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/08/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095472

Lab Code:

K0903237-006

Units: ug/Kg

Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	47	10-89	04/28/09	Acceptable	
Phenol-d6	58	15-103	04/28/09	Acceptable	
Nitrobenzene-d5	65	10-108	04/28/09	Acceptable	
2-Fluorobiphenyl	74	10-105	04/28/09	Acceptable	
2,4,6-Tribromophenol	78	16-122	04/28/09	Acceptable	
Terphenyl-d14	93	31-126	04/28/09	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 26

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SuperSet Reference: RR101814

Analytical Results

Client: Portland, City of

Portland Harbor - Inline Samp Project:

Sediment Sample Matrix:

Service Request: K0903237 Date Collected: 04/08/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

FO095473 Sample Name: Lab Code: K0903237-007

Extraction Method: EPA 3541 8270C Analysis Method:

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND U	190	48	25	04/16/09	04/28/09	KWG0903189	
Phenol	ND U	550	50	25	04/16/09	04/28/09	KWG0903189	
2-Chlorophenol	ND U	190	50	25	04/16/09	04/28/09	KWG0903189	
1,3-Dichlorobenzene	ND U	190	75	25	04/16/09	04/28/09	KWG0903189	
1,4-Dichlorobenzene	ND U	190	73	25	04/16/09	04/28/09	KWG0903189	
1,2-Dichlorobenzene	ND U	190	73	25	04/16/09	04/28/09	KWG0903189	
Benzyl Alcohol	ND U	370	53	25	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND U	190	65	25	04/16/09	04/28/09	KWG0903189	
2-Methylphenol	ND U	190	38	25	04/16/09	04/28/09	KWG0903189	
Hexachloroethane	ND U	190	78	25	04/16/09	04/28/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND U	190	60	25	04/16/09	04/28/09	KWG0903189	
4-Methylphenol†	ND U	190	38	25	04/16/09	04/28/09	KWG0903189	
Nitrobenzene	ND U	190	55	25	04/16/09	04/28/09	KWG0903189	
Isophorone	ND U	190	25	25	04/16/09	04/28/09	KWG0903189	
2-Nitrophenol	ND U	190	38	25	04/16/09	04/28/09	KWG0903189	
2,4-Dimethylphenol	ND U	920	140	25	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND U	190	38	25	04/16/09	04/28/09	KWG0903189	
2,4-Dichlorophenol	ND U	190	25	25	04/16/09	04/28/09	KWG0903189	
Benzoic Acid	ND U	3700	2400	25	04/16/09	04/28/09	KWG0903189	
1,2,4-Trichlorobenzene	ND U	190	65	25	04/16/09	04/28/09	KWG0903189	
Naphthalene	ND U	190	58	25	04/16/09	04/28/09	KWG0903189	
4-Chloroaniline	ND U	190	48	25	04/16/09	04/28/09	KWG0903189	
Hexachlorobutadiene	ND U	190	63	25	04/16/09	04/28/09	KWG0903189	
4-Chloro-3-methylphenol	ND U	190	35	25	04/16/09	04/28/09	KWG0903189	
2-Methylnaphthalene	ND U	190	55	25	04/16/09	04/28/09	KWG0903189	
Hexachlorocyclopentadiene	ND U	920	730	25	04/16/09	04/28/09	KWG0903189	
2,4,6-Trichlorophenol	ND U	190	35	25	04/16/09	04/28/09	KWG0903189	
2,4,5-Trichlorophenol	ND U	190	38	25	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene	ND U	190	40	25	04/16/09	04/28/09	KWG0903189	
2-Nitroaniline	ND U	370	80	25	04/16/09	04/28/09	KWG0903189	
Acenaphthylene	ND U	190	30	25	04/16/09	04/28/09	KWG0903189	
Dimethyl Phthalate	110 JD	190	25	25	04/16/09	04/28/09	KWG0903189	
2,6-Dinitrotoluene	ND U	190	50	25	04/16/09	04/28/09	KWG0903189	
Acenaphthene	ND U	190	35	25	04/16/09	04/28/09	KWG0903189	

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Form 1A - Organic 27

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Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Sample Matrix: Sediment

Service Request: K0903237

Date Collected: 04/08/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO095473 **Lab Code:** K0903237-007

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND U	370	63	25	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrophenol	ND U	3700	430	25	04/16/09	04/28/09	KWG0903189	
Dibenzofuran	ND U	190	30	25	04/16/09	04/28/09	KWG0903189	
4-Nitrophenol	ND U	1900	450	25	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrotoluene	ND U	190	38	25	04/16/09	04/28/09	KWG0903189	
Fluorene	ND U	190	28	25	04/16/09	04/28/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND U	190	35	25	04/16/09	04/28/09	KWG0903189	
Diethyl Phthalate	ND U	190	33	25	04/16/09	04/28/09	KWG0903189	
4-Nitroaniline	ND U	370	45	25	04/16/09	04/28/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND U	1900	35	25	04/16/09	04/28/09	KWG0903189	
N-Nitrosodiphenylamine	ND U	190	40	25	04/16/09	04/28/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND U	190	40	25	04/16/09	04/28/09	KWG0903189	
Hexachlorobenzene	ND U	190	30	25	04/16/09	04/28/09	KWG0903189	
Pentachlorophenol	ND U	1900	500	25	04/16/09	04/28/09	KWG0903189	
Phenanthrene	110 JD	190	35	25	04/16/09	04/28/09	KWG0903189	
Anthracene	ND U	190	40	25	04/16/09	04/28/09	KWG0903189	
Di-n-butyl Phthalate	ND U	370	200	25	04/16/09	04/28/09	KWG0903189	
Fluoranthene	170 JD	190	40	25	04/16/09	04/28/09	KWG0903189	
Pyrene	170 JD	190	38	25	04/16/09	04/28/09	KWG0903189	
Butyl Benzyl Phthalate	84 JD	190	80	25	04/16/09	04/28/09	KWG0903189	
3,3'-Dichlorobenzidine	ND U	1900	93	25	04/16/09	04/28/09	KWG0903189	
Benz(a)anthracene	55 JD	190	43	25	04/16/09	04/28/09	KWG0903189	
Chrysene	95 JD	190	38	25	04/16/09	04/28/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	870 JD	1900	180	25	04/16/09	04/28/09	KWG0903189	
Di-n-octyl Phthalate	ND U	190	43	25	04/16/09	04/28/09	KWG0903189	
Benzo(b)fluoranthene	130 JD	190	30	25	04/16/09	04/28/09	KWG0903189	
Benzo(k)fluoranthene	36 JD	190	35	25	04/16/09	04/28/09	KWG0903189	
Benzo(a)pyrene	74 JD	190	43	25	04/16/09	04/28/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	75 JD	190	38	25	04/16/09	04/28/09	KWG0903189	
Dibenz(a,h)anthracene	ND U	190	38	25	04/16/09	04/28/09	KWG0903189	
Benzo(g,h,i)perylene	120 JD	190	38	25	04/16/09	04/28/09	KWG0903189	

Comments:	

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/08/2009 Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095473

Lab Code:

K0903237-007

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	47	10-89	04/28/09	Acceptable
Phenol-d6	55	15-103	04/28/09	Acceptable
Nitrobenzene-d5	63	10-108	04/28/09	Acceptable
2-Fluorobiphenyl	66	10-105	04/28/09	Acceptable
2,4,6-Tribromophenol	71	16-122	04/28/09	Acceptable
Terphenyl-d14	88	31-126	04/28/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 29

Page

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RR101814 SuperSet Reference:

Analytical Results

Portland, City of Client:

Portland Harbor - Inline Samp Project:

Sediment Sample Matrix:

Service Request: K0903237 Date Collected: 04/08/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

FO095474 Sample Name: Lab Code: K0903237-008

Extraction Method: EPA 3541

Basis: Dry Level: Low

1 of 3

Units: ug/Kg

Analysis Method: 8270C

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND		370	95	50	04/16/09	04/29/09	KWG0903189	PERSONAL PROPERTY AND ADDRESS OF THE PERSON NAMED AND ADDRESS
Phenol	ND		1100	100	50	04/16/09	04/29/09	KWG0903189	
2-Chlorophenol	ND	U	370	100	50	04/16/09	04/29/09	KWG0903189	
1,3-Dichlorobenzene	ND		370	150	50	04/16/09	04/29/09	KWG0903189	
1,4-Dichlorobenzene	ND		370	150	50	04/16/09	04/29/09	KWG0903189	
1,2-Dichlorobenzene	ND	U	370	150	50	04/16/09	04/29/09	KWG0903189	
Benzyl Alcohol	ND	U	740	110	50	04/16/09	04/29/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND		370	130	50	04/16/09	04/29/09	KWG0903189	
2-Methylphenol	ND	U	370	75	50	04/16/09	04/29/09	KWG0903189	
Hexachloroethane	ND		370	160	50	04/16/09	04/29/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND		370	120	50	04/16/09	04/29/09	KWG0903189	
4-Methylphenol†	ND	U	370	75	50	04/16/09	04/29/09	KWG0903189	
Nitrobenzene	ND		370	110	50	04/16/09	04/29/09	KWG0903189	
Isophorone	ND		370	50	50	04/16/09	04/29/09	KWG0903189	
2-Nitrophenol	ND	U	370	75	50	04/16/09	04/29/09	KWG0903189	
2,4-Dimethylphenol	ND	U	1900	280	50	04/16/09	04/29/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND		370	75	50	04/16/09	04/29/09	KWG0903189	
2,4-Dichlorophenol	ND	U	370	50	50	04/16/09	04/29/09	KWG0903189	
Benzoic Acid	ND		7400	4800	50	04/16/09	04/29/09	KWG0903189	
1,2,4-Trichlorobenzene	ND		370	130	50	04/16/09	04/29/09	KWG0903189	
Naphthalene	ND	U	370	120	50	04/16/09	04/29/09	KWG0903189	
4-Chloroaniline	ND	U	370	95	50	04/16/09	04/29/09	KWG0903189	
Hexachlorobutadiene	ND		370	130	50	04/16/09	04/29/09	KWG0903189	
4-Chloro-3-methylphenol	ND	U	370	70	50	04/16/09	04/29/09	KWG0903189	
2-Methylnaphthalene	ND	U	370	110	50	04/16/09	04/29/09	KWG0903189	
Hexachlorocyclopentadiene	ND	U	1900	1500	50	04/16/09	04/29/09	KWG0903189	
2,4,6-Trichlorophenol	ND	U	370	70	50	04/16/09	04/29/09	KWG0903189	
2,4,5-Trichlorophenol	ND	U	370	75	50	04/16/09	04/29/09	KWG0903189	
2-Chloronaphthalene	ND	U	370	80	50	04/16/09	04/29/09	KWG0903189	
2-Nitroaniline	ND	U	740	160	50	04/16/09	04/29/09	KWG0903189	
Acenaphthylene	ND	U	370	60	50	04/16/09	04/29/09	KWG0903189	
Dimethyl Phthalate	110		370	50	50	04/16/09	04/29/09	KWG0903189	
2,6-Dinitrotoluene	ND	U	370	100	50	04/16/09	04/29/09	KWG0903189	
Acenaphthene	ND	U	370	70	50	04/16/09	04/29/09	KWG0903189	

Comments:

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Form 1A - Organic

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/08/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

FO095474

K0903237-008

Extraction Method:

EPA 3541

Basis: Dry Level: Low

Units: ug/Kg

Analysis Method: 8270C

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND	U	740	130	50	04/16/09	04/29/09	KWG0903189	
2,4-Dinitrophenol	ND	U	7400	850	50	04/16/09	04/29/09	KWG0903189	
Dibenzofuran	ND	U	370	60	50	04/16/09	04/29/09	KWG0903189	
4-Nitrophenol	ND	U	3700	900	50	04/16/09	04/29/09	KWG0903189	
2,4-Dinitrotoluene	ND	U	370	75	50	04/16/09	04/29/09	KWG0903189	
Fluorene	120	JD	370	55	50	04/16/09	04/29/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND	U	370	70	50	04/16/09	04/29/09	KWG0903189	
Diethyl Phthalate	ND	U	370	65	50	04/16/09	04/29/09	KWG0903189	
4-Nitroaniline	ND	U	740	90	50	04/16/09	04/29/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND	U	3700	70	50	04/16/09	04/29/09	KWG0903189	
N-Nitrosodiphenylamine	ND	U	370	80	50	04/16/09	04/29/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND	U	370	80	50	04/16/09	04/29/09	KWG0903189	
Hexachlorobenzene	ND	U	370	60	50	04/16/09	04/29/09	KWG0903189	
Pentachlorophenol	ND	U	3700	1000	50	04/16/09	04/29/09	KWG0903189	
Phenanthrene	300	JD	370	70	50	04/16/09	04/29/09	KWG0903189	
Anthracene	ND	U	370	80	50	04/16/09	04/29/09	KWG0903189	
Di-n-butyl Phthalate	ND	U	740	400	50	04/16/09	04/29/09	KWG0903189	
Fluoranthene	190		370	80	50	04/16/09	04/29/09	KWG0903189	
Pyrene	300	JD	370	75	50	04/16/09	04/29/09	KWG0903189	
Butyl Benzyl Phthalate	210	JD	370	160	50	04/16/09	04/29/09	KWG0903189	
3,3'-Dichlorobenzidine	ND		3700	190	50	04/16/09	04/29/09	KWG0903189	
Benz(a)anthracene	95	JD	370	85	50	04/16/09	04/29/09	KWG0903189	
Chrysene	180	JD	370	75	50	04/16/09	04/29/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	3200	JD	3700	350	50	04/16/09	04/29/09	KWG0903189	
Di-n-octyl Phthalate	ND	U	370	85	50	04/16/09	04/29/09	KWG0903189	
Benzo(b)fluoranthene	140	JD	370	60	50	04/16/09	04/29/09	KWG0903189	
Benzo(k)fluoranthene	ND	U	370	70	50	04/16/09	04/29/09	KWG0903189	
Benzo(a)pyrene	ND	U	370	85	50	04/16/09	04/29/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	ND	U	370	75	50	04/16/09	04/29/09	KWG0903189	
Dibenz(a,h)anthracene	ND	U	370	75	50	04/16/09	04/29/09	KWG0903189	
Benzo(g,h,i)perylene	140	JD	370	75	50	04/16/09	04/29/09	KWG0903189	

Comments:

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/08/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095474

Lab Code:

K0903237-008

Units: ug/Kg Basis: Dry

Control Date %Rec Limits Surrogate Name Analyzed Note 2-Fluorophenol 22 04/29/09 10-89 Acceptable Phenol-d6 43 15-103 04/29/09 Acceptable Nitrobenzene-d5 71 10-108 04/29/09 Acceptable 72 10-105 04/29/09 Acceptable 2-Fluorobiphenyl 2,4,6-Tribromophenol 39 16-122 04/29/09 Acceptable Acceptable 95 04/29/09 Terphenyl-d14 31-126

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference:

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RR101814

Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Date Collected: 04/08/2009 Sediment **Date Received:** 04/14/2009 Sample Matrix:

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO095475 Lab Code: K0903237-009

Extraction Method: EPA 3541 Analysis Method: 8270C

Basis: Dry Level: Low

Units: ug/Kg

Service Request: K0903237

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	510	97	50	04/16/09	04/28/09	KWG0903189	
Phenol	160		1600	110	50	04/16/09	04/28/09	KWG0903189	
2-Chlorophenol	ND	U	510	110	50	04/16/09	04/28/09	KWG0903189	
1,3-Dichlorobenzene	ND	U	510	160	50	04/16/09	04/28/09	KWG0903189	
1,4-Dichlorobenzene	ND		510	150	50	04/16/09	04/28/09	KWG0903189	
1,2-Dichlorobenzene	ND	U	510	150	50	04/16/09	04/28/09	KWG0903189	
Benzyl Alcohol	ND	U	1100	110	50	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND		510	140	50	04/16/09	04/28/09	KWG0903189	
2-Methylphenol	ND	U	510	77	50	04/16/09	04/28/09	KWG0903189	
Hexachloroethane	ND	U	510	160	50	04/16/09	04/28/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND		510	130	50	04/16/09	04/28/09	KWG0903189	
4-Methylphenol†	4600	D	510	77	50	04/16/09	04/28/09	KWG0903189	
Nitrobenzene	ND	U	510	120	50	04/16/09	04/28/09	KWG0903189	
Isophorone	ND		510	51	50	04/16/09	04/28/09	KWG0903189	
2-Nitrophenol	ND	U	510	77	50	04/16/09	04/28/09	KWG0903189	
2,4-Dimethylphenol	ND		2600	280	50	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND		510	77	50	04/16/09	04/28/09	KWG0903189	
2,4-Dichlorophenol	ND	U	510	51	50	04/16/09	04/28/09	KWG0903189	
Benzoic Acid	ND	U	11000	4900	50	04/16/09	04/28/09	KWG0903189	
1,2,4-Trichlorobenzene	ND		510	140	50	04/16/09	04/28/09	KWG0903189	
Naphthalene	360	JD	510	120	50	04/16/09	04/28/09	KWG0903189	
4-Chloroaniline	ND		510	97	50	04/16/09	04/28/09	KWG0903189	
Hexachlorobutadiene	ND		510	130	50	04/16/09	04/28/09	KWG0903189	
4-Chloro-3-methylphenol	ND	U	510	72	50	04/16/09	04/28/09	KWG0903189	
2-Methylnaphthalene	ND		510	120	50	04/16/09	04/28/09	KWG0903189	
Hexachlorocyclopentadiene	ND		2600	1500	50	04/16/09	04/28/09	KWG0903189	
2,4,6-Trichlorophenol	ND	U	510	72	50	04/16/09	04/28/09	KWG0903189	
2,4,5-Trichlorophenol	ND		510	77	50	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene	ND		510	82	50	04/16/09	04/28/09	KWG0903189	
2-Nitroaniline	ND	U	1100	170	50	04/16/09	04/28/09	KWG0903189	
Acenaphthylene	ND		510	62	50	04/16/09	04/28/09	KWG0903189	
Dimethyl Phthalate	250		510	51	50	04/16/09	04/28/09	KWG0903189	
2,6-Dinitrotoluene	ND	U	510	110	50	04/16/09	04/28/09	KWG0903189	
Acenaphthene	ND	U	510	72	50	04/16/09	04/28/09	KWG0903189	

Comments:

Analytical Results

Portland, City of Client:

Service Request: K0903237 Portland Harbor - Inline Samp Project: Date Collected: 04/08/2009

Sample Matrix: Sediment Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO095475 Lab Code: K0903237-009

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg Basis: Dry Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND	U	1100	130	50	04/16/09	04/28/09	KWG0903189	ANNO PROPERTY OF THE PARTY OF T
2,4-Dinitrophenol	ND	U	11000	870	50	04/16/09	04/28/09	KWG0903189	
Dibenzofuran	ND	U	510	62	50	04/16/09	04/28/09	KWG0903189	
4-Nitrophenol	ND		5100	920	50	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrotoluene	ND	U	510	77	50	04/16/09	04/28/09	KWG0903189	
Fluorene	ND	U	510	56	50	04/16/09	04/28/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND		510	72	50	04/16/09	04/28/09	KWG0903189	
Diethyl Phthalate	ND	U	510	67	50	04/16/09	04/28/09	KWG0903189	
4-Nitroaniline	ND		1100	92	50	04/16/09	04/28/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND		5100	72	50	04/16/09	04/28/09	KWG0903189	
N-Nitrosodiphenylamine	ND	U	510	82	50	04/16/09	04/28/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND	U	510	82	50	04/16/09	04/28/09	KWG0903189	
Hexachlorobenzene	ND		510	62	50	04/16/09	04/28/09	KWG0903189	
Pentachlorophenol	1200	JD	5100	1100	50	04/16/09	04/28/09	KWG0903189	
Phenanthrene	550	D	510	72	50	04/16/09	04/28/09	KWG0903189	
Anthracene	87	JD	510	82	50	04/16/09	04/28/09	KWG0903189	
Di-n-butyl Phthalate	ND	U	1100	410	50	04/16/09	04/28/09	KWG0903189	
Fluoranthene	630	D	510	82	50	04/16/09	04/28/09	KWG0903189	
Pyrene	720	D	510	77	50	04/16/09	04/28/09	KWG0903189	
Butyl Benzyl Phthalate	370	JD	510	170	50	04/16/09	04/28/09	KWG0903189	
3,3'-Dichlorobenzidine	ND	U	5100	190	50	04/16/09	04/28/09	KWG0903189	
Benz(a)anthracene	180	JD	510	87	50	04/16/09	04/28/09	KWG0903189 .	
Chrysene	260	JD	510	77	50	04/16/09	04/28/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	13000	D	5100	360	50	04/16/09	04/28/09	KWG0903189	
Di-n-octyl Phthalate	ND	U	510	87	50	04/16/09	04/28/09	KWG0903189	
Benzo(b)fluoranthene	330	JD	510	62	50	04/16/09	04/28/09	KWG0903189	
Benzo(k)fluoranthene	90	JD	510	72	50	04/16/09	04/28/09	KWG0903189	
Benzo(a)pyrene	170	JD	510	87	50	04/16/09	04/28/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	200	JD	510	77	50	04/16/09	04/28/09	KWG0903189	
Dibenz(a,h)anthracene	ND	U	510	77	50	04/16/09	04/28/09	KWG0903189	
Benzo(g,h,i)perylene	370	JD	510	77	50	04/16/09	04/28/09	KWG0903189	

Comments:	
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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/08/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095475

Lab Code:

K0903237-009

Units: ug/Kg

Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	47	10-89	04/28/09	Acceptable
Phenol-d6	61	15-103	04/28/09	Acceptable
Nitrobenzene-d5	66	10-108	04/28/09	Acceptable
2-Fluorobiphenyl	67	10-105	04/28/09	Acceptable
2,4,6-Tribromophenol	78	16-122	04/28/09	Acceptable
Terphenyl-d14	93	31-126	04/28/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:	
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Form 1A - Organic Page 3 of 3 Printed: 06/04/2009 13:47:31

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237 Date Collected: 04/08/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095476

Lab Code:

K0903237-010

Extraction Method: EPA 3541

Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	450	95	50	04/16/09	04/28/09	KWG0903189	
Phenol	ND	U	1400	100	50	04/16/09	04/28/09	KWG0903189	
2-Chlorophenol	ND	U	450	100	50	04/16/09	04/28/09	KWG0903189	
1,3-Dichlorobenzene	ND	U	450	150	50	04/16/09	04/28/09	KWG0903189	
1,4-Dichlorobenzene	ND	U	450	150	50	04/16/09	04/28/09	KWG0903189	
1,2-Dichlorobenzene	ND	U	450	150	50	04/16/09	04/28/09	KWG0903189	
Benzyl Alcohol	ND		890	110	50	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND		450	130	50	04/16/09	04/28/09	KWG0903189	
2-Methylphenol	ND	U	450	75	50	04/16/09	04/28/09	KWG0903189	
Hexachloroethane	ND		450	160	50	04/16/09	04/28/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND		450	120	50	04/16/09	04/28/09	KWG0903189	
4-Methylphenol†	ND	U	450	75	50	04/16/09	04/28/09	KWG0903189	
Nitrobenzene	ND		450	110	50	04/16/09	04/28/09	KWG0903189	
Isophorone	ND		450	50	50	04/16/09	04/28/09	KWG0903189	
2-Nitrophenol	ND	U	450	75	50	04/16/09	04/28/09	KWG0903189	
2,4-Dimethylphenol	ND		2300	280	50	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND		450	75	50	04/16/09	04/28/09	KWG0903189	
2,4-Dichlorophenol	ND	U	450	50	50	04/16/09	04/28/09	KWG0903189	
Benzoic Acid	ND		8900	4800	50	04/16/09	04/28/09	KWG0903189	
1,2,4-Trichlorobenzene	ND		450	130	50	04/16/09	04/28/09	KWG0903189	
Naphthalene	ND	U	450	120	50	04/16/09	04/28/09	KWG0903189	
4-Chloroaniline	ND		450	95	50	04/16/09	04/28/09	KWG0903189	
Hexachlorobutadiene	ND		450	130	50	04/16/09	04/28/09	KWG0903189	
4-Chloro-3-methylphenol	ND	U	450	70	50	04/16/09	04/28/09	KWG0903189	
2-Methylnaphthalene	ND		450	110	50	04/16/09	04/28/09	KWG0903189	
Hexachlorocyclopentadiene	ND		2300	1500	50	04/16/09	04/28/09	KWG0903189	
2,4,6-Trichlorophenol	ND	U	450	70	50	04/16/09	04/28/09	KWG0903189	
2,4,5-Trichlorophenol	ND		450	75	50	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene	ND		450	80	50	04/16/09	04/28/09	KWG0903189	
2-Nitroaniline	ND	U	890	160	50	04/16/09	04/28/09	KWG0903189	
Acenaphthylene	ND	U	450	60	50	04/16/09	04/28/09	KWG0903189	
Dimethyl Phthalate	120		450	50	50	04/16/09	04/28/09	KWG0903189	
2,6-Dinitrotoluene	ND	U	450	100	50	04/16/09	04/28/09	KWG0903189	
Acenaphthene	ND	U	450	70	50	04/16/09	04/28/09	KWG0903189	

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Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Sample Matrix: Sediment

Service Request: K0903237

Date Collected: 04/08/2009

Date Received: 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: FO095476 **Lab Code:** K0903237-010

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg
Basis: Dry
Level: Low

Dilution Date Date Extraction **Analyte Name** Result O MRL MDL Factor Extracted Analyzed Lot Note 3-Nitroaniline ND U 890 50 KWG0903189 130 04/16/09 04/28/09 2,4-Dinitrophenol ND U 8900 850 50 04/16/09 04/28/09 KWG0903189 50 Dibenzofuran ND U 450 60 04/16/09 04/28/09 KWG0903189 4-Nitrophenol ND U 900 4500 50 04/16/09 04/28/09 KWG0903189 50 2,4-Dinitrotoluene ND U 450 75 04/16/09 04/28/09 KWG0903189 ND U 450 55 50 04/16/09 KWG0903189 04/28/09 Fluorene 4-Chlorophenyl Phenyl Ether ND U 450 70 50 04/16/09 04/28/09 KWG0903189 Diethyl Phthalate ND U 450 65 50 04/16/09 KWG0903189 04/28/09 90 50 4-Nitroaniline ND U 890 04/16/09 04/28/09 KWG0903189 2-Methyl-4,6-dinitrophenol ND U 4500 70 50 04/16/09 04/28/09 KWG0903189 450 80 50 KWG0903189 N-Nitrosodiphenylamine ND U 04/16/09 04/28/09 4-Bromophenyl Phenyl Ether ND U 80 50 04/16/09 04/28/09 KWG0903189 450 50 ND U 450 60 04/16/09 04/28/09 KWG0903189 Hexachlorobenzene ND U 4500 1000 50 04/16/09 04/28/09 KWG0903189 Pentachlorophenol 240 JD 450 70 50 04/16/09 04/28/09 KWG0903189 Phenanthrene 80 KWG0903189 ND U 450 50 04/16/09 04/28/09 Anthracene 890 400 50 KWG0903189 Di-n-butyl Phthalate ND U 04/16/09 04/28/09 420 JD 450 80 50 04/16/09 04/28/09 KWG0903189 Fluoranthene KWG0903189 400 JD 450 75 50 04/16/09 04/28/09 Pyrene 160 50 KWG0903189 ND U 450 04/16/09 04/28/09 Butyl Benzyl Phthalate 50 4500 190 04/16/09 KWG0903189 ND U 04/28/09 3.3'-Dichlorobenzidine 190 JD KWG0903189 450 85 50 04/16/09 04/28/09 Benz(a)anthracene 50 04/16/09 04/28/09 KWG0903189 400 JD 450 75 Chrysene 780 JD 4500 350 50 04/16/09 04/28/09 KWG0903189 Bis(2-ethylhexyl) Phthalate 50 04/16/09 04/28/09 KWG0903189 Di-n-octyl Phthalate ND U 450 85 KWG0903189 60 50 04/28/09 450 D 450 04/16/09 Benzo(b)fluoranthene 70 50 04/28/09 KWG0903189 170 JD 450 04/16/09 Benzo(k)fluoranthene KWG0903189 04/28/09 Benzo(a)pyrene 280 JD 450 85 50 04/16/09 340 JD 450 75 50 04/16/09 04/28/09 KWG0903189 Indeno(1,2,3-cd)pyrene KWG0903189 75 50 04/16/09 04/28/09 ND U 450 Dibenz(a,h)anthracene KWG0903189 450 75 50 04/16/09 04/28/09 470 D Benzo(g,h,i)perylene

Comments:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: 04/08/2009 **Date Received:** 04/14/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095476

Lab Code:

K0903237-010

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	52	10-89	04/28/09	Acceptable
Phenol-d6	64	15-103	04/28/09	Acceptable
Nitrobenzene-d5	73	10-108	04/28/09	Acceptable
2-Fluorobiphenyl	71	10-105	04/28/09	Acceptable
2,4,6-Tribromophenol	77	16-122	04/28/09	Acceptable
Terphenyl-d14	90	31-126	04/28/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Merged

Form 1A - Organic 38

Page 3 of 3

SuperSet Reference: RR101814

Analytical Results

Portland, City of Client:

Portland Harbor - Inline Samp Project:

Sediment Sample Matrix:

Service Request: K0903237 Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

Method Blank KWG0903189-5

Extraction Method: Analysis Method: 8270C

EPA 3541

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND U	5.0	1.9	i	04/16/09	04/28/09	KWG0903189	NOTE
Phenol	ND U	3.0 15	2.0	1	04/16/09	04/28/09	KWG0903189	
2-Chlorophenol	ND U	5.0	2.0	1	04/16/09	04/28/09	KWG0903189	
A								
1,3-Dichlorobenzene	ND U	5.0	3.0	1	04/16/09	04/28/09	KWG0903189	
1,4-Dichlorobenzene	ND U	5.0	2.9	1	04/16/09	04/28/09	KWG0903189	
1,2-Dichlorobenzene	ND U	5.0	2.9	1	04/16/09	04/28/09	KWG0903189	
Benzyl Alcohol	ND U	10	2.1	1	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroisopropyl) Ether	ND U	5.0	2.6	1	04/16/09	04/28/09	KWG0903189	
2-Methylphenol	ND U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
Hexachloroethane	ND U	5.0	3.1	1	04/16/09	04/28/09	KWG0903189	
N-Nitrosodi-n-propylamine	ND U	5.0	2.4	1 .	04/16/09	04/28/09	KWG0903189	
4-Methylphenol†	ND U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
Nitrobenzene	ND U	5.0	2.2	1	04/16/09	04/28/09	KWG0903189	
Isophorone	ND U	5.0	1.0	1	04/16/09	04/28/09	KWG0903189	
2-Nitrophenol	ND U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
2,4-Dimethylphenol	ND U	25	5.5	1	04/16/09	04/28/09	KWG0903189	
Bis(2-chloroethoxy)methane	ND U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
2,4-Dichlorophenol	ND U	5.0	1.0	1	04/16/09	04/28/09	KWG0903189	
Benzoic Acid	ND U	100	96	1	04/16/09	04/28/09	KWG0903189	
1,2,4-Trichlorobenzene	ND U	5.0	2.6	1	04/16/09	04/28/09	KWG0903189	
Naphthalene	ND U	5.0	2.3	1	04/16/09	04/28/09	KWG0903189	
4-Chloroaniline	ND U	5.0	1.9	1	04/16/09	04/28/09	KWG0903189	
Hexachlorobutadiene	ND U	5.0	2.5	1	04/16/09	04/28/09	KWG0903189	
4-Chloro-3-methylphenol	ND U	5.0	1.4	1	04/16/09	04/28/09	KWG0903189	
2-Methylnaphthalene	ND U	5.0	2.2	1	04/16/09	04/28/09	KWG0903189	
Hexachlorocyclopentadiene	ND U	29	29	1	04/16/09	04/28/09	KWG0903189	
2,4,6-Trichlorophenol	ND U	5.0	1.4	1	04/16/09	04/28/09	KWG0903189	
2,4,5-Trichlorophenol	ND U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
2-Chloronaphthalene	ND U	5.0	1.6	1	04/16/09	04/28/09	KWG0903189	
2-Nitroaniline	ND U	10	3.2	1	04/16/09	04/28/09	KWG0903189	
Acenaphthylene	ND U	5.0	1.2	I	04/16/09	04/28/09	KWG0903189	
Dimethyl Phthalate	ND U	5.0	1.0	1	04/16/09	04/28/09	KWG0903189	
2,6-Dinitrotoluene	ND U	5.0	2.0	1	04/16/09	04/28/09	KWG0903189	
Acenaphthene	ND U	5.0	1.4	1	04/16/09	04/28/09	KWG0903189	

Comments:

Analytical Results

Client: Portland, City of

Project: Portland Harbor - Inline Samp

Sample Matrix: Sediment

Service Request: K0903237

Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank Lab Code: KWG0903189-5

Extraction Method: EPA 3541 **Analysis Method:** 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND	U	10	2.5	1	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrophenol	ND	U	100	17	1	04/16/09	04/28/09	KWG0903189	
Dibenzofuran	ND	U	5.0	1.2	1	04/16/09	04/28/09	KWG0903189	
4-Nitrophenol	ND	U	50	18	1	04/16/09	04/28/09	KWG0903189	
2,4-Dinitrotoluene	ND	U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
Fluorene	ND	U	5.0	1.1	1	04/16/09	04/28/09	KWG0903189	
4-Chlorophenyl Phenyl Ether	ND	U	5.0	1.4	1	04/16/09	04/28/09	KWG0903189	
Diethyl Phthalate	ND	U	5.0	1.3	1	04/16/09	04/28/09	KWG0903189	
4-Nitroaniline	ND	U	10	1.8	1	04/16/09	04/28/09	KWG0903189	
2-Methyl-4,6-dinitrophenol	ND	U	50	1.4	1	04/16/09	04/28/09	KWG0903189	
N-Nitrosodiphenylamine	ND	U	5.0	1.6	1	04/16/09	04/28/09	KWG0903189	
4-Bromophenyl Phenyl Ether	ND	U	5.0	1.6	1	04/16/09	04/28/09	KWG0903189	
Hexachlorobenzene	ND	U	5.0	1.2	1	04/16/09	04/28/09	KWG0903189	
Pentachlorophenol	ND	U	50	20	1	04/16/09	04/28/09	KWG0903189	
Phenanthrene	ND	U	5.0	1.4	1	04/16/09	04/28/09	KWG0903189	
Anthracene	ND		5.0	1.6	1	04/16/09	04/28/09	KWG0903189	
Di-n-butyl Phthalate	ND	U	10	7.9	1	04/16/09	04/28/09	KWG0903189	
Fluoranthene	ND		5.0	1.6	1	04/16/09	04/28/09	KWG0903189	
Pyrene	ND '		5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
Butyl Benzyl Phthalate	ND 1	U	5.0	3.2	1	04/16/09	04/28/09	KWG0903189	
3,3'-Dichlorobenzidine	ND	U	50	3.7	1	04/16/09	04/28/09	KWG0903189	
Benz(a)anthracene	ND 1	U	5.0	1.7	1	04/16/09	04/28/09	KWG0903189	
Chrysene	ND 1	U	5.0	1.5	l	04/16/09	04/28/09	KWG0903189	
Bis(2-ethylhexyl) Phthalate	ND 1	U	50	7.0	1	04/16/09	04/28/09	KWG0903189	
Di-n-octyl Phthalate	ND 1	U	5.0	1.7	1	04/16/09	04/28/09	KWG0903189	
Benzo(b)fluoranthene	ND	U	5.0	1.2	1	04/16/09	04/28/09	KWG0903189	
Benzo(k)fluoranthene	ND 1	U	5.0	1.4	1	04/16/09	04/28/09	KWG0903189	
Benzo(a)pyrene	ND	U	5.0	1.7	1	04/16/09	04/28/09	KWG0903189	
Indeno(1,2,3-cd)pyrene	ND '	U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
Dibenz(a,h)anthracene	ND	U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	
Benzo(g,h,i)perylene	ND	U	5.0	1.5	1	04/16/09	04/28/09	KWG0903189	

Comments:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0903189-5

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	57	10-89	04/28/09	Acceptable
Phenol-d6	63	15-103	04/28/09	Acceptable
Nitrobenzene-d5	65	10-108	04/28/09	Acceptable
2-Fluorobiphenyl	68	10-105	04/28/09	Acceptable
2,4,6-Tribromophenol	74	16-122	04/28/09	Acceptable
Terphenyl-d14	96	31-126	04/28/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 47

SuperSet Reference: RR101814

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QA/QC Report

Client: Project: Portland, City of

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 **Analysis Method:**

8270C

Service Request: K0903237

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	<u>Sur2</u>	Sur3	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
FO095467	K0903237-001	36 D	51 D	53 D	66 D	52 D	87 D
FO095468	K0903237-002	44 D	56 D	57 D	69 D	65 D	92 D
FO095469	K0903237-003	33 D	51 D	64 D	75 D	66 D	104 D
FO095470	K0903237-004	0 D #	45 D #	82 D #	78 D #	57 D #	123 D #
FO095471	K0903237-005	49 D	60 D	65 D	75 D	87 D	106 D #
FO095472	K0903237-006	47 D	58 D	65 D	74 D	78 D	93 D
FO095473	K0903237-007	47 D	55 D	63 D	66 D	71 D	88 D
FO095474	K0903237-008	22 D	43 D	71 D	72 D	39 D	95 D #
FO095475	K0903237-009	47 D	61 D	66 D	67 D	78 D	93 D #
FO095476	K0903237-010	52 D	64 D	73 D	71 D	77 D	90 D #
FO095477	K0903237-011	27 D	47 D	76 D	75 D	74 D	99 D #
FO095478	K0903237-012	33 D	47 D	57 D	56 D	51 D	71 D
Method Blank	KWG0903189-5	57	63	65	68	74	96
FO095468MS	KWG0903189-1	52 D	62 D	67 D	73 D	76 D	93 D
FO095468DMS	KWG0903189-2	46 D	60 D	65 D	75 D	70 D	92 D
Lab Control Sample	KWG0903189-3	52	57	57	58	65	80
Duplicate Lab Control Sample	KWG0903189-4	52	57	58	59	65	75

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	10-89	Sur5 = 2,4,6-Tribromophenol	16-122
Sur2 = Phenol-d6	15-103	Sur6 = Terphenyl-d14	31-126
Sur3 = Nitrobenzene-d5	10-108		
Sur4 = 2-Fluorobiphenyl	10-105		

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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RR101814

Page 1 of 1

SuperSet Reference:

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Extracted: 04/16/2009

Date Analyzed: 04/28/2009

Matrix Spike/Duplicate Matrix Spike Summary Semi-Volatile Organic Compounds by GC/MS

Sample Name:

FO095468

Lab Code:

K0903237-002

Extraction Method:

EPA 3541

Analysis Method:

8270C

Units: ug/Kg

Basis: Dry

Level: Low

Extraction Lot: KWG0903189

FO095468MS KWG0903189-1

FO095468DMS KWG0903189-2

	Sample	Matrix Spike			Duplicate Matrix Spike			%Rec		RPD
Analyte Name	Result	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Phenol	ND	119	162	73	107	162	66	10-120	11	40
2-Chlorophenol	ND	103	162	64	97.8	162	60	12-105	5	40
1,4-Dichlorobenzene	ND	101	162	62	102	162	63	10-105	1	40
N-Nitrosodi-n-propylamine	ND	125	162	77	138	162	85	10-111	10	40
1,2,4-Trichlorobenzene	ND	109	162	67	111	162	69	10-102	2	40
4-Chloro-3-methylphenol	ND	114	162	71	94.0	162	58	10-119	20	40
Acenaphthene	ND	130	162	80	130	162	80	23-106	0	40
4-Nitrophenol	ND	89.4	162	55	123	162	76	11-143	31	40
2,4-Dinitrotoluene	ND	125	162	77	114	162	70	22-125	9	40
Pentachlorophenol	ND	94.0	162	58	104	162	64	10-146	10	40
Pyrene	130	240	162	67	260	162	79	10-146	8	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor - Inline Samp

Sample Matrix:

Sediment

Service Request: K0903237

Date Extracted: 04/16/2009 Date Analyzed: 04/28/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 **Analysis Method:**

8270C

Units: ug/Kg Basis: Dry

Level: Low

Extraction Lot: KWG0903189

Lab Control	Sample
KWG0903	189-3

Duplicate Lab Control Sample KWG0903189-4

		Control Spik		Duplicate Lab Control Spike		9/ Dag		121212	
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	%Rec Limits	RPD	RPD Limit
Bis(2-chloroethyl) Ether	114	250	45	138	250	55	22-98	20	40
Phenol	113	250	45	145	250	58	34-101	25	40
2-Chlorophenol	113	250	45	143	250	57	30-91	23	40
1,3-Dichlorobenzene	107	250	43	139	250	56	10-97	26	40
1,4-Dichlorobenzene	110	250	44	139	250	56	10-98	24	40
1,2-Dichlorobenzene	111	250	44	141	250	56	10-98	24	40
Benzyl Alcohol	117	250	47	153	250	61	30-101	27	40
Bis(2-chloroisopropyl) Ether	103	250	41	134	250	53	17-100	26	40
2-Methylphenol	96.8	250	39	128	250	51	10-93	27	40
Hexachloroethane	110	250	44	139	250	56	10-99	23	40
N-Nitrosodi-n-propylamine	111	250	44	145	250	58	10-103	26	40
4-Methylphenol	99.8	250	40	134	250	54	10-98	30	40
Nitrobenzene	112	250	45	145	250	58	22-99	26	40
Isophorone	105	250	42	137	250	55	35-91	26	40
2-Nitrophenol	115	250	46	153	250	61	30-98	28	40
2,4-Dimethylphenol	39.3	250	16	71.9	250	29	10-81	59 *	40
Bis(2-chloroethoxy)methane	110	250	44	144	250	58	34-93	28	40
2,4-Dichlorophenol	108	250	43	147	250	59	35-91	31	40
Benzoic Acid	267	750	36	271	750	36	10-50	1	40
1,2,4-Trichlorobenzene	109	250	44	141	250	56	18-96	25	40
Naphthalene	112	250	45	148	250	59	23-95	28	40
4-Chloroaniline	99.7	250	40	130	250	52	10-95	26	40
Hexachlorobutadiene	106	250	42	139	250	56	14-100	27	40
4-Chloro-3-methylphenol	106	250	43	140	250	56	28-98	27	40
2-Methylnaphthalene	112	250	45	146	250	58	30-92	27	40
Hexachlorocyclopentadiene	92.6	250	37	115	250	46	10-81	22	40
2,4,6-Trichlorophenol	114	250	46	148	250	59	31-96	26	40
2,4,5-Trichlorophenol	118	250	47	150	250	60	38-95	24	40
2-Chloronaphthalene	113	250	45	146	250	58	33-95	25	40
2-Nitroaniline	118	250	47	152	250	61	40-104	25	40
Acenaphthylene	119	250	47	154	250	62	38-99	26	40
Dimethyl Phthalate	123	250	49	153	250	61	44-99	22	40
2,6-Dinitrotoluene	124	250	50	158	250	63	42-100	24	40
Acenaphthene	115	250	46	149	250	60	39-90	26	40
3-Nitroaniline	127	250	51	158	250	63	28-100	22	40
2,4-Dinitrophenol	135	250	54	163	250	65	14-104	19	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

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Page RR101814

1 of 2

QA/QC Report

Client: Portland, City of

Portland Harbor - Inline Samp Project:

Sediment Sample Matrix:

Service Request: K0903237

Date Extracted: 04/16/2009 Date Analyzed: 04/28/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 Analysis Method: 8270C

Units: ug/Kg Basis: Dry

Level: Low

Extraction Lot: KWG0903189

	KW	Control Samp /G0903189-3 Control Spike		. KW	Duplicate Lab Control Sample KWG0903189-4 Duplicate Lab Control Spike		%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Dibenzofuran	116	250	46	148	250	59	40-91	24	40
4-Nitrophenol	131	250	52	161	250	64	42-115	21	40
2,4-Dinitrotoluene	138	250	55	172	250	69	43-106	22	40
Fluorene	120	250	48	154	250	62	41-94	25	40
4-Chlorophenyl Phenyl Ether	116	250	46	149	250	60	41-93	25	40
Diethyl Phthalate	128	250	51	155	250	62	46-104	19	40
4-Nitroaniline	134	250	53	160	250	64	29-107	18	40
2-Methyl-4,6-dinitrophenol	148	250	59	177	250	71	30-107	18	40
N-Nitrosodiphenylamine	117	250	47	149	250	60	20-100	24	40
4-Bromophenyl Phenyl Ether	118	250	47	151	250	60	42-97	24	40
Hexachlorobenzene	121	250	48	152	250	61	42-98	22	40
Pentachlorophenol	104	250	42	141	250	57	28-100	30	40
Phenanthrene	127	250	51	156	250	62	44-97	20	40
Anthracene	127	250	51	156	250	62	31-104	20	40
Di-n-butyl Phthalate	140	250	56	159	250	64	47-129	13	40
Fluoranthene	138	250	55	160	250	64	45-111	14	40
Pyrene	135	250	54	162	250	65	46-112	18	40
Butyl Benzyl Phthalate	136	250	55	162	250	65	50-119	17	40
3,3'-Dichlorobenzidine	112	250	45	145	250	58	10-112	26	40
Benz(a)anthracene	136	250	54	160	250	64	45-110	17	40
Chrysene	138	250	55	164	250	66	50-108	17	40
Bis(2-ethylhexyl) Phthalate	140	250	56	166	250	67	48-127	17	40
Di-n-octyl Phthalate	145	250	58	172	250	69	52-126	17	40
Benzo(b)fluoranthene	136	250	55	163	250	65	51-111	18	40
Benzo(k)fluoranthene	141	250	57	169	250	67	52-109	18	40
Benzo(a)pyrene	128	250	51	155	250	62	26-125	19	40
Indeno(1,2,3-cd)pyrene	142	250	57	172	250	69	47-119	19	40
Dibenz(a,h)anthracene	144	250	58	171	250	68	50-115	17	40
Benzo(g,h,i)perylene	139	250	56	166	250	67	43-115	18	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Columbia Analytical Services**

CHAIN OF CUSTODY

H_O PAGE 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

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REMARKS P CN. > > Date/Time ŝ (S) RECEIVED BY: -Sem - Va 12 Roady 219 άō σ̈́ 9 Ŝ ğ Z Z 0991 XOV OTHER AG AG Signature × ¥ NORTHWEST Z Ž Š Pb Mg Min Mo Z Total or Dissolved Š 3 đ CA Φ L Ů, RELINGUISHED BY 909 3 Õ AK Please run Cou-level Ö Ö 'INDICATE STATE HYDROCARBON PROCEDURE: 8 ್ಟಿ Ö P_O ВСа Ca SPECIAL INSTRUCTIONS/COMMENTS: മ 89 89 Circle which metals are to be analyzed IIO Jeseig (mojeg pes) sugi 83 Ba Sp 8 Dissolved Metals: At As As Total Metals: At NUMBER OF CONTAINERS RECEIVED BY: TURNAROUND REQUIREMENTS Standard (10-15 working days) INVOICE INFORMATION Std. Men LAB I.D. MATRIX Requested Report Date 48 hr. Provide FAX Results erHand Harbor Inline Samp NPC Jennifer Shackelland 24 hr. 5 Day Date Time 1036 Bill To: TIME 00 P.O. # John of Portand 1/8/03 DATE Report Dup., MS, MSD as RELINQUISHED BY: Routine Report: Method IV. CLP Deliverable Report REPORT REQUIREMENTS Data Validation Report (includes all raw data) Blank, Surrogate, as 8± 5 F443700 SAMPLE I.D. required required SAMPLER'S SIGNATURE EDD MAR ADDRESS TY-STATE/ZIP = > ==

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Printed Name

Columbia Analytical Services, Inc. Cooler Receipt and Preservation Form

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4.	Is shipper's air-bill filed? If no			N			sent, were they	~	dated?	Y	N
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	itional Notes, Discrepancies,										



May 28, 2009

Analytical Report for Service Request No: K0904067

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: **Portland Harbor-Inline Samp**

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on April 14, 2009. For your reference, these analyses have been assigned our service request number K0904067.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela **Project Chemist**

PD/ln

Page 1 of 18

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEO Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

POL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	· WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-







Client: Project:

Portland, City of

Portland Harbor-Inline Samp

Service Request No.: Date Received:

K0904067 04/14/09

Sample Matrix:

Sludge

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Two sludge sample originally received on 04/14/09 were re-issued based on Mr. Peter Abrams email. Samples are issued for analysis past the recommended holding time. After original analysis under K0903237, samples were stored under room temperature until further analysis under K0904067.

Chlorinated Pesticides by EPA Method 1699M

Lab Control Sample Exceptions:

The recovery of 2,4'-DDD in Lab Control Sample KWG0904096-1 was outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

The recoveries of gamma-Chlordane, alpha-Chlordane, trans-Nonachlor, 2,4'-DDD and cis-Nonachlor in Lab Control Sample KWG0904096-2 were outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

Elevated Method Reporting Limits:

A

Samples FO095467 and FO095468 required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

No other anomalies associated with the analysis of these samples were observed.

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III. Data Validation Report	24 hr. 48 hr.	0)00 60 000 100 - 1000 50mi - VO/5 analysis.	
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IV. CLP Deliverable Report	Provide FAX Results		denteres curv
V. EDD			
	Requested Report Date		William

RCOC #1 06/03

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II. Report Dup., MS, MSD as TURNAROUND REQUIREMENTS SPECIAL INSTRUCTIONS/COMMENTS:	
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IV. CLP Deliverable Report Provide FAX Results	
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RCOC #1 06/03

Pradeep Divvela

From: Abrams, Peter [PETERA@BES.CI.PORTLAND.OR.US]

Sent: Thursday, May 07, 2009 7:10 AM

To: Pradeep Divvela

Subject: RE: K0903237/Portland Harbor

Pradeep,

I confirm that we have requested the addition of the pesticide analysis by EPA 1699 on the samples you've referenced, although we would like to have the full suite of compounds reported. Please let me know if there are any other issues.

Thanks for your help.

Peter

From: Pradeep Divvela [mailto:pdivvela@caslab.com]

Sent: Wednesday, May 06, 2009 4:28 PM

To: Abrams, Peter

Subject: K0903237/Portland Harbor

Peter,

Hello. I am writing to confirm that, following your request, we will be analyzing samples "FO095467 and FO095468" for Chlordane only by EPA Method 1699. The price will be \$375 per sample. I also want to bring to your attention that these samples are being analyzed past the recommended holding time and storage conditions.

Please confirm with your approval.

Thank you,

Pradeep Divvela

Project Chemist

Columbia Analytical Services, Inc.

1317 S. 13th Ave Kelso, WA 98626 360-577-7222 X3281 (Tel) 360-636-1068 (Fax)

pdivvela@caslab.com

www.caslab.com

Columbia Analytical is one of the few EPA approved laboratories to perform all five UCMR 2 tests on drinking water samples.

http://www.caslab.com/Holding-Times-Container-Types/

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Pradeep Divvela

From:

Chauvin, Renee [RENEEC@BES.CI.PORTLAND.OR.US]

Sent:

Thursday, May 07, 2009 3:15 PM

To:

Pradeep Divvela

Subject:

Pesticide analysis for the 2 old samples

Follow Up Flag: Follow up

Flag Status: Red

Hello Pradeep,

I want to offer some information about the two samples recently requested for EPA 1699 HR pesticide analysis. This information is just to help your chemist avoid overwhelming your analytical system. The first sample, FO095467, has a significant concentration of Chlordane. We were testing the sample for PCBs and saw the pattern of technical grade Chlordane. Using an old standard to check the pattern match, estimated concentration in the sample is about 200 ppb tech Chlordane, so maybe 40 ppb each of the alpha and gamma isomers. The second sample is not so high but the pattern was apparent.

--Renee Chauvin

Renee Chauvin
QA/QC Specialist
Water Pollution Control Laboratory
City of Portland BES
Ph. 503-823-5612
I/O B217/WPCL
reneec@bes.ci.portland.or.us

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Service Request: K0904067

Date Collected: 04/07/2009

Date Received: 04/14/2009

Chlorinated Pesticides by HRGC/MS/MS

Sample Name:

FO095467

Lab Code:

K0904067-001

Extraction Method:

EPA 3541

Units: ug/Kg Basis: Dry

Level: Low

1699M **Analysis Method:**

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	0.062	D	0.25	0.035	2.5	05/15/09	05/21/09	KWG0904096	
gamma-BHC (Lindane)	ND	U	0.25	0.055	2.5	05/15/09	05/21/09	KWG0904096	
beta-BHC	ND	U	0.25	0.060	2.5	05/15/09	05/21/09	KWG0904096	
delta-BHC	ND	U	0.25	0.055	2.5	05/15/09	05/21/09	KWG0904096	
Hexachlorobenzene	0.88	D	0.25	0.075	2.5	05/15/09	05/21/09	KWG0904096	
Heptachlor	6.9	D	0.50	0.046	2.5	05/15/09	05/21/09	KWG0904096	
Chlorpyrifos	ND	U	0.25	0.036	2.5	05/15/09	05/21/09	KWG0904096	
Aldrin	ND	U	0.50	0.060	2.5	05/15/09	05/21/09	KWG0904096	
Octachlorostyrene	ND	U	0.50	0.085	2.5	05/15/09	05/21/09	KWG0904096	
Isodrin	ND	U	0.99	0.15	2.5	05/15/09	05/21/09	KWG0904096	
Oxychlordane	ND	U	0.99	0.70	2.5	05/15/09	05/21/09	KWG0904096	
Heptachlor Epoxide	ND	U	0.50	0.15	2.5	05/15/09	05/21/09	KWG0904096	
2,4'-DDE	ND	U	0.25	0.035	2.5	05/15/09	05/21/09	KWG0904096	
gamma-Chlordane	170	D	0.99	0.17	10	05/15/09	05/21/09	KWG0904096	
alpha-Chlordane	130	D	0.99	0.14	10	05/15/09	05/21/09	KWG0904096	
trans-Nonachlor	81	D	0.99	0.28	10	05/15/09	05/21/09	KWG0904096	
Endosulfan I	ND	U	0.99	0.25	2.5	05/15/09	05/21/09	KWG0904096	
4,4'-DDE	1.5	D	0.25	0.028	2.5	05/15/09	05/21/09	KWG0904096	
2,4'-DDD	ND	U	0.25	0.047	2.5	05/15/09	05/21/09	KWG0904096	
Dieldrin	ND		2.5	0.49	2.5	05/15/09	05/21/09	KWG0904096	
Endrin	ND	U	0.99	0.23	2.5	05/15/09	05/21/09	KWG0904096	
2,4'-DDT	0.51	D	0.25	0.030	2.5	05/15/09	05/21/09	KWG0904096	
cis-Nonachlor	24		0.99	0.075	2.5	05/15/09	05/21/09	KWG0904096	
4,4'-DDD	1.3	BD	0.25	0.075	2.5	05/15/09	05/21/09	KWG0904096	
Endosulfan II	ND	U	0.50	0.22	2.5	05/15/09	05/21/09	KWG0904096	
Endrin Aldehyde	ND	U	0.50	0.26	2.5	05/15/09	05/21/09	KWG0904096	
4,4'-DDT	2.8	D	0.25	0.070	2.5	05/15/09	05/21/09	KWG0904096	
Endosulfan Sulfate	ND	U	0.25	0.085	2.5	05/15/09	05/21/09	KWG0904096	
Methoxychlor	0.39	BD	0.25	0.090	2.5	05/15/09	05/21/09	KWG0904096	
Endrin Ketone	ND	U	0.50	0.18	2.5	05/15/09	05/21/09	KWG0904096	
Mirex	ND	U	0.50	0.15	2.5	05/15/09	05/21/09	KWG0904096	

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Service Request: K0904067

Date Collected: 04/07/2009 **Date Received:** 04/14/2009

Chlorinated Pesticides by HRGC/MS/MS

Sample Name: Lab Code:

FO095467

K0904067-001

Units: ug/Kg
Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
S_GBHCD6	78	5-124	05/21/09	Acceptable
S_HXCBZ13C6	65	5-120	05/21/09	Acceptable
S_Heptachlor-13C10	102	5-128	05/21/09	Acceptable
S_Chlorpyrifos-d10	77	5-120	05/21/09	Acceptable
S_Aldrin-13C12	98	6-113	05/21/09	Acceptable
S_Ocstyrene13C8	77	5-120	05/21/09	Acceptable
S_Isodrin-13C12	90	5-120	05/21/09	Acceptable
S_Oxychlordane-13C10	72	5-144	05/21/09	Acceptable
S_Heptachlrepox13C10	82	8-146	05/21/09	Acceptable
S_Endrin-13C12	104	20-157	05/21/09	Acceptable
S_4,4'DDD-d4	77	5-120	05/21/09	Acceptable
S_4,4'-DDT-d4	117	13-200	05/21/09	Acceptable
S_Mxchlord14	100	8-200	05/21/09	Acceptable
S_Endrinket13C12	64	5-120	05/21/09	Acceptable
S_Mirex-13C10	62	5-138	05/21/09	Acceptable

Comments:

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SuperSet Reference:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Service Request: K0904067

Date Collected: 04/07/2009 **Date Received:** 04/14/2009

Chlorinated Pesticides by HRGC/MS/MS

Sample Name:

FO095468

Lab Code:

K0904067-002

Extraction Method:

EPA 3541

Analysis Method:

1699M

Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	0.25	0.035	2.5	05/15/09	05/21/09	KWG0904096	
gamma-BHC (Lindane)	ND U	0.25	0.055	2.5	05/15/09	05/21/09	KWG0904096	
beta-BHC	ND U	0.25	0.060	2.5	05/15/09	05/21/09	KWG0904096	
delta-BHC	ND U	0.25	0.055	2.5	05/15/09	05/21/09	KWG0904096	
Hexachlorobenzene	0.52 D	0.25	0.075	2.5	05/15/09	05/21/09	KWG0904096	
Heptachlor	0.40 D	0.50	0.046	2.5	05/15/09	05/21/09	KWG0904096	
Chlorpyrifos	ND U	0.25	0.036	2.5	05/15/09	05/21/09	KWG0904096	
Aldrin	ND U	0.50	0.060	2.5	05/15/09	05/21/09	KWG0904096	
Octachlorostyrene	ND U	0.50	0.085	2.5	05/15/09	05/21/09	KWG0904096	
Isodrin	ND U	0.99	0.15	2.5	05/15/09	05/21/09	KWG0904096	
Oxychlordane	ND U	0.99	0.70	2.5	05/15/09	05/21/09	KWG0904096	
Heptachlor Epoxide	ND U	0.50	0.15	2.5	05/15/09	05/21/09	KWG0904096	
2,4'-DDE	ND U	0.25	0.035	2.5	05/15/09	05/21/09	KWG0904096	
gamma-Chlordane	6.9 D	0.25	0.041	2.5	05/15/09	05/21/09	KWG0904096	
alpha-Chlordane	5.3 D	0.25	0.033	2.5	05/15/09	05/21/09	KWG0904096	
trans-Nonachlor	3.3 D	0.25	0.070	2.5	05/15/09	05/21/09	KWG0904096	
Endosulfan I	ND U	0.99	0.25	2.5	05/15/09	05/21/09	KWG0904096	
4,4'-DDE	0.43 BD	0.25	0.028	2.5	05/15/09	05/21/09	KWG0904096	
2,4'-DDD	ND U	0.25	0.047	2.5	05/15/09	05/21/09	KWG0904096	
Dieldrin	ND U	2.5	0.49	2.5	05/15/09	05/21/09	KWG0904096	
Endrin	ND U	0.99	0.23	2.5	05/15/09	05/21/09	KWG0904096	
2,4'-DDT	ND U	0.25	0.030	2.5	05/15/09	05/21/09	KWG0904096	
cis-Nonachlor	1.1 D	0.99	0.075	2.5	05/15/09	05/21/09	KWG0904096	
4,4'-DDD	0.22 BD	0.25	0.075	2.5	05/15/09	05/21/09	KWG0904096	
Endosulfan II	ND U	0.50	0.22	2.5	05/15/09	05/21/09	KWG0904096	
Endrin Aldehyde	ND U	0.50	0.26	2.5	05/15/09	05/21/09	KWG0904096	
4,4'-DDT	0.98 BD	0.25	0.070	2.5	05/15/09	05/21/09	KWG0904096	
Endosulfan Sulfate	ND U	0.25	0.085	2.5	05/15/09	05/21/09	KWG0904096	
Methoxychlor	ND U	0.25	0.090	2.5	05/15/09	05/21/09	KWG0904096	
Endrin Ketone	ND U	0.50	0.18	2.5	05/15/09	05/21/09	KWG0904096	
Mirex	ND U	0.50	0.15	2.5	05/15/09	05/21/09	KWG0904096	

Comments:

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Page 1 of 2

SuperSet Reference:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Service Request: K0904067 **Date Collected:** 04/07/2009

Date Received: 04/14/2009

Chlorinated Pesticides by HRGC/MS/MS

Sample Name:

FO095468

Lab Code:

K0904067-002

Units: ug/Kg
Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
S_GBHCD6	75	5-124	05/21/09	Acceptable
S_HXCBZ13C6	67	5-120	05/21/09	Acceptable
S_Heptachlor-13C10	95	5-128	05/21/09	Acceptable
S_Chlorpyrifos-d10	80	5-120	05/21/09	Acceptable
S_Aldrin-13C12	78	6-113	05/21/09	Acceptable
S_Ocstyrene13C8	70	5-120	05/21/09	Acceptable
S_Isodrin-13C12	107	5-120	05/21/09	Acceptable
S_Oxychlordane-13C10	83	5-144	05/21/09	Acceptable
S_Heptachlrepox13C10	74	8-146	05/21/09	Acceptable
S_Endrin-13C12	111	20-157	05/21/09	Acceptable
S_4,4'DDD-d4	74	5-120	05/21/09	Acceptable
S_4,4'-DDT-d4	115	13-200	05/21/09	Acceptable
S_Mxchlord14	123	8-200	05/21/09	Acceptable
S_Endrinket13C12	82	5-120	05/21/09	Acceptable
S_Mirex-13C10	70	5-138	05/21/09	Acceptable

Comments:

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Page 2 of 2

SuperSet Reference:

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Service Request: K0904067

Date Collected: NA
Date Received: NA

Chlorinated Pesticides by HRGC/MS/MS

Sample Name:

Method Blank

Lab Code:

KWG0904096-3

Extraction Method:

EPA 3541

Analysis Method:

1699M

Units: ug/Kg Basis: Dry

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND	U	0.064	0.0087	1	05/15/09	05/21/09	KWG0904096	
gamma-BHC (Lindane)	ND	U	0.064	0.014	1	05/15/09	05/21/09	KWG0904096	
beta-BHC	ND	U	0.064	0.016	1	05/15/09	05/21/09	KWG0904096	
delta-BHC	ND	U	0.064	0.014	1	05/15/09	05/21/09	KWG0904096	
Hexachlorobenzene	0.024	J	0.064	0.019	1	05/15/09	05/21/09	KWG0904096	
Heptachlor	ND	U	0.13	0.012	1	05/15/09	05/21/09	KWG0904096	
Chlorpyrifos	ND	U	0.064	0.0091	1	05/15/09	05/21/09	KWG0904096	
Aldrin	ND	U	0.13	0.016	1	05/15/09	05/21/09	KWG0904096	
Octachlorostyrene	ND	U	0.13	0.022	1	05/15/09	05/21/09	KWG0904096	
Isodrin	ND	U	0.26	0.037	1	05/15/09	05/21/09	KWG0904096	
Oxychlordane	ND	U	0.26	0.18	1	05/15/09	05/21/09	KWG0904096	
Heptachlor Epoxide	ND	U	0.13	0.038	1	05/15/09	05/21/09	KWG0904096	
2,4'-DDE	ND	U	0.064	0.0087	1	05/15/09	05/21/09	KWG0904096	
gamma-Chlordane	ND	U	0.064	0.011	1	05/15/09	05/21/09	KWG0904096	
alpha-Chlordane	ND	U	0.064	0.0084	. 1	05/15/09	05/21/09	KWG0904096	
trans-Nonachlor	ND	U	0.064	0.018	1	05/15/09	05/21/09	KWG0904096	
Endosulfan I	ND	U	0.26	0.064	1	05/15/09	05/21/09	KWG0904096	
4,4'-DDE	0.053	J	0.064	0.0070	1	05/15/09	05/21/09	KWG0904096	
2,4'-DDD	ND		0.064	0.012	1	05/15/09	05/21/09	KWG0904096	
Dieldrin	ND		0.64	0.13	1	05/15/09	05/21/09	KWG0904096	
Endrin	ND	U	0.26	0.057	1	05/15/09	05/21/09	KWG0904096	
2,4'-DDT	0.010	J	0.064	0.0076	1	05/15/09	05/21/09	KWG0904096	
cis-Nonachlor	ND	U	0.26	0.019	1	05/15/09	05/21/09	KWG0904096	
4,4'-DDD	0.16	J	0.064	0.019	1	05/15/09	05/21/09	KWG0904096	
Endosulfan II	ND	U	0.13	0.055	1	05/15/09	05/21/09	KWG0904096	
Endrin Aldehyde	ND	U	0.13	0.065	1	05/15/09	05/21/09	KWG0904096	
4,4'-DDT	0.051	J	0.064	0.018	1	05/15/09	05/21/09	KWG0904096	
Endosulfan Sulfate	ND	U	0.064	0.022	1	05/15/09	05/21/09	KWG0904096	
Methoxychlor	0.15		0.064	0.023	1	05/15/09	05/21/09	KWG0904096	
Endrin Ketone	ND	U	0.13	0.046	1	05/15/09	05/21/09	KWG0904096	
Mirex	ND	U	0.13	0.037	1	05/15/09	05/21/09	KWG0904096	

Page

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Service Request: K0904067

Date Collected: NA Date Received: NA

Chlorinated Pesticides by HRGC/MS/MS

Sample Name:

Method Blank

Lab Code:

KWG0904096-3

Units: ug/Kg

Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
S_GBHCD6	64	5-124	05/21/09	Acceptable
S_HXCBZ13C6	46	5-120	05/21/09	Acceptable
S_Heptachlor-13C10	68	5-128	05/21/09	Acceptable
S_Chlorpyrifos-d10	60	5-120	05/21/09	Acceptable
S_Aldrin-13C12	59	6-113	05/21/09	Acceptable
S_Ocstyrene13C8	64	5-120	05/21/09	Acceptable
S_Isodrin-13C12	60	5-120	05/21/09	Acceptable
S_Oxychlordane-13C10	55	5-144	05/21/09	Acceptable
S_Heptachlrepox13C10	65	8-146	05/21/09	Acceptable
S_Endrin-13C12	68	20-157	05/21/09	Acceptable
S_4,4'DDD-d4	54	5-120	05/21/09	Acceptable
S_4,4'-DDT-d4	68	13-200	05/21/09	Acceptable
S_Mxchlord14	64	8-200	05/21/09	Acceptable
S_Endrinket13C12	66	5-120	05/21/09	Acceptable
S_Mirex-13C10	58	5-138	05/21/09	Acceptable

Comments:

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QA/QC Report

Client: Project: Portland, City of

P

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Surrogate Recovery Summary Chlorinated Pesticides by HRGC/MS/MS

Extraction Method: Analysis Method:

EPA 3541

1699M

Units: PERCENT

Service Request: K0904067

Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4	Sur5	Sur6	Sur7	Sur8
FO095467	K0904067-001	78	65	102	77	98	77	90	72
FO095468	K0904067-002	75	67	95	80	78	70	107	83
Method Blank	KWG0904096-3	64	46	68	60	59	64	60	55
Lab Control Sample	KWG0904096-1	69	49	67	66	61	72	70	63
Duplicate Lab Control Sample	KWG0904096-2	63	50	59	64	58	65	62	59

Surrogate Recovery Control Limits (%)

Sur1 = S GBHCD6	5-124	Sur5 = S Aldrin-13C12	6-113
Sur2 = SHXCBZ13C6	5-120	Sur6 = S_Ocstyrene13C8	5-120
Sur3 = S Heptachlor-13C10	5-128	$Sur7 = S_Isodrin-13C12$	5-120
Sur4 = S_Chlorpyrifos-d10	5-120	Sur8 = S_Oxychlordane-13C10	5-144

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic 16

Page 1 of 1

SuperSet Reference: RR102217

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Service Request: K0904067

Surrogate Recovery Summary Chlorinated Pesticides by HRGC/MS/MS

Extraction Method:

EPA 3541

Units: PERCENT

Analysis Method:

1699M

Level: Low

Sample Name	Lab Code	Sur9	<u>Sur10</u>	Sur11	<u>Sur12</u>	<u>Sur13</u>	<u>Sur14</u>	<u>Sur15</u>
FO095467	K0904067-001	82	104	77	117	100	64	62
FO095468	K0904067-002	74	111	74	115	123	82	70
Method Blank	KWG0904096-3	65	68	54	68	64	66	58
Lab Control Sample	KWG0904096-1	74	75	70	89	85	82	73
Duplicate Lab Control Sample	KWG0904096-2	66	77	73	94	94	84	76

Surrogate Recovery Control Limits (%)

Sur9 = S Heptachlrepox13C10	8-146	Sur13= S_Mxchlord14	8-200
Sur10= S_Endrin-13C12	20-157	Sur14= S_Endrinket13C12	5-120
$Sur11 = S_4,4'DDD-d4$	5-120	Sur15= S_Mirex-13C10	5-138
Sur12= S_4,4'-DDT-d4	13-200	man. One	

Results flagged with an asterisk (*) indicate values outside control criteria. Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic 17

SuperSet Reference: RR102217

Page 1 of 1

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor-Inline Samp

Sample Matrix:

Sludge, solid

Service Request: K0904067

Date Extracted: 05/15/2009 **Date Analyzed:** 05/21/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Chlorinated Pesticides by HRGC/MS/MS

Extraction Method: Analysis Method:

1699M

EPA 3541

Units: ug/Kg

Basis: Dry Level: Low

Extraction Lot: KWG0904096

Lab Control Sample KWG0904096-1

Duplicate Lab Control Sample

KWG0904096-2

	Lab Control Spike			Duplicate	Lab Control	%Rec		RPD	
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
alpha-BHC	1.94	2.00	97	2.16	2.00	108	50-120	11	30
gamma-BHC (Lindane)	1.97	2.00	99	2.08	2.00	104	50-120	5	30
beta-BHC	2.08	2.00	104	2.37	2.00	118	50-120	13	30
delta-BHC	1.51	2.00	76	1.69	2.00	85	50-120	11	30
Hexachlorobenzene	2.10	2.00	105	2.21	2.00	111	50-120	5	30
Heptachlor	1.98	2.00	99	2.07	2.00	104	50-120	4	30
Chlorpyrifos	2.02	2.00	101	2.15	2.00	107	50-120	6	30
Aldrin	1.86	2.00	93	2.10	2.00	105	50-120	12	30
Octachlorostyrene	2.07	2.00	103	2.28	2.00	114	50-120	10	30
Isodrin	2.06	2.00	103	1.95	2.00	97	50-120	6	30
Oxychlordane	2.05	2.00	103	1.90	2.00	95	50-120	8	30
Heptachlor Epoxide	2.02	2.00	101	2.29	2.00	114	50-120	13	30
2,4'-DDE	2.27	2.00	113	2.24	2.00	112	24-123	1	30
gamma-Chlordane	2.31	2.00	116	2.43	2.00	121 *	50-120	5	30
alpha-Chlordane	2.40	2.00	120	2.50	2.00	125 *	50-120	4	30
trans-Nonachlor	2.33	2.00	116	2.60	2.00	130 *	50-120	11	30
Endosulfan I	1.94	2.00	97	1.74	2.00	87	50-120	11	30
4,4'-DDE	2.13	2.00	107	2.17	2.00	108	50-120	2	30
2,4'-DDD	2.49	2.00	124 *	2.52	2.00	126 *	50-120	1	30
Dieldrin	2.05	2.00	102	1.92	2.00	96	50-120	6	30
Endrin	1.91	2.00	96	2.10	2.00	105	50-120	9	30
2,4'-DDT	2.13	2.00	106	2.20	2.00	110	50-120	3	30
cis-Nonachlor	2.37	2.00	119	2.74	2.00	137 *	50-120	15	30
4,4'-DDD	2.12	2.00	106	2.15	2.00	107	42-120	1	30
Endosulfan II	2.20	2.00	110	2.05	2.00	103	5-200	7	30
Endrin Aldehyde	2.04	2.00	102	2.05	2.00	102	50-120	0	30
4,4'-DDT	1.99	2.00	99	2.13	2.00	106	50-120	7	30
Endosulfan Sulfate	1.88	2.00	94	1.95	2.00	98	50-200	4	30
Methoxychlor	1.96	2.00	98	2.07	2.00	104	50-120	5	30
Endrin Ketone	1.98	2.00	99	1.92	2.00	96	50-134	3	30
Mirex	2.03	2.00	102	2.12	2.00	106	50-120	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Printed: 05/28/2009 09:52:49 $u:\Stealth\Crystal.rpt\Form3DLC.rpt$



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

May 14, 2009

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

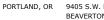
RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 04/13/09 16:05. The following list is a summary of the Work Orders contained in this report, generated on 05/14/09 15:55.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
PSD0460	Portland Harbor	36238

TestAmerica Portland





9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. 36238 Report Created: Project Number: Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
	<u> </u>	Matrix	Date Sampled	Date Received
FO095467	PSD0460-01	Soil	04/07/09 08:48	04/13/09 16:05
FO095468	PSD0460-02	Soil	04/07/09 09:48	04/13/09 16:05
FO095469	PSD0460-03	Soil	04/07/09 11:47	04/13/09 16:05
FO095470	PSD0460-04	Soil	04/07/09 13:11	04/13/09 16:05
FO095471	PSD0460-05	Soil	04/07/09 13:48	04/13/09 16:05
FO095472	PSD0460-06	Soil	04/08/09 07:52	04/13/09 16:05
FO095473	PSD0460-07	Soil	04/08/09 08:18	04/13/09 16:05
FO095474	PSD0460-08	Soil	04/08/09 09:21	04/13/09 16:05
FO095475	PSD0460-09	Soil	04/08/09 13:31	04/13/09 16:05
FO095476	PSD0460-10	Soil	04/08/09 12:13	04/13/09 16:05
FO095477	PSD0460-11	Soil	04/08/09 10:01	04/13/09 16:05
FO095478	PSD0460-12	Soil	04/08/09 10:36	04/13/09 16:05

TestAmerica Portland

Howard Holmes, Project Manager



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford05/14/09 15:55

Analytical Case Narrative

TestAmerica - Portland, OR

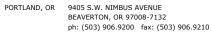
PSD0460

8270 SIM Phthalates

Bis(2-ethylhexyl)phthalate was detected in the method blank between the MDL and MRL. Sample data was not affected as all of the samples had concentrations greater than 10x the method blank contamination level. Results were flagged and reported. No other anomalies were reported.

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory

Project Name: Portland Harbor

6543 N. Burlington Ave. Portland, OR 97203

Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 05/14/09 15:55

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSD0460-01 ((FO095467)			So	il		Samp	led: 04/07/	09 08:48			RL
Acenaphthene		EPA 8270m	ND		99.5	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 17:19		
Acenaphthylene		"	ND		99.5	"	"	"	"	"		
Anthracene		"	ND		99.5	"	"	"	"	"		
Benzo (a) anthracen	ie	"	ND		99.5	"	"	"	"	"		
Benzo (a) pyrene		"	108		99.5	"	"	"	"	"		
Benzo (b) fluorantl	hene	"	154		99.5	"	"	"	"	"		
Benzo (ghi) peryler	ne	"	170		99.5	"	"	"	"	"		
Benzo (k) fluorantl	hene	"	102		99.5	"	"	"	"	"		
Chrysene		"	197		99.5	"	"	"	"	"		
Dibenzo (a,h) anthra	acene	"	ND		99.5	"	"	"	"	"		
Fluoranthene		"	224		99.5	"	"	"	"	"		
Fluorene		"	ND		99.5	"	"	"	"	"		
Indeno (1,2,3-cd) py	yrene	"	ND		99.5	"	"	"	"	"		
Naphthalene		"	ND		99.5	"	"	"	"	"		
Phenanthrene		"	120		99.5	"	"	"	"	"		
Pyrene		"	236		99.5	"	"	"	"	"		
Surrogate(s):	Fluorene-d10				120%		24 - 125 %	"			"	
8 ()	Pyrene-d10				112%		41 - 141 %	"			"	
	Benzo (a) pyrene-d1.	2			114%		38 - 143 %	"			"	

PSD0460-02 (FO095468)			Soil	I		San	npled: 04/07/	09 09:48		RL3
Acenaphthene	EPA 8270m	ND		87.8	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 17:52	
Acenaphthylene	"	ND		87.8	"	"	"	"	"	
Anthracene	"	ND		87.8	"	"	"	"	"	
Benzo (a) anthracene	"	ND		87.8	"	"	"	"	"	
Benzo (a) pyrene	"	ND		87.8	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND		87.8	"	"	"	"	"	
Benzo (ghi) perylene	"	100		87.8	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND		87.8	"	"	"	"	"	
Chrysene	"	105		87.8	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND		87.8	"	"	"	"	"	
Fluoranthene	"	ND		87.8	"	"	"	"	"	
Fluorene	"	ND		87.8	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND		87.8	"	"	"	"	"	
Naphthalene	"	ND		87.8	"	"	"	"	"	
Phenanthrene	"	ND		87.8	"	"	"	"	"	

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

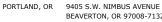
Portland Harbor

Polynuclear Aromatic Compounds per EPA 8270M-SIM

				TestAn	nerica Por	tland					
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSD0460-02 (FO095468)			Soil			Samp	led: 04/07/	09 09:48			RL
Pyrene	EPA 8270m	124		87.8	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 17:52		
Surrogate(s): Fluorene-d10				114%		24 - 125 %	"			"	
Pyrene-d10				104%		41 - 141 %	"			"	
Benzo (a) pyreno	e-d12			108%		38 - 143 %	"			"	
PSD0460-03 (FO095469)			Soil			Samp	led: 04/07/	09 11:47			RL
Acenaphthene	EPA 8270m	ND		95.7	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 18:24		
Acenaphthylene	"	ND		95.7	"	"	"	"	"		
Anthracene	"	ND		95.7	"	"	"	"	"		
Benzo (a) anthracene	"	116		95.7	"	"	"	"	"		
Benzo (a) pyrene	"	148		95.7	"	"	"	"	"		
Benzo (b) fluoranthene	"	185		95.7	"	"	"	"	"		
Benzo (ghi) perylene	"	226		95.7	"	"	"	"	"		
Benzo (k) fluoranthene	"	140		95.7	"	"	"	"	"		
Chrysene	"	235		95.7	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		95.7	"	"	"	"	"		
Fluoranthene	"	276		95.7	"	"	"	"	"		
Fluorene	"	ND		95.7	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	136		95.7	"	"	"	"	"		
Naphthalene	"	ND		95.7	"	"	"	"	"		
Phenanthrene	"	134		95.7	"	"	"	"	"		
Pyrene	"	235		95.7	"	"	"	"	"		
Surrogate(s): Fluorene-d10				112%		24 - 125 %	"			"	
Pyrene-d10				106%		41 - 141 %	"			"	
Benzo (a) pyreno	e-d12			103%		38 - 143 %	"			"	
PSD0460-04 (FO095470)			Soil			Samp	led: 04/07/	09 13:11			RL
Acenaphthene	EPA 8270m	ND		83.2	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 18:56		
Acenaphthylene	"	ND		83.2	"	"	"	"	"		
Anthracene	"	133		83.2	"	"	"	"	"		
Benzo (a) anthracene	"	221		83.2	"	"	"	"	"		
Benzo (a) pyrene	"	238		83.2	"		"	"	"		
Benzo (b) fluoranthene	"	341		83.2	"	"	"	"	"		
Benzo (ghi) perylene	"	402		83.2	"	"	"	"	"		
- /* *											
Benzo (k) fluoranthene	"	275		83.2	"	"	"	"	"		

TestAmerica Portland

Howard Holmes, Project Manager



Prepared



Method

Analyte

BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Analyzed

Notes

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

Result MDL*

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Units

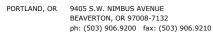
Batch

MRL

Analyte		Method	Result	MIDL*	WIRL	Units	DII	ватсп	Prepared	Analyzed	Notes	,
PSD0460-04	(FO095470)			So	il		Samp	led: 04/07/	09 13:11			RL3
Dibenzo (a,h) anthra	acene	EPA 8270m	ND		83.2	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 18:56		
Fluoranthene		"	921		83.2	"	"	"	"	"		
Fluorene		"	ND		83.2	"	"	"	"	"		
Indeno (1,2,3-cd) p	yrene	"	199		83.2	"	"	"	"	"		
Naphthalene		"	ND		83.2	"	"	"	"	"		
Phenanthrene		"	560		83.2	"	"	"	"	"		
Pyrene		"	837		83.2	"	"	"	"	"		
Surrogate(s):	Fluorene-d10				110%		24 - 125 %	"			"	
	Pyrene-d10				103%		41 - 141 %	"			"	
	Benzo (a) pyrene	-d12			110%		38 - 143 %	"			"	
PSD0460-05	(FO095471)			So	il		Samp	led: 04/07/	09 13:48			RL3
Acenaphthene		EPA 8270m	ND		94.9	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 19:29		
Acenaphthylene		"	ND		94.9	"	"	"	"	"		
Anthracene		"	141		94.9	"	"	"	"	"		
Benzo (a) anthrace	ene	"	158		94.9	"	"	"	"	"		
Benzo (a) pyrene		"	239		94.9	"	"	"	"	"		
Benzo (b) fluoranti	hene	"	281		94.9	"	"	"	"	"		
Benzo (ghi) perylei	ne	"	414		94.9	"	"	"	"	"		
Benzo (k) fluoranti	hene	"	183		94.9	"	"	"	"	"		
Chrysene		"	365		94.9	"	"	"	"	"		
Dibenzo (a,h) anthra	acene	"	ND		94.9	"	"	"	"	"		
Fluoranthene		"	495		94.9	"	"	"	"	"		
Fluorene		"	ND		94.9	"	"	"	"	"		
Indeno (1,2,3-cd) p	yrene	"	253		94.9	"	"	"	"	"		
Naphthalene		"	ND		94.9	"	"	"	"	"		
Phenanthrene		"	311		94.9	"	"	"	"	"		
Pyrene		"	422		94.9	"	"	"	"	"		
Surrogate(s):	Fluorene-d10				116%		24 - 125 %	"			"	
	Pyrene-d10				113%		41 - 141 %	"			"	
	Benzo (a) pyrene	-d12			105%		38 - 143 %	"			"	

TestAmerica Portland

Howard Holmes, Project Manage





6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSD0460-06 (FO095472)			Soi	1		Samp	led: 04/08/	09 07:52			RL
Acenaphthene	EPA 8270m	ND		94.3	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 20:01		
Acenaphthylene	"	ND		94.3	"	"	"	"	"		
Anthracene	"	ND		94.3	"	"	"	"	"		
Benzo (a) anthracene	"	ND		94.3	"	"	"	"	"		
Benzo (a) pyrene	"	ND		94.3	"	"	"	"	"		
Benzo (b) fluoranthene	"	125		94.3	"	"	"	"	"		
Benzo (ghi) perylene	"	129		94.3	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		94.3	"	"	"	"	"		
Chrysene	"	183		94.3	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		94.3	"	"	"	"	"		
Fluoranthene	"	252		94.3	"	"	"	"	"		
Fluorene	"	ND		94.3	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	ND		94.3	"	"	"	"	"		
Naphthalene	"	ND		94.3	"	"	"	"	"		
Phenanthrene	"	148		94.3	"	"	"	"	"		
Pyrene	"	229		94.3	"	"	"	"	"		
Surrogate(s): Fluorene-d10				115%		24 - 125 %	"			"	
Pyrene-d10				108%		41 - 141 %	"			"	
Benzo (a) pyreno	e-d12			107%		38 - 143 %	"			"	
PSD0460-07 (FO095473)			Soi	l		Samp	led: 04/08/	09 08:18			RL3
Acenaphthene	EPA 8270m	ND		96.3	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 20:33		
Acenaphthylene	"	ND		96.3	"	"	"	"	"		
Anthracene	"	ND		96.3	"	"	"	"	"		
Benzo (a) anthracene	"	ND		96.3	"	"	"	"	"		
Benzo (a) pyrene	"	ND		96.3	"	"	"	"	"		
Benzo (b) fluoranthene	"	121		96.3	"	"	"	"	"		
Benzo (ghi) perylene	"	135		96.3	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		96.3	"	"	"	"	"		
Chrysene	"	174		96.3	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		96.3	"	"	"	"	"		
Fluoranthene	"	173		96.3	"	"	"	"	"		
Fluorene								,,	,,		
	"	ND		96.3	"	"	"				
Indeno (1,2,3-cd) pyrene	"	ND ND		96.3 96.3	"	"	"		"		

TestAmerica Portland

Phenanthrene

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

96.3

108





6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

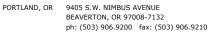
Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSD0460-07 (FO095473)			So	il		Samp	led: 04/08/	09 08:18			RL3
Pyrene	EPA 8270m	177		96.3	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 20:33		
Surrogate(s): Fluorene-d10				111%		24 - 125 %	"			"	
Pyrene-d10				103%		41 - 141 %	"			"	
Benzo (a) pyre	ne-d12			102%		38 - 143 %	"			"	
PSD0460-08 (FO095474)			So	il		Samp	led: 04/08/	09 09:21			RL3
Acenaphthene	EPA 8270m	ND		97.9	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 21:06		
Acenaphthylene	"	ND		97.9	"	"	"	"	"		
Anthracene	"	103		97.9	"	"	"	"	"		
Benzo (a) anthracene	"	ND		97.9	"	"	"	"	"		
Benzo (a) pyrene	"	103		97.9	"	"	"	"	"		
Benzo (b) fluoranthene	"	148		97.9	"	"	"	"	"		
Benzo (ghi) perylene	"	146		97.9	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		97.9	"	"	"	"	"		
Chrysene	"	258		97.9	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		97.9	"	"	"	"	"		
Fluoranthene	"	184		97.9	"	"	"	"	"		
Fluorene	"	212		97.9	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	ND		97.9	"	"	"	"	"		
Naphthalene	"	ND		97.9	"	"	"	"	"		
Phenanthrene	"	468		97.9	"	"	"	"	"		
Pyrene	"	386		97.9	"	"	"	"	"		
Surrogate(s): Fluorene-d10				119%		24 - 125 %	"			"	
Pyrene-d10				116%		41 - 141 %	"			"	
Benzo (a) pyre.	ne-d12			115%		38 - 143 %	"			"	
PSD0460-09 (FO095475)			So	il		Samp	led: 04/08/	09 13:31			RL3
Acenaphthene	EPA 8270m	ND		127	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 21:38		
Acenaphthylene	"	ND		127	"	"	"	"	"		
Anthracene	"	ND		127	"	"	"	"	"		
Benzo (a) anthracene	"	199		127	"	"	"	"	"		
Benzo (a) pyrene	"	245		127	"	"	"	"	"		
Benzo (b) fluoranthene	"	316		127	"	"	"	"	"		
Benzo (ghi) perylene	"	390		127	"	"	"	"	"		
Benzo (k) fluoranthene	"	217		127	"	"	"	"	"		
Chrysene	"	545		127	"	"	"	"	"		

TestAmerica Portland

Howard Holmes, Project Manager





6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSD0460-09 (FO0954	75)		So	il		Samp	led: 04/08/	09 13:31			RL3
Dibenzo (a,h) anthracene	EPA 8270m	ND		127	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 21:38		
Fluoranthene	"	935		127	"	"	"	"	"		
Fluorene	"	ND		127	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	194		127	"	"	"	"	"		
Naphthalene	"	553		127	"	"	"	"	"		
Phenanthrene	"	738		127	"	"	"	"	"		
Pyrene	"	813		127	"	"	"	"	"		
Surrogate(s): Fluorence				120%		24 - 125 %	"			"	
Pyrene-				108%		41 - 141 %	"			"	
Benzo (a	a) pyrene-d12			116%		38 - 143 %	"			"	
PSD0460-10 (FO0954	76)		So	il		Samp	led: 04/08/	09 12:13			RL3
Acenaphthene	EPA 8270m	ND		92.7	ug/kg dry	2x	9040656	04/17/09 18:30	04/22/09 22:10		
Acenaphthylene	"	ND		92.7	"	"	"	"	"		
Anthracene	"	ND		92.7	"	"	"	"	"		
Benzo (a) anthracene	"	ND		92.7	"	"	"	"	"		
Benzo (a) pyrene	"	122		92.7	"	"	"	"	"		
Benzo (b) fluoranthene	"	179		92.7	"	"	"	"	"		
Benzo (ghi) perylene	"	236		92.7	"	"	"	"	"		
Benzo (k) fluoranthene	"	124		92.7	"	"	"	"	"		
Chrysene	"	200		92.7	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		92.7	"	"	"	"	"		
Fluoranthene	"	336		92.7	"	"	"	"	"		
Fluorene	"	ND		92.7	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	135		92.7	"	"	"	"	"		
Naphthalene	"	ND		92.7	"	"	"	"	"		
Phenanthrene	"	315		92.7	"	"	"	"	"		
Pyrene	"	253		92.7	"	"	"	"	"		
Surrogate(s): Fluoren	e-d10			113%		24 - 125 %	"			"	
Pyrene-c				106%		41 - 141 %	"			"	
Benzo (d	a) pyrene-d12			105%		38 - 143 %	"			"	

TestAmerica Portland

Howard Holmes, Project Manager





6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

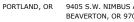
Phthalates per EPA 8270-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed		Notes	
PSD0460-01 (FO095467)			So	il		Samp	led: 04/07/	09 08:48				RL3
Dimethyl phthalate	EPA 8270m	ND		1990	ug/kg dry	20x	9040656	04/17/09 18:30	04/24/09 03:27			
Diethyl phthalate	"	ND		1990	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		1990	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		1990	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	3270		1990	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		1990	"	"	"	"	"			
Surrogate(s): 2-Fluorobipheny p-Terphenyl-d14	!			91.0% 94.7%		10 - 150 % 10 - 150 %	"			"		
PSD0460-02 (FO095468)			So	il		Samp	led: 04/07/	09 09:48				RL3
Dimethyl phthalate	EPA 8270m	ND		878	ug/kg dry	10x	9040656	04/17/09 18:30	04/24/09 07:42			
Diethyl phthalate	"	ND		878	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		878	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		878	"	"	"	,,	•			
Bis(2-ethylhexyl)phthalate	"	1850		878	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		878	"		"	"	"			
Surrogate(s): 2-Fluorobipheny	!			90.0%		10 - 150 %	"			"		
p-Terphenyl-d14				113%		10 - 150 %	"			"		
PSD0460-03 (FO095469)			So	il		Samp	led: 04/07/	09 11:47				RL3
Dimethyl phthalate	EPA 8270m	ND		1910	ug/kg dry	20x	9040656	04/17/09 18:30	04/24/09 04:03			
Diethyl phthalate	"	ND		1910	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		1910	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		1910	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	3000		1910	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		1910	"	"	"	"	"			
Surrogate(s): 2-Fluorobipheny p-Terphenyl-d14	!			81.5% 95.7%		10 - 150 % 10 - 150 %	"			"		
PSD0460-04 (FO095470)			So	il		Samp	led: 04/07/	09 13:11				RL3
Dimethyl phthalate	EPA 8270m	ND		4160	ug/kg dry	50x	9040656	04/17/09 18:30	04/24/09 01:00		_	
Diethyl phthalate	"	ND		4160	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		4160	"	"	"	"	"			
Butyl benzyl phthalate	"	4170		4160	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	59900		4160	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		4160	,,	.,	,,	,,	"			

TestAmerica Portland

Howard Holmes, Project Manager



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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave. Project Number: Portland, OR 97203 Project Manager: Report Created:

05/14/09 15:55

Phthalates per EPA 8270-SIM

Portland Harbor

Jennifer Shackelford

36238

Project Name:

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed		Notes	
PSD0460-04 (FO095470)			Soi	l		Samp	led: 04/07/	09 13:11				RL
Surrogate(s): 2-Fluorobiphenyl p-Terphenyl-d14				92.8% 103%		10 - 150 % 10 - 150 %	50x		(04/24/09 01:00	Z3	
PSD0460-05 (FO095471)			Soi	l		Samp	led: 04/07/	09 13:48				RL
Dimethyl phthalate	EPA 8270m	ND		1900	ug/kg dry	20x	9040656	04/17/09 18:30	04/24/09 04:40			
Diethyl phthalate	"	ND		1900	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		1900	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		1900	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	2580		1900	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		1900	"	"	"	"	"			
Surrogate(s): 2-Fluorobiphenyl				94.0%		10 - 150 %	"			"		
p-Terphenyl-d14				102%		10 - 150 %	"			"		
PSD0460-06 (FO095472)			Soi	l		Samp	led: 04/08/	09 07:52				RL
Dimethyl phthalate	EPA 8270m	ND		1890	ug/kg dry	20x	9040656	04/17/09 18:30	04/24/09 05:17			
Diethyl phthalate	"	ND		1890	"		"	"	"			
Di-n-butyl phthalate	"	ND		1890	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		1890	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	3480		1890		"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		1890	"	"	"	"	"			
Surrogate(s): 2-Fluorobiphenyl				91.7%		10 - 150 %	"			"		
p-Terphenyl-d14				102%		10 - 150 %	"			"		
PSD0460-07 (FO095473)			Soi	l		Samp	led: 04/08/	09 08:18				RL
Dimethyl phthalate	EPA 8270m	ND		1930	ug/kg dry	20x	9040656	04/17/09 18:30	04/24/09 05:53			
Diethyl phthalate	"	ND		1930	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		1930	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		1930	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	2490		1930	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		1930	"	"	"	"	"			
Surrogate(s): 2-Fluorobiphenyl				90.5%		10 - 150 %	"			"		
p-Terphenyl-d14				100%		10 - 150 %	"			"		

TestAmerica Portland

Howard Holmes, Project Manager





City of Portland Water Pollution Laboratory

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

Project Name:

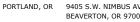
Portland Harbor

Phthalates per EPA 8270-SIM

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed		Notes	
PSD0460-08 (FO095474)			Soi			Samp	led: 04/08/	-				RL
Dimethyl phthalate	EPA 8270m	ND		4900	ug/kg dry	50x	9040656	04/17/09 18:30	04/24/09 01:37			
Diethyl phthalate	"	ND		4900	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		4900	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		4900	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	10900		4900	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		4900	"	"	"	"	"			
Surrogate(s): 2-Fluorobipheny p-Terphenyl-d14				98.1% 107%		10 - 150 % 10 - 150 %	"			"	Z 3	
PSD0460-09 (FO095475)			Soi	l		Samp	led: 04/08/	09 13:31				RL
Dimethyl phthalate	EPA 8270m	ND		6370	ug/kg dry	50x	9040656	04/17/09 18:30	04/24/09 02:13			
Diethyl phthalate	"	ND		6370	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		6370	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		6370	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	19700		6370	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	14400		6370	"	"	"	"	"			
Surrogate(s): 2-Fluorobipheny p-Terphenyl-d14				101% 111%		10 - 150 % 10 - 150 %	"			"		
PSD0460-10 (FO095476)			Soi	l		Samp	led: 04/08/	09 12:13				RL.
Dimethyl phthalate	EPA 8270m	ND		927	ug/kg dry	10x	9040656	04/17/09 18:30	04/28/09 18:12			
Diethyl phthalate	"	ND		927	"	"	"	"	"			
Di-n-butyl phthalate	"	ND		927	"	"	"	"	"			
Butyl benzyl phthalate	"	ND		927	"	"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	1350		927	"	"	"	"	"		B1	
Di-n-octyl phthalate	"	ND		927	"	"	"	"	"			
Surrogate(s): 2-Fluorobipheny p-Terphenyl-d14				94.1% 113%		10 - 150 % 10 - 150 %	"			"		
PSD0460-11 (FO095477)			Soi	l		Samp	led: 04/08/	09 10:01				RL
Dimethyl phthalate	EPA 8270m	ND		1510	ug/kg dry	20x	9040656	04/17/09 18:30	04/24/09 07:06			
Diethyl phthalate	"	ND		1510		"	"	"	"			
Di-n-butyl phthalate	"	ND		1510		"	"	"	"			
Butyl benzyl phthalate	"	ND		1510		"	"	"	"			
Bis(2-ethylhexyl)phthalate	"	3000		1510		"	"	"	"		B1	
Di-n-octyl phthalate		ND		1510	,,		,,		"			

TestAmerica Portland

Howard Holmes, Project Manager





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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.

Portland, OR 97203

Project Name:

Portland Harbor

36238 Project Number: Project Manager:

Jennifer Shackelford

Report Created: 05/14/09 15:55

Percent Dry Weight (Solids) per Standard Methods

TestAmerica Portland

					TCStAIII	erica Forti	and				
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSD0460-01	(FO095467)			Soil			Samp	oled: 04/07/	09 08:48		
% Solids		NCA SOP	67.2		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-02	(FO095468)			Soil			Samp	oled: 04/07/	09 09:48		
% Solids		NCA SOP	76.1		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-03	(FO095469)			Soil			Samp	oled: 04/07/	09 11:47		
% Solids		NCA SOP	69.8		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-04	(FO095470)			Soil			Samp	oled: 04/07/	09 13:11		
% Solids		NCA SOP	80.4		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-05	(FO095471)			Soil			Samp	oled: 04/07/	09 13:48		
% Solids		NCA SOP	70.5		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-06	(FO095472)			Soil			Samp	oled: 04/08/	09 07:52		
% Solids		NCA SOP	71.0		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-07	(FO095473)			Soil			Samp	oled: 04/08/	09 08:18		
% Solids		NCA SOP	69.4		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-08	(FO095474)			Soil			Samp	oled: 04/08/	09 09:21		
% Solids		NCA SOP	68.3		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-09	(FO095475)			Soil			Samp	oled: 04/08/	09 13:31		
% Solids		NCA SOP	52.5		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-10	(FO095476)			Soil			Samp	oled: 04/08/	09 12:13		
% Solids		NCA SOP	72.0		0.0100	% by Weight	1x	9040593	04/15/09 16:21	04/15/09 16:21	
PSD0460-11	(FO095477)			Soil			Came	oled: 04/08/	00 10.01		

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City of Portland Water Pollution Laboratory **Portland Harbor**

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

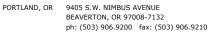
Project Name:

Organic Carbon, Total (TOC)

TestAmerica Connecticut

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSD0460-01	(FO095467)			Soil			Sam	pled: 04/07	/09 08:48		
Total Organic C Duplicates	arbon -	9060	29600	3.3	100	mg/Kg	1x	26574	04/21/09 14:07	04/21/09 14:07	
PSD0460-02	(FO095468)			Soil			Sam	pled: 04/07	/09 09:48		
Total Organic C Duplicates	arbon -	9060	15200	3.3	100	mg/Kg	1x	26574	04/21/09 14:20	04/21/09 14:20	
PSD0460-03	(FO095469)			Soil			Sam	pled: 04/07	/09 11:47		
Total Organic C Duplicates	arbon -	9060	25800	3.3	100	mg/Kg	1x	26574	04/21/09 14:34	04/21/09 14:34	
PSD0460-04	(FO095470)			Soil			Sam	pled: 04/07	/09 13:11		
Total Organic C Duplicates	arbon -	9060	64100	3.3	100	mg/Kg	1x	26574	04/21/09 14:48	04/21/09 14:48	
PSD0460-05	(FO095471)			Soil			Sam	pled: 04/07	/09 13:48		
Total Organic C Duplicates	arbon -	9060	36800	3.3	100	mg/Kg	1x	26574	04/21/09 15:16	04/21/09 15:16	
PSD0460-06	(FO095472)			Soil			Sam	pled: 04/08/	/09 07:52		
Total Organic C Duplicates	arbon -	9060	24700	3.3	100	mg/Kg	1x	26574	04/21/09 15:30	04/21/09 15:30	
PSD0460-07	(FO095473)			Soil			Sam	pled: 04/08/	/09 08:18		
Total Organic C Duplicates	arbon -	9060	28100	3.3	100	mg/Kg	1x	26574	04/21/09 15:44	04/21/09 15:44	
PSD0460-08	(FO095474)			Soil			Sam	pled: 04/08/	/09 09:21		
Total Organic C Duplicates	arbon -	9060	30000	3.3	100	mg/Kg	1x	26574	04/21/09 15:58	04/21/09 15:58	
PSD0460-09	(FO095475)			Soil			Sam	pled: 04/08/	/09 13:31		
Total Organic C Duplicates	arbon -	9060	56100	3.3	100	mg/Kg	1x	26574	04/21/09 16:12	04/21/09 16:12	
PSD0460-10	(FO095476)			Soil			Sam	pled: 04/08/	/09 12:13		
Total Organic C Duplicates	arbon -	9060	49500	3.3	100	mg/Kg	1x	26574	04/21/09 16:41	04/21/09 16:41	
				Soil							

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City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.

Project Number: 36238 Report Created:

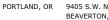
Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

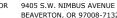
Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results TestAmerica Portland

QC Batch	h: 9040656	Soil Pre	paration M	ethod:	EPA	3550										
Analyte		Method	Result	N	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (904065	66-BLK1)									Ext	racted:	04/17/09 18	:30			
Acenaphthene		EPA 8270m	ND			13.4	ug/kg wet	1x							04/21/09 14:43	
Acenaphthylene		"	ND			13.4	"	"							"	
Anthracene		"	ND			13.4	"	"							"	
Benzo (a) anthracene	,	"	ND			13.4	"	"							"	
Benzo (a) pyrene		"	ND			13.4	"	"							"	
Benzo (b) fluoranther	ne	"	ND			13.4	"	"							"	
Benzo (ghi) perylene		"	ND			13.4	"	"							"	
Benzo (k) fluoranther	ne	"	ND			13.4	"	"							"	
Chrysene		"	ND			13.4	"	"							"	
Dibenzo (a,h) anthrac	cene	"	ND			13.4	"	"							"	
Fluoranthene		"	ND			13.4	"	"							"	
Fluorene		"	ND			13.4	"	"							"	
Indeno (1,2,3-cd) pyr	rene	"	ND			13.4	"	"							"	
Naphthalene		"	ND			13.4	"	"							"	
Phenanthrene		"	ND			13.4	"	"							"	
Pyrene		"	ND			13.4	"	"							"	
Surrogate(s):	Fluorene-d10		Recovery:	116%		Li	mits: 24-125%	"							04/21/09 14:43	
	Pyrene-d10			111%			41-141%	"							"	
	Benzo (a) pyrene-d12			111%			38-143%	"							"	
LCS (9040656	-BS1)									Ext	racted:	04/17/09 18	:30			MNR
Acenaphthene		EPA 8270m	174			13.4	ug/kg wet	1x		166	105%	(33-139)			04/21/09 14:11	
Benzo (a) pyrene		"	162			13.4	"	"		"	97.5%	(45-149)			"	
Pyrene		"	153			13.4	"	"		"	92.3%	(39-138)			"	
Surrogate(s):	Fluorene-d10		Recovery:	122%		Li	mits: 24-125%	"							04/21/09 14:11	
	Pyrene-d10			115%			41-141%	"							"	
	Benzo (a) pyrene-d12			121%			38-143%	"							"	

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Howard Holmes, Project Manage





Spike % (Limits) % RPD

Extracted: 04/17/09 18:30

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City of Portland Water Pollution Laboratory

Portland Harbor Project Name:

6543 N. Burlington Ave. Portland, OR 97203

Blank (9040656-BLK1)

Analyte

Project Manager: Jennifer Shackelford

36238

Dil

Source

Report Created: 05/14/09 15:55

Notes

(Limits) Analyzed

Phthalates per EPA 8270-SIM - Laboratory Quality Control Results

Units

TestAmerica Portland

MRL

MDL*

Result

Project Number:

QC Batch:	9040656	Soil Preparation Method:	EPA 3550
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Method

Dimethyl phthalate		EPA 8270m	ND		26.8	ug/kg wet	1x	 				 04/22/09 14:19	
Diethyl phthalate		"	ND		26.8	"	"	 				 "	
Di-n-butyl phthalate		"	ND		26.8	"	"	 				 "	
Butyl benzyl phthala	nte	"	ND		26.8	"	"	 				 "	
Bis(2-ethylhexyl)ph	thalate	"	ND		26.8	"	"	 				 "	N1
Di-n-octyl phthalate		"	ND		26.8	"	"	 				 "	
Surrogate(s):	2-Fluorobiphenyl p-Terphenyl-d14		Recovery:	93.9% 112%	I	imits: 10-1509 10-150						04/22/09 17:22	
LCS (9040656	5-BS1)							Ext	racted:	04/17/09 18:	30		MNR
LCS (9040656 Dimethyl phthalate	6-BS1)	EPA 8270m	103		80.1	ug/kg wet	3x	 133	77.4%	(20-150)		 04/23/09 21:21	MNR
	5-BS1)	EPA 8270m	103 104		80.1 80.1	ug/kg wet	3x					 04/23/09 21:21	MNR
Dimethyl phthalate	,							133	77.4%	(20-150)		 	MNR
Dimethyl phthalate Diethyl phthalate	,	"	104		80.1	"	"	 133	77.4% 77.9%	(20-150)		"	MNK
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate	ate	"	104 110		80.1 80.1	"	"	 133	77.4% 77.9% 83.2%	(20-150)		 "	MNR B
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthala	nte thalate	" "	104 110 115		80.1 80.1 80.1	"	"	 133	77.4% 77.9% 83.2% 86.7%	(20-150)	 	 " "	

TestAmerica Portland



THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford05/14/09 15:55

	Percent Dry V	Veight (Solid			lethods - a Portland	Labo	oratory Q	Quality Control Results
QC Batch: 9040593	Soil Pre	paration Met	hod: Dry	Weight				
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % (Limits) % (Limits) Analyzed Notes
Duplicate (9040593-DUP1)				QC Source:	PSD0460-01			Extracted: 04/15/09 16:21
% Solids	NCA SOP	67.0		0.0100 %	6 by Weight	1x	67.2	0.298% (20) 04/15/09 16:21

TestAmerica Portland

Howard Holmes, Project Manager







City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.

Project Number: 36238 Report Created:

Portland, OR 97203 Project Manager: Jennifer Shackelford 05/14/09 15:55

Organic Carbon, Total (TOC) - Laboratory Quality Control Results TestAmerica Connecticut QC Batch: 26574 **Soil Preparation Method:** NA Spike % (Limits) % RPD MDL* Source Analyte Method Result MRL Units Dil (Limits) Analyzed Notes LCS (220-26574-5) QC Source: Extracted: 04/21/09 12:23 Total Organic Carbon - Duplicates 9060 4487 3.3 100 mg/Kg 1x 3530 127% (28-172) 04/21/09 12:23 OC Source: Extracted: 04/21/09 12:30 Blank (220-26574-6) Total Organic Carbon - Duplicates 9060 ND 3.3 100 mg/Kg 1x 04/21/09 12:30 PSD0460-12 Extracted: 04/21/09 17:38 Matrix Spike (877612S) QC Source: Total Organic Carbon - Duplicates 9060 251900 3.3 100 mg/Kg 1x 113000 129000 108% (75-125) 04/21/09 17:38 Duplicate (877612X) QC Source: PSD0460-12 Extracted: 04/21/09 17:23 Total Organic Carbon - Duplicates 9060 116300 3.3 100 113000 04/21/09 17:23 mg/Kg 1x3% (20)

TestAmerica Portland

Howard Holmes, Project Manager



Portland Harbor

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory Project Name:

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford05/14/09 15:55

Notes and Definitions

Report Specific Notes:

MNR

B - Analyte was detected in the associated Method Blank.

- Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank

No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of
this, the spike compounds were diluted below the detection limit.

N1 - See case narrative.

RL3 - Reporting limit raised due to high concentrations of non-target analytes.

The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

<u>Laboratory Reporting Conventions:</u>

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported

on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*.

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 11922 E. First Ave, Spokane, WA 99206-5302 9405 SW Nimbus Ave.Beaverton OR 97008-7145 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

425-420-9200 FAX 420-9210 S09-924-9200 FAX 924-9290, S03-903-9000 FAX 924-9290, 007.564-9200 EAV 563-9210

Work Order #: PSDOHIOD	TURNAROUND REQUEST	in Business Days *	Organic & Inorganic Analyses	I Hydrocarbon Analyses	5 4 3 2 1 <1]]]]	OTHER Specify:	* Turnaround Requests less than standard may incur Rush Charges.	MATRIX # OF LOCATION/ TA (W, S, O) CONT. COMMENTS WO ID	\$ 3	\$ 3	5 3	5 3	5 3	5 3	5 3	N N	N N	N ()	FIRM: TAP TIME: 13-00	6. Ching THE 115/09	1 TEAM: (S. CHAGE OF Z.	TAL-1000(0408)
HAIN OF CUSTODY REPORT	1 / 1/	lates Lytic		36.238	PRESERVATIVE		REQUESTED ANALYSES												6	PA RECEIVED BY, (S. C. L.	RECEIVED BY: Myrann.	ist as bu UIC prajects wo low D	
CHAIN OF CU	INVOICE TO:		(A	P.O. NUMBER:	מאפ	- 6	V/	2	01 01 HY2	X X X 8480	8448 X X X	$ 1 47 \times X \times X $	$ X \times X \times X $	1348 X X X	0.752 X X X X	18 X X X	$\times \times \times \times$	1331 X X X	213 X X X	FIRM CIFT of Portland TIME 12, C	DATE: K/13,	PAH/phydrde alist as dow	1
•	CLIENT CIFY of Furthernal	REPORT TO: Tonn for Sharkelking	ADDRESS: CONTROL OF CO	PHONE: FAX.	PROJECT NAME: C	PROJECT NIMBER	Juline Samp	SAMPLED BY:	CLIENT SAMPLE SAMPLING IDENTIFICATION DATE/TIME	FO095467 4/7/09 08		110 / 163	1311	471 (13	472 14/8/09 07	473 1 0818	1260) 474 /	(475) (3	21 \$ 924 9	RELEASED BY: KOOTE NOW PRINT NAME: KOJ 4 ALO OTE PRINT NAME: KOJ 4 ALO	200	ADDITIONAL REMARKS. (3) PURIL FROM PA)	

FestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 11922 E. First Ave. Spokane, WA 99206-5302 9405 SW Nimbus Ave. Beaverton, OR 97008-7145

2000 W. International Airport Rd Ste A10. Anchorage, AK 99502-1119

425-420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 503-906, 9200 FAX 906-9210

Work Order #: PSDCUM	TURNAROUND REQUEST	in Business Days *	Organic & Inogame Analyses	STD Petroleum Hydrocarbon Analyses	5 4 3 2 1 <1]	OTHER Specify:	* Turnaround Requests less than standard may incur Rush Charges.	MATRIX # OF LOCATION/ TA (W. S. O) CONT. COMMENTS WO ID	(m)	3						PRAT 40 TIME 12: 0'B	DATE: 415/0/	TEME. LAKE COR	
CHAIN OF CUSTODY REPORT	INVOICE TO:	Charles (utle		PO. NUMBER: 3 & 2.38	PRESERVATIVE		REQUESTED ANALYSES										DATE: 7/3/ RECEIVED BY: 7/4 TIME: 72:00 PRINT NAME: 13%	TIME 16:05 PRINT NAME: MYLVANOW ENER PRINT	as for UIC projects	
	CLIENT: C, to of Portland	` ~	ADDRESS JENNIFE STACKELTS	PHONE: FAX:		700		51.	CLIENT SAMPLE SAMPLING H P C C C IDENTIFICATION DATE/TIME P S C C C C C C C C C C C C C C C C C C	X X X 1001 10/8/4 7 X X	x X X 1036 X X X			∞	6	01	RELEASED BY: CLISTE & WANT FIRM: (1, 1/2 of Continual PRINT NAME)	Beh	ADDITIONAL REMARKS. (3) PLENTE ULE PATI/OLHELING (15)	

TestAmerica Portland Sample Receiving Checklist

Work	COrde	er #:	PSDOULO Rate/Time Received: 41309 @ 1605
			nd Project: City of Fortland
			This Section: Yes No Yes No
Reside Quote	ual Ch	lorine	e Check Required: Quarantined:
Time	Zone: T/EST	-	CDT/CST MDT/MST PDT/PST OTHER
			hecks: Temperature out of Range: Not enough or No Ice
	oler #(: erature Dig	es:[☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
N/A	Yes	No	Initials: Dt
			1. If ESI client, were temp blanks received? If no, document on NOD.
			2. Cooler Seals intact? (N/A if hand delivered) if no, document on NOD.
•			3. Chain of Custody present? If no, document on NOD.
	À		4. Bottles received intact? If no, document on NOD.
	RAK		5. Sample is not multiphasic? If no, document on NOD.
	×		6. Proper Container and preservatives used? If no, document on NOD.
Σ			7. pH of all samples checked and meet requirements? If no, document on NOD.
\boxtimes			8. Cyanide samples checked for sulfides and meet requirements? If no, notify PM.
			9. HF Dilution required?
			10. Sufficient volume provided for all analysis? If no, document on NOD and consult PM before proceeding.
	*Z		11. Did chain of custody agree with samples received? If no, document on NOD.
			12. Were VOA/Oil Syringe samples without headspace?
			13. Were VOA vials preserved? HCL Sodium Thiosulfate Ascorbic Acid
		Á	14. Did samples require preservation with sodium thiosulfate?
			15. If yes to #14, was the residual chlorine test negative? If no, document on NOD.
			16. Are dissolved/field filtered metals bottles sediment-free? If no, document on NOD.
			17. Is sufficient volume provided for client requested MS/MSD or matrix duplicates? If no, document on NOD and contact PM before proceeding. 18. Are analyses with short holding times received in hold?
	<u> </u>		19. Was Standard Turn Around (TAT) requested?
	$\overline{\not}$		20. Receipt date(s) < 48 hours past the collection date(s)? If no, notify PM.

TestAmerica Portland Sample Receiving Checklist

Work Order #: **PSD0460**

Login Checks:	Initials: B
N/A Yes No	mittals
y	Sufficient volume provided for all analysis? If no, document on NOD & contact PM Sufficient volume provided for client requested MS/MSD or matrix duplicates? If document on NOD and contact PM. Did the chain of custody include "received by" and "relinquished by" signatures, tes and times?
	Were special log in instructions read and followed?
_ 🔀 🗆 25	Were tests logged checked against the COC?
X \sqcup 26.	Were rush notices printed and delivered?
∑ □ 27. □ 28. ∑ □ □ 29.	Were short hold notices printed and delivered?
☐ ∑ ☐ 28.	Were subcontract COCs printed?
≱ □ □ 29.	Was HF dilution logged?
Labeling and Sto	rage Checks: Initials: 312
☐ ☐ 30.	Were the subcontracted samples/containers put in Sx fridge?
∑ ☐ 32.	Were sample bottles and COC double checked for dissolved/filtered metals? Did the sample ID, Date, and Time from label match what were leave to
forei	gn fridge?
★ □ □ 34.	Were HF stickers affixed to each container, and containers stored in Sx fridge?
Document any problem form (NOD).	is or discrepancies and the actions taken to resolve them on a Notice of Discrepancy

April 29, 2009: Inline Solids Grab Sampling



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@qsiwatersolutions.com www.gsiwatersolutions.com

Laboratory Data QA/QC Review Upland Source Control Investigation Outfall Basin 44 (April 29, 2009)

To: File

From: Erin Carroll, GSI

Date: June 2, 2009

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses conducted by the City of Portland (City) on April 29, 2009. The City collected five inline solids samples in Outfall Basin 44, all of which were sieved by #10 sieve except the sample from Site 44_13. In addition, two inline solids samples were collected from Outfall Basin 43 and sieved by #10 sieve. One additional sample was collected from Site 43_5 and retained un-sieved for comparative purposes. All eight samples were submitted for analysis.

The laboratory analyses for this solids sample was completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed:

BES WPCL

- o Total Solids SM 2540G
- o Metals EPA 6020
- Diesel- and oil-range hydrocarbons Washington State Department of Ecology Method NWTPH-Dx
- o Polychlorinated Biphenyls (PCBs) as Aroclors EPA 8082
- Analytical Resources, Incorporated (ARI)
 - o Grain Size ASTM D421/422
- Columbia Analytical Services (CAS)
 - o Semivolatile Organic Compounds (SVOCs) EPA 8270C

- Test America (TA)
 - o Polynuclear Aromatic Hydrocarbons (PAHs) and Phthalates EPA 8270M-SIM
 - o Total Organic Carbon (TOC) EPA 9060 MOD

The WPCL summary report for all analyses associated with this stormwater sampling event and the subcontracted laboratory's data report are attached. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review is based on the available laboratory documentation and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within laboratory control limits
- Matrix spike and matrix spike duplicate results within laboratory control limits
- Laboratory control sample and duplicate laboratory control sample recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures appear to have been adequate indicating that sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the required method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analysis of SVOCs, PAHs phthalates, and TOC. There are no reported detections of these constituents in the associated method blanks, with one exception. Phenol was detected in the method blank for the EPA 8270C analysis and in two field samples at estimated concentrations greater than the method detection limit (MDL) but less than the method reporting limit (MRL). The presence of these SVOCs in the samples at concentrations less than the MRL is considered to be a result of laboratory contamination; therefore, these data are shown as not detected at a concentration greater than the MRL.

Surrogate Recoveries

Surrogate recoveries were completed during the subcontracted laboratory analysis of SVOCs, PAHs, and phthalates.

CAS reports that the control criteria for SVOC surrogates in three field samples are not considered applicable because the analysis required a dilution resulting in a surrogate concentration below the MRL. Therefore, no corrective action was taken.

For the phthalate analysis, TA reports that the surrogate recoveries do not provide useful information as a result of sample dilution. The surrogate recovery information for PAHs is considered applicable and within laboratory control limits.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicates (MS/MSD) were processed during the laboratory analysis of SVOCs, PAHs, and phthalates.

The matrix spike recovery of 4-Nitrophenol for sample F095557 was outside of the control criteria indicating a potentially low bias for this analyte. CAS reports that the relative percent difference (RPD) criterion for 4-Nitrophenol between the MS and MSD is applicable given the similarity between the analyte concentration and the MRL.

The RPD for 4-Chlo-3-methylphenol between the MS/MSD was outside of control limits. However, because the spike recoveries were within acceptance limits, the analytical batch was in control and no further corrective action was taken.

For the phthalate analysis, TA reports that the MS/MSD recoveries do not provide useful information as a result of sample dilution. The MS/MSD recovery information for PAHs is considered applicable and within laboratory control limits.

WPCL comments that the MS/MSD results for the PAH/Phthalate analysis by EPA8270M-SIM indicates non-homogenous sample matrix.

Laboratory Control/ Duplicate Laboratory Control Samples

Laboratory control samples were processed during the laboratory analysis of PAHs, phthalates, SVOCs and TOC. A duplicate laboratory control sample was analyzed during the SVOC analyses. All laboratory control samples and duplicate laboratory control samples recoveries and RPDs were within the laboratory control limits.

Other

The method reporting limits (MRL) for all samples were significantly elevated during the EPA 8270C analyses due to the presence of non-target background components.

WPCL reports that precision of quantification for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services



Page: Date: 4/30/09 읔

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Field Comments	Metals	ral	General	Š	Organics	0						
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									₹	INE SA	_AND HARBOR INI	Project Name: PORTLAND HARBOR INLINE SAMP

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



Chain-of-Custody Bureau of Environmental Services City of Portland



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Portland Harbor Inline Samp COC - OF 43 (4-29-09).xls

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



Chain-of-Custody Bureau of Environmental Services CT OF TOTAL



Date: 4/30/09

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		·	er S			0	Organics	Ġ	Ge	General		Metals	as			Field Comments	
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	SAMPLE WAS NOT SIEVED	SIEVED				- LL											• .
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FO095560	IL-43-ABC290-CBs-0409 N RIVER & ALBINA	43_5	4/29/09	1438	ဂ	•.			•	•				· ·	Whole sample submitte sieved sample (43-5S)	Whole sample submitted for comparison with sieved sample (43 5S)	parison with
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Portland Harbor Infine Samp COC - OF 43_5 (4-29-09).xls



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: **FO095553**

Sample Collected: 04/29/09 Sample Received: 04/30/09

08:42

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC355-0409 (#10 SIEVED)

1050 N RIVER ST

Sample Point Code:

44_11

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Report Page:

Page 1 of 5

System ID:

AN04738

EID File #: LocCode:

1020.001 **PORTHARI**

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	74.5	% W/W	0.01	SM 2540 G	04/30/09
METALS					
ARSENIC	2.72	mg/Kg dry wt	0.50	EPA 6020	05/11/09
CADMIUM	0.33	mg/Kg dry wt	0.10	EPA 6020	05/11/09
CHROMIUM	62.9	mg/Kg dry wt	0.50	EPA 6020	05/11/09
COPPER	64.8	mg/Kg dry wt	0.25	EPA 6020	05/11/09
LEAD	37.5	mg/Kg dry wt	0.10	EPA 6020	05/11/09
MERCURY	0.049	mg/Kg dry wt	0.010	EPA 6020	05/11/09
NICKEL	50.2	mg/Kg dry wt	0.25	EPA 6020	05/11/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	05/11/09
ZINC	139	mg/Kg dry wt	0.50	EPA 6020	05/11/09
GC ANALYSIS					
NWTPH-Dx	•				
DIESEL RANGE HYDROCARBONS (C12-C24)	<75	mg/Kg dry wt	75	NWTPH-Dx	05/06/09
OIL RANGE HYDROCARBONS (>C24)	787	mg/Kg dry wt	150	NWTPH-Dx	05/06/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1254	23	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1260	29	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	11800	mg/Kg dry wt	100	EPA 9060 MOD	05/13/09
GRAIN SIZE BY ASTM - ARI		-			
Clay (<3.2 µm)	1.8	Fract %	0.1	ASTM D421/422	05/05/09
Coarse Sand (4750-2000 μm)	0.1	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (150-75 μm)	9.3	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (250-150 μm)	14.8	Fract %	0.1	ASTM D421/422	05/05/09

Report Date: 05/27/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095553

Sample Collected: 04/29/09 Sample Received: 04/30/09 08:42

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC355-0409 (#10 SIEVED)

1050 N RIVER ST

Sample Point Code:

44_11

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Page 2 of 5 Report Page:

System ID:

AN04738

EID File #:

1020.001

LocCode: Collected By: PTB/MJS/JXB/LAP

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Fine Sand (425-250 μm)	22.5	Fract %	0.1	ASTM D421/422	05/05/09
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (2000-850 μm)	18.4	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (850-425 μm)	26.8	Fract %	0.1	ASTM D421/422	05/05/09
Silt (13-9 μm)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Silt (22-13 μm)	2.3	Fract %	0.1	ASTM D421/422	05/05/09
Silt (32-22 μm)	1.2	Fract %	0.1	ASTM D421/422	05/05/09
Silt (7-3.2 μ m)	1.2	Fract %	0.1	ASTM D421/422	05/05/09
Silt (75-32 μm)	1.1	Fract %	0.1	ASTM D421/422	05/05/09
Silt (9-7 μm)	0.6	Fract %	0.1	ASTM D421/422	05/05/09
POLYNUCLEAR AROMATICS & PHTHA					
Acenaphthene	<53.4	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Acenaphthylene	<53.4	μg/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Anthracene	<53.4	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Benzo(a)anthracene	62.3	μg/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Benzo(a)pyrene	91.5	μg/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Benzo(b)fluoranthene	106	μg/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Benzo(ghi)perylene	124	µg/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Benzo(k)fluoranthene	77.1	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Bis(2-ethylhexyl) phthalate	2080	μ g/Kg dry wt	712	EPA8270M-SIM	05/04/09
Butyl benzyl phthalate	<712	μ g/Kg dry wt	712	EPA8270M-SIM	05/04/09
Chrysene	137	μg/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Dibenzo(a,h)anthracene	<53.4	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Diethyl phthalate	<712	μg/Kg dry wt	712	EPA8270M-SIM	05/04/09
Dimethyl phthalate	<712	μ g/Kg dry wt	712	EPA8270M-SIM	05/04/09
Di-n-butyl phthalate	<712	μ g/Kg dry wt	712	EPA8270M-SIM	05/04/09
Di-n-octyl phthalate	<1780	μ g/Kg dry wt	1780	EPA8270M-SIM	05/04/09
Fluoranthene	141	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Fluorene	<53.4	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Indeno(1,2,3-cd)pyrene	78.9	μg/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Naphthalene	<53.4	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Phenanthrene	75.7	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09
Pyrene	134	μ g/Kg dry wt	53.4	EPA8270M-SIM	05/04/09

Report Date: 05/27/09





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LABORATORY ANALYSIS REPORT

Sample ID: **FO095553**

Sample Collected: 04/29/09 Sample Received: 04/30/09

08:42

Sample Status: COMPLETE AND

Report Page:

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC355-0409 (#10 SIEVED)

1050 N RIVER ST

Sample Point Code:

44 11

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID: EID File #: LocCode:

AN04738

Page 3 of 5

1020.001 **PORTHARI**

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

			nero1	88 - 46 A	Analysis Date
Test Parameter	Result	Units	MRL	Method	Date
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
1,2-Dichlorobenzene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
1,3-Dichlorobenzene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
1,4-Dichlorobenzene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
2,4,5-Trichlorophenol	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
2,4,6-Trichlorophenol	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
2,4-Dichlorophenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2,4-Dimethylphenol	<1300	μg/Kg dry wt	1300	EPA 8270 LV	05/06/09
2,4-Dinitrophenol	<5000	μ g/Kg dry wt	5000	EPA 8270 LV	05/06/09
2,4-Dinitrotoluene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
2,6-Dinitrotoluene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Chloronaphthalene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Chlorophenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Methylnaphthalene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Methylphenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Nitroaniline	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2-Nitrophenol	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
3,3'-Dichlorobenzidine	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
3-Nitroaniline	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
4,6-Dinitro-2-methylphenol	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
4-Bromophenylphenyl ether	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Chloro-3-methylphenol	.<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Chloroaniline	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Chlorophenylphenyl ether	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Methylphenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Nitroaniline	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
4-Nitrophenol	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
Acenaphthene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Acenaphthylene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Anthracene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzo(a)anthracene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzo(a)pyrene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzo(b)fluoranthene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09

Report Date: 05/27/09



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LABORATORY ANALYSIS REPORT

Sample ID: **FO095553**

Sample Collected: 04/29/09 Sample Received: 04/30/09 08:42

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC355-0409 (#10 SIEVED)

1050 N RIVER ST

Sample Point Code:

44_11

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Report Page:

Page 4 of 5

System ID:

AN04738

EID File #:

1020.001

LocCode:

PORTHARI

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

est Parameter	Result	Units	MRL	Method	Analysis Date
Benzo(g,h,i)perylene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzo(k)fluoranthene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzoic acid	<5000	μg/Kg dry wt	5000	EPA 8270 LV	05/06/09
Benzyl alcohol	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Bis(2-chloroethoxy) methane	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Bis(2-chloroethyl) ether	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Bis(2-chloroisopropyl) ether	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Bis(2-ethylhexyl) phthalate	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
Butyl benzyl phthalate	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Chrysene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Dibenzo(a,h)anthracene	<250	μg/Kg dry wt	250	EPA 8270 LV .	05/06/09
Dibenzofuran	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Diethyl phthalate	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Dimethyl phthalate	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Di-n-butyl phthalate	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Di-n-octyl phthalate	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Fluoranthene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Fluorene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Hexachlorobenzene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Hexachlorobutadiene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Hexachlorocyclopentadiene	<1300	μg/Kg dry wt	1300	EPA 8270 LV	05/06/09
Hexachloroethane	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Indeno(1,2,3-cd)pyrene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Isophorone	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Naphthalene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Nitrobenzene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
N-Nitrosodi-n-propylamine	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
N-Nitrosodiphenylamine	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Pentachlorophenol	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
Phenanthrene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Phenol	<750	μg/Kg dry wt	750	EPA 8270 LV	05/06/09
Pyrene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09

Report Date: 05/27/09



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656





Sample ID: FO095553

Sample Collected: 04/29/09 Sample Received: 04/30/09

08:42

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC355-0409 (#10 SIEVED)

1050 N RIVER ST

Sample Point Code:

44_11

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

System ID:

AN04738

EID File #:

1020.001

Page 5 of 5

LocCode:

PORTHARI

Report Page:

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date

End of Report for Sample ID: FO095553

Validated By:

Report Date: 05/27/09



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095554

Sample Collected: 04/29/09 Sample Received: 04/30/09 09:50

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC355-LATtoN-0409 (NOT SIEVED) 1050 N RIVER ST PERCHED LAT TO NORTH

System ID:

Page 1 of 2

Sample Point Code:

44_13

EID File #:

Report Page:

AN04739 1020.001

Sample Type:

COMPOSITE

LocCode:

PORTHARI

Sample Matrix:

SEDIMENT

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Analysis for PCB Aroclors indicated the possible presence of Aroclor 1254 but at trace level less than the reporting limit.

Test Parameter	Result	Units	MRL	Method	Analysis Date
	Nesun	Onics	IVIIX	metriod	
GENERAL TOTAL SOURCE	E1 0	0/ 14/04/	0.01	SM 2540 G	05/15/09
TOTAL SOLIDS	51.8	% W/W	10.0	51VI 254U G	05/15/09
GC ANALYSIS					
NWTPH-Dx					
DIESEL RANGE HYDROCARBONS (C12-C24)	<50	mg/Kg dry wt	50	NWTPH-Dx	05/06/09
OIL RANGE HYDROCARBONS (>C24)	160	mg/Kg dry wt	100	NWTPH-Dx	05/06/09
POLYCHLORINATED BIPHENYLS (PCB)				·	
Aroclor 1016/1242	<20	μg/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1221	<40	μg/Kg dry wt	40	EPA 8082	05/06/09
Aroclor 1232	<20	μ g/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1248	<20	μ g/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1254	<20	μg/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1260	23	μg/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1262	<20	μ g/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1268	<20	μg/Kg dry wt	20	EPA 8082	05/06/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	16900	mg/Kg dry wt	50	EPA 9060 MOD	05/13/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 µm)	12.6	Fract %	0.1	ASTM D421/422	05/05/09
Coarse Sand (4750-2000 µm)	2.7	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (150-75 μ m)	8.5	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (250-150 μm)	5.1	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (425-250 μ m)	5.2	Fract %	0.1	ASTM D421/422	05/05/09
Gravel (>4750 μm)	6.2	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (2000-850 μm)	4.0	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (850-425 μ m)	5.1	Fract %	0.1	ASTM D421/422	05/05/09
Silt (13-9 μm)	3.0	Fract %	0.1	ASTM D421/422	05/05/09
Silt (22-13 μm)	10.4	Fract %	0.1	ASTM D421/422	05/05/09
Silt (32-22 μm)	7.4	Fract %	0.1	ASTM D421/422	05/05/09
Silt (7-3.2 μm)	9.6	Fract %	0.1	ASTM D421/422	05/05/09
Silt (75-32 μm)	12.9	Fract %	0.1	ASTM D421/422	05/05/09
Silt (9-7 μm)	7.4	Fract %	0.1	ASTM D421/422	05/05/09

Report Date: 05/27/09



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LABORATORY ANALYSIS REPORT

Sample ID: FO095554 Sample Collected: 04/29/09 09:50 Sample Status: COMPLETE AND

Sample Received: 04/30/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 2 of 2

Address/Location: IL-44-ABC355-LATtoN-0409 (NOT SIEVED)

1050 N RIVER ST PERCHED LAT TO NORTH System ID: AN04739

Sample Point Code: 44_13 EID File #: 1020.001

Sample Type: COMPOSITE LocCode: PORTHARI

Sample Matrix: SEDIMENT Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Analysis for PCB Aroclors indicated the possible presence of Aroclor 1254 but at trace level less than the reporting limit.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
POLYNUCLEAR AROMATICS & PHTH	ALATES - TA				
Acenaphthene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Acenaphthylene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Anthracene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Benzo(a)anthracene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Benzo(a)pyrene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Benzo(b)fluoranthene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Benzo(ghi)perylene	153	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Benzo(k)fluoranthene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Bis(2-ethylhexyl) phthalate	397	μg/Kg dry wt	261	EPA8270M-SIM	05/04/09
Butyl benzyl phthalate	<261	μg/Kg dry wt	261	EPA8270M-SIM	05/04/09
Chrysene	134	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Dibenzo(a,h)anthracene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Diethyl phthalate	<261	μg/Kg dry wt	261	EPA8270M-SIM	05/04/09
Dimethyl phthalate	<261	μg/Kg dry wt	261	EPA8270M-SIM	05/04/09
Di-n-butyl phthalate	<261	μg/Kg dry wt	261	EPA8270M-SIM	05/04/09
Di-n-octyl phthalate	<1310	μg/Kg dry wt	1310	EPA8270M-SIM	05/04/09
Fluoranthene	180	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Fluorene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Indeno(1,2,3-cd)pyrene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Naphthalene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Phenanthrene	<131	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09
Pyrene	152	μg/Kg dry wt	131	EPA8270M-SIM	05/04/09

End of Report for Sample ID: FO095554

Validated By:

Report Date: 05/27/09



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LABORATORY ANALYSIS REPORT

Sample ID: **FO095555**

Sample Collected: 04/29/09 Sample Received: 04/30/09 10:30

Report Page:

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMX004-0409 (#10 SIEVED)

1050 N RIVER ST CB EAST OF ABC355

Sample Point Code:

44 14

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #:

AN04740

Page 1 of 5

LocCode:

1020.001 PORTHARI:

PTB/MJS/JXB/LAP Collected By:

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	74.2	% W/W	0.01	SM 2540 G	04/30/09
METALS	."				•
ARSENIC	2.40	mg/Kg dry wt	0.50	EPA 6020	05/11/09
CADMIUM	0.46	mg/Kg dry wt	0.10	EPA 6020	05/11/09
CHROMIUM	64.9	mg/Kg dry wt	0.50	EPA 6020	05/11/09
COPPER	44.8	mg/Kg dry wt	0.25	EPA 6020	05/11/09
LEAD	22.5	mg/Kg dry wt	0.10	EPA 6020	05/11/09
MERCURY	0.022	mg/Kg dry wt	0.010	EPA 6020	05/11/09
NICKEL	45.2	mg/Kg dry wt	0.25	EPA 6020	05/11/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	05/11/09
ZINC	173	mg/Kg dry wt	0.50	EPA 6020	05/11/09
GC ANALYSIS					
NWTPH-Dx			•		
DIESEL RANGE HYDROCARBONS (C12-C24)	<75	mg/Kg dry wt	75	NWTPH-Dx	05/06/09
OIL RANGE HYDROCARBONS (>C24)	637	mg/Kg dry wt	150	NWTPH-Dx	05/06/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1221	<20	μ g/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1232	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1248	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1254	25	μ g/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1260	29	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1262	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1268	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	19500	mg/Kg dry wt	50	EPA 9060 MOD	05/13/09
GRAIN SIZE BY ASTM - ARI					
Clay (<3.2 µm)	2.8	Fract %	0.1	ASTM D421/422	05/05/09
Coarse Sand (4750-2000 µm)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (150-75 μm)	15.7	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (250-150 <i>µ</i> m)	15.3	Fract %	0.1	ASTM D421/422	05/05/09

Report Date: 05/27/09





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LABORATORY ANALYSIS REPORT

10:30

Sample ID: **FO095555**

Sample Collected: 04/29/09

Sample Received: 04/30/09

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMX004-0409 (#10 SIEVED)

1050 N RIVER ST CB EAST OF ABC355

Sample Point Code:

44 14

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Report Page:

Page 2 of 5

System ID:

AN04740

EID File #:

1020.001

LocCode:

PORTHAR!

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Fine Sand (425-250 μm)	18.4	Fract %	0.1	ASTM D421/422	05/05/09
Gravel (>4750 \(\mu\mathrm{m}\)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (2000-850 μm)	11.0	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (850-425 μm)	16.9	Fract %	0.1	ASTM D421/422	05/05/09
Silt (13-9 μm)	0.7	Fract %	0.1	ASTM D421/422	05/05/09
Silt (22-13 µm)	0.7	Fract %	0.1	ASTM D421/422	05/05/09
Silt (32-22 µm)	3.5	Fract %	0.1	ASTM D421/422	05/05/09
Silt (7-3.2 μm)	4.3	Fract %	0.1	ASTM D421/422	05/05/09
Silt (75-32 μm)	9.3	Fract %	0.1	ASTM D421/422	05/05/09
Silt (9-7 µm)	1.4	Fract %	0.1	ASTM D421/422	05/05/09
POLYNUCLEAR AROMATICS & PHTHAL	ATES - TA		·		
Acenaphthene	<97.0	μ g/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Acenaphthylene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Anthracene	<97.0	μ g/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Benzo(a)anthracene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Benzo(a)pyrene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Benzo(b)fluoranthene	98.9	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Benzo(ghi)perylene	136	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Benzo(k)fluoranthene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Bis(2-ethylhexyl) phthalate	1360	μg/Kg dry wt	194	EPA8270M-SIM	05/04/09
Butyl benzyl phthalate	297	μg/Kg dry wt	194	EPA8270M-SIM	05/04/09
Chrysene	117	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Dibenzo(a,h)anthracene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Diethyl phthalate	<194	μg/Kg dry wt	194	EPA8270M-SIM	05/04/09
Dimethyl phthalate	<194	μg/Kg dry wt	194	EPA8270M-SIM	05/04/09
Di-n-butyl phthalate	<194	μg/Kg dry wt	194	EPA8270M-SIM	05/04/09
Di-n-octyl phthalate	<970	μg/Kg dry wt	970	EPA8270M-SIM	05/04/09
Fluoranthene	106	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Fluorene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Indeno(1,2,3-cd)pyrene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Naphthalene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Phenanthrene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09
Pyrene	<97.0	μg/Kg dry wt	97.0	EPA8270M-SIM	05/04/09

Report Date: 05/27/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095555 Sample Collected: 04/29/09 10:30 Sample Status: COMPLETE AND

Sample Received: 04/30/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 3 of 5

Address/Location: IL-44-AMX004-0409 (#10 SIEVED)

Sample Type: COMPOSITE LocCode: PORTHARI

Sample Matrix: SEDIMENT Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
1,2-Dichlorobenzene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
1,3-Dichlorobenzene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
1,4-Dichlorobenzene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2,4,5-Trichlorophenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2,4,6-Trichlorophenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2,4-Dichlorophenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2,4-Dimethylphenol	<1300	μ g/Kg dry wt	1300	EPA 8270 LV	05/06/09
2,4-Dinitrophenol	<5000	μg/Kg dry wt	5000	EPA 8270 LV	05/06/09
2,4-Dinitrotoluene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2,6-Dinitrotoluene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Chloronaphthalene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Chlorophenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Methylnaphthalene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Methylphenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
2-Nitroaniline	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2-Nitrophenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
3,3'-Dichlorobenzidine	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
3-Nitroaniline	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
4,6-Dinitro-2-methylphenol	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
4-Bromophenylphenyl ether	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Chloro-3-methylphenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Chloroaniline	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Chlorophenylphenyl ether	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Methylphenol	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
4-Nitroaniline	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
4-Nitrophenol	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
Acenaphthene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Acenaphthylene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Anthracene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzo(a)anthracene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzo(a)pyrene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzo(b)fluoranthene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09

Report Date: 05/27/09 Validated By:





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: **FO095555**

Sample Collected: 04/29/09 Sample Received: 04/30/09 10:30

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMX004-0409 (#10 SIEVED)

1050 N RIVER ST CB EAST OF ABC355

Sample Point Code:

44_14

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Page 4 of 5 Report Page:

System ID:

AN04740

EID File #: LocCode:

1020.001 PORTHARI

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzo(g,h,i)perylene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzo(k)fluoranthene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Benzoic acid	<5000	μg/Kg dry wt	5000	EPA 8270 LV	05/06/09
Benzyl alcohol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Bis(2-chloroethoxy) methane	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Bis(2-chloroethyl) ether	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Bis(2-chloroisopropyl) ether	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Bis(2-ethylhexyl) phthalate	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
Butyl benzyl phthalate	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Chrysene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Dibenzo(a,h)anthracene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Dibenzofuran	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
Diethyl phthalate	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
Dimethyl phthalate	1100	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Di-n-butyl phthalate	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Di-n-octyl phthalate	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Fluoranthene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Fluorene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Hexachlorobenzene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Hexachlorobutadiene	<250	μg/Kg dry wt	250 -	EPA 8270 LV	05/06/09
Hexachlorocyclopentadiene	<1300	μg/Kg dry wt	1300	EPA 8270 LV	05/06/09
Hexachloroethane	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Indeno(1,2,3-cd)pyrene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
Isophorone	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Naphthalene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Nitrobenzene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
N-Nitrosodi-n-propylamine	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
N-Nitrosodiphenylamine	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09
Pentachlorophenol	<2500	μ g/Kg dry wt	2500	EPA 8270 LV	05/06/09
Phenanthrene	<250	μg/Kg dry wt	250	EPA 8270 LV	05/06/09
Phenol	<750	μg/Kg dry wt	750	EPA 8270 LV	05/06/09
Pyrene	<250	μ g/Kg dry wt	250	EPA 8270 LV	05/06/09

Report Date: 05/27/09





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Sample ID: FO095555

Sample Collected: 04/29/09

10:30

Sample Status: COMPLETE AND

VALIDATED

Sample Received: 04/30/09

Page 5 of 5 Report Page:

Address/Location:

Proj./Company Name:

IL-44-AMX004-0409 (#10 SIEVED)

PORTLAND HARBOR INLINE SAMP

1050 N RIVER ST CB EAST OF ABC355

System ID:

AN04740

Sample Point Code:

Report Date: 05/27/09

44_14

EID File #:

1020.001 **PORTHARI**

Sample Type: Sample Matrix: COMPOSITE SEDIMENT

LocCode:

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

	•				Analysis
Test Parameter	Result	Units	MRL	Method	Date

End of Report for Sample ID: FO095555



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656





Sample ID: **FO095556**

Sample Collected: 04/29/09

10:52

Sample Status: COMPLETE AND

Sample Received: 04/30/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMX005-0409 (#10 SIEVED)

1050 N RIVER ST CB WEST OF ABC355

Sample Point Code:

44_15

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

System ID: EID File #: AN04741

LocCode:

1020.001 **PORTHARI**

Page 1 of 5

Report Page:

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL TOTAL SOLIDS	74.9	% W/W	0.01	SM 2540 G	04/30/09
	, 4.0	70 11711	0.01	0M 20 10 G	0 11 007 00
METALS ARSENIC	1.81	malla darret	0.50	EPA 6020	05/11/09
CADMIUM	0.36	mg/Kg dry wt mg/Kg dry wt	0.50	EPA 6020	05/11/09
CHROMIUM	80.5	mg/Kg dry wt	0.10	EPA 6020	05/11/09
COPPER	29.6	mg/Kg dry wt	0.30	EPA 6020	05/11/09
LEAD	29.6 20.6	mg/Kg dry wt	0.25	EPA 6020	05/11/09
MERCURY	0.016	mg/Kg dry wt	0.010	EPA 6020	05/11/09
NICKEL	51.8	mg/Kg dry wt	0.010	EPA 6020	05/11/09
SILVER	<0.10	mg/Kg dry wt	0.25	EPA 6020	05/11/09
ZINC	129	mg/Kg dry wt	0.10	EPA 6020	05/11/09
. 21140	125	ing/reg dry wi	0.50	L1 A 0020	00/11/03
GC ANALYSIS					
NWTPH-Dx					
DIESEL RANGE HYDROCARBONS (C12-C24)	<100	mg/Kg dry wt	100	NWTPH-Dx	05/06/09
OIL RANGE HYDROCARBONS (>C24)	789	mg/Kg dry wt	200	NWTPH-Dx	05/06/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1254	31	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1260	36	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1268	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
OUTSIDE ANALYSIS				•	•
TOTAL ORGANIC CARBON	15300	mg/Kg dry wt	50	EPA 9060 MOD	05/13/09
GRAIN SIZE BY ASTM - ARI		J J .			
Clay (<3.2 μ m)	2.8	Fract %	0.1	ASTM D421/422	05/05/09
Coarse Sand (4750-2000 µm)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (150-75 µm)	17.4	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (250-150 µm)	18.7	Fract %	0.1	ASTM D421/422	05/05/09

Report Date: 05/27/09





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Analysis

LABORATORY ANALYSIS REPORT

Sample ID: FO095556 Sample Collected: 04/29/09 10:52 Sample Status: COMPLETE AND

Sample Received: 04/30/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 2 of 5

Address/Location: IL-44-AMX005-0409 (#10 SIEVED)

Sample Type: COMPOSITE LocCode: PORTHARI

Sample Matrix: SEDIMENT Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Fine Sand (425-250 μm)	22.7	Fract %	0.1	ASTM D421/422	05/05/09
Gravel (>4750 μm)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (2000-850 μm)	4.6	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (850-425 μm)	18.0	Fract %	0.1	ASTM D421/422	05/05/09
Silt (13-9 μ m)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Silt (22-13 µm)	2.1	Fract %	0.1	ASTM D421/422	05/05/09
Silt (32-22 μm)	1.4	Fract %	0.1	ASTM D421/422	05/05/09
Silt (7-3.2 μm)	2.8	Fract %	0.1	ASTM D421/422	05/05/09
Silt (75-32 μm)	8.7	Fract %	0.1	ASTM D421/422	05/05/09
Silt (9-7 µm)	0.7	Fract %	0.1	ASTM D421/422	05/05/09
POLYNUCLEAR AROMATICS & PHTHA	LATES - TA	·.	ė.		
Acenaphthene	<98.5	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Acenaphthylene	<98.5	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Anthracene	<98.5	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Benzo(a)anthracene	<98.5	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Benzo(a)pyrene	107	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Benzo(b)fluoranthene	152	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Benzo(ghi)perylene	186	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Benzo(k)fluoranthene	<98.5	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Bis(2-ethylhexyl) phthalate	3180	μg/Kg dry wt	985	EPA8270M-SIM	05/04/09
Butyl benzyl phthalate	534	μ g/Kg dry wt	197	EPA8270M-SIM	05/04/09
Chrysene	150	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Dibenzo(a,h)anthracene	<98.5	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Diethyl phthalate	<197	μ g/Kg dry wt	197	EPA8270M-SIM	05/04/09
Dimethyl phthalate	<197	μ g/Kg dry wt	197	EPA8270M-SIM	05/04/09
Di-n-butyl phthalate	<197	μ g/Kg dry wt	197	EPA8270M-SIM	05/04/09
Di-n-octyl phthalate	<985	μ g/Kg dry wt	985	EPA8270M-SIM	05/04/09
Fluoranthene	147	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Fluorene	<98.5	μg/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Indeno(1,2,3-cd)pyrene	118	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Naphthalene	<98.5	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Phenanthrene	<98.5	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09
Pyrene	113	μ g/Kg dry wt	98.5	EPA8270M-SIM	05/04/09

Report Date: 05/27/09 Va





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095556

Sample Collected: 04/29/09 Sample Received: 04/30/09 10:52

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMX005-0409 (#10 SIEVED)

1050 N RIVER ST CB WEST OF ABC355

Sample Point Code:

44_15

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Report Page: Page 3 of 5

System ID:

AN04741

EID File #: LocCode:

1020.001 **PORTHARI**

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
SEMI-VOLATILE ORGANICS - CAS					
1,2,4-Trichlorobenzene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
1,2-Dichlorobenzene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
1,3-Dichlorobenzene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
1,4-Dichlorobenzene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2,4,5-Trichlorophenol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2,4,6-Trichlorophenol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2,4-Dichlorophenol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2,4-Dimethylphenol	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
2,4-Dinitrophenol	<10000	μg/Kg dry wt	10000	EPA 8270 LV	05/06/09
2,4-Dinitrotoluene	·<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2,6-Dinitrotoluene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2-Chloronaphthalene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2-Chlorophenol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2-Methylnaphthalene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2-Methylphenol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
2-Nitroaniline	<1000	μg/Kg dry wt	1000	EPA 8270 LV	05/06/09
2-Nitrophenol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
3,3'-Dichlorobenzidine	<5000	μg/Kg dry wt	5000	EPA 8270 LV	05/06/09
3-Nitroaniline	<1000	μg/Kg dry wt	1000	EPA 8270 LV	05/06/09
4,6-Dinitro-2-methylphenol	<5000	μg/Kg dry wt	5000	EPA 8270 LV	05/06/09
4-Bromophenylphenyl ether	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
4-Chloro-3-methylphenol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
4-Chloroaniline	<500	μg/Kg dry wt	500 [,]	EPA 8270 LV	05/06/09
4-Chlorophenylphenyl ether	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
4-Methylphenol	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
4-Nitroaniline	<1000	μg/Kg dry wt	1000	EPA 8270 LV	05/06/09
4-Nitrophenol	<5000	μg/Kg dry wt	5000	EPA 8270 LV	05/06/09
Acenaphthene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Acenaphthylene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Anthracene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Benzo(a)anthracene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Benzo(a)pyrene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Benzo(b)fluoranthene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09

Report Date: 05/27/09



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LABORATORY ANALYSIS REPORT

Sample ID: FO095556

Sample Collected: 04/29/09

10:52

Sample Status: COMPLETE AND

VALIDATED

Sample Received: 04/30/09

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMX005-0409 (#10 SIEVED)

1050 N RIVER ST CB WEST OF ABC355

Sample Point Code:

44_15

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

EID File #: LocCode:

System ID:

AN04741 1020.001

Page 4 of 5

PORTHARI

Report Page:

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzo(g,h,i)perylene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Benzo(k)fluoranthene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Benzoic acid	<10000	μg/Kg dry wt	10000	EPA 8270 LV	05/06/09
Benzyl alcohol	<1000	μg/Kg dry wt	1000	EPA 8270 LV	05/06/09
Bis(2-chloroethoxy) methane	<500	µg/Kg dry wt	500	EPA 8270 LV	05/06/09
Bis(2-chloroethyl) ether	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Bis(2-chloroisopropyl) ether	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Bis(2-ethylhexyl) phthalate	<5000	μ g/Kg dry wt	5000	EPA 8270 LV	05/06/09
Butyl benzyl phthalate	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Chrysene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Dibenzo(a,h)anthracene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Dibenzofuran	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Diethyl phthalate	< 500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Dimethyl phthalate	790	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Di-n-butyl phthalate	<1000	μg/Kg dry wt	1000	EPA 8270 LV	05/06/09
Di-n-octyl phthalate	<500	μg/Kg dry wt	500	EPA 8270 LV	. 05/06/09
Fluoranthene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Fluorene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Hexachlorobenzene	< 500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Hexachlorobutadiene	<500	μg/Kg dry wt	500	EPA 8270 LV	05/06/09
Hexachlorocyclopentadiene	<2500	μg/Kg dry wt	2500	EPA 8270 LV	05/06/09
Hexachloroethane	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
indeno(1,2,3-cd)pyrene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Isophorone	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Naphthalene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Nitrobenzene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
N-Nitrosodi-n-propylamine	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
N-Nitrosodiphenylamine	<500	µg/Kg dry wt	500	EPA 8270 LV	05/06/09
Pentachlorophenol	<5000	μg/Kg dry wt	5000	EPA 8270 LV	05/06/09
Phenanthrene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09
Phenol	<1500	µg/Kg dry wt	1500	EPA 8270 LV	05/06/09
Pyrene	<500	μ g/Kg dry wt	500	EPA 8270 LV	05/06/09

Report Date: 05/27/09



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Sample ID: **FO095556**

Sample Collected: 04/29/09

10:52

Sample Status: COMPLETE AND

Sample Received: 04/30/09

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMX005-0409 (#10 SIEVED)

1050 N RIVER ST CB WEST OF ABC355

Sample Point Code:

44_15

Sample Type:

COMPOSITE

Sample Matrix:

SEDIMENT

Report Page:

Page 5 of 5

System ID:

AN04741

EID File #:

1020.001

LocCode:

PORTHARI

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Due to required dilution for PAH/phthalate analysis, surrogate and matrix spike recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of the quantifications for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Analysis MRL Method Date **Test Parameter** Result Units

End of Report for Sample ID: FO095556

Report Date: 05/27/09 Validated By:



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095557

Sample Collected: 04/29/09 Sample Received: 04/30/09 11:20

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC352-CBstoSE-0409 (#10 SIEVED) 1050 N RIVER ST 3 CBs ON NE SIDE OF ST

System ID:

Page 1 of 5 AN04742

Sample Point Code:

44_16

Report Page:

1020.001

Sample Type:

EID File #: LocCode:

PORTHARI

Sample Matrix:

COMPOSITE **SEDIMENT**

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For Semivolatile Organics, low MS recovery for 4-Nitrophenol indicates low bias for this analyte. Due to required dilution for PAH/phthalate analysis, surrogate and MS recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of quantification for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	75.5	% W/W	0.01	SM 2540 G	04/30/09
METALS		-			
ARSENIC	2.33	mg/Kg dry wt	0.50	EPA 6020	05/11/09
CADMIUM	0.40	mg/Kg dry wt	0.10	EPA 6020	05/11/09
CHROMIUM	66.2	mg/Kg dry wt	0.50	EPA 6020	05/11/09
COPPER	36.1	mg/Kg dry wt	0.25	EPA 6020	05/11/09
LEAD	28.5	mg/Kg dry wt	0.10	EPA 6020	05/11/09
MERCURY	0.017	mg/Kg dry wt	0.010	EPA 6020	05/11/09
NICKEL	44.6	mg/Kg dry wt	0.25	EPA 6020	05/11/09
SILVER	<0.10	mg/Kg dry wt	0.10	EPA 6020	05/11/09
ZINC	165	mg/Kg dry wt	0.50	EPA 6020	05/11/09
GC ANALYSIS				•	
NWTPH-Dx				•	
DIESEL RANGE HYDROCARBONS (C12-C24)	<250	mg/Kg dry wt	250	NWTPH-Dx	05/06/09
OIL RANGE HYDROCARBONS (>C24)	2830	mg/Kg dry wt	500	NWTPH-Dx	05/06/09
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1221	<20	μ g/Kg dry wt	20	EPA 8082	05/06/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1248	<10	μ g/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1254	24	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1260	39	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	05/06/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	17000	mg/Kg dry wt	50	EPA 9060 MOD	05/13/09
GRAIN SIZE BY ASTM - ARI				,	•
Clay (<3.2 µm)	1.8	Fract %	0.1	ASTM D421/422	05/05/09
Coarse Sand (4750-2000 µm)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (150-75 μm)	17.4	Fract %	0.1	ASTM D421/422	05/05/09

Report Date: 05/27/09





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LABORATORY ANALYSIS REPORT

Sample ID: FO095557 Sample Collected: 04/29/09 11:20

Sample Received: 04/30/09

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC352-CBstoSE-0409 (#10 SIEVED)

1050 N RIVER ST 3 CBs ON NE SIDE OF ST

Sample Point Code:

44_16

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Report Page: Page 2 of 5

System ID:

AN04742

EID File #: LocCode:

1020.001 PORTHARI

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For Semivolatile Organics, low MS recovery for 4-Nitrophenol indicates low bias for this analyte. Due to required dilution for PAH/phthalate analysis, surrogate and MS recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of quantification for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Fine Sand (250-150 µm)	18.3	Fract %	0.1	ASTM D421/422	05/05/09
Fine Sand (425-250 µm)	21.2	Fract %	0.1	ASTM D421/422	05/05/09
Gravel (>4750 μ m)	<0.1	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (2000-850 μm)	8.0	Fract %	0.1	ASTM D421/422	05/05/09
Medium Sand (850-425 μm)	16.9	Fract %	0.1	ASTM D421/422	05/05/09
Silt (13-9 μm)	1.2	Fract %	0.1	ASTM D421/422	05/05/09
Silt (22-13 μm)	1.2	Fract %	0.1	ASTM D421/422	05/05/09
Silt (32-22 µm)	1.8	Fract %	0.1	ASTM D421/422	05/05/09
Silt (7-3.2 μm)	2.9	Fract %	0.1	ASTM D421/422	05/05/09
Silt (75-32 μm)	8.8	Fract %	0.1	ASTM D421/422	05/05/09
Silt (9-7 μm)	0.6	Fract %	0.1	ASTM D421/422	05/05/09
POLYNUCLEAR AROMATICS & PHTHALATE	S-TA				
Acenaphthene	<96.7	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Acenaphthylene	<96.7	μ g/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Anthracene	<96.7	μ g/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Benzo(a)anthracene	<96.7	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Benzo(a)pyrene	121	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Benzo(b)fluoranthene	144	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Benzo(ghi)perylene	160	μ g/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Benzo(k)fluoranthene	<96.7	μ g/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Bis(2-ethylhexyl) phthalate	2810	μg/Kg dry wt	193	EPA8270M-SIM	05/04/09
Butyl benzyl phthalate	<193	μg/Kg dry wt	193	EPA8270M-SIM	05/04/09
Chrysene	218	μ g/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Dibenzo(a,h)anthracene	<96.7	μ g/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Diethyl phthalate	<193	μg/Kg dry wt	193	EPA8270M-SIM	05/04/09
Dimethyl phthalate	<193	μ g/Kg dry wt	193	EPA8270M-SIM	05/04/09
Di-n-butyl phthalate	<193	μg/Kg dry wt	193	EPA8270M-SIM	05/04/09
Di-n-octyl phthalate	<967	μg/Kg dry wt	967	EPA8270M-SIM	05/04/09
Fluoranthene	137	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Fluorene	<96.7	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Indeno(1,2,3-cd)pyrene	104	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Naphthalene	<96.7	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
Phenanthrene	<96.7	μg/Kg dry wt	96.7	EPA8270M-SIM	05/04/09

Report Date: 05/27/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095557

Sample Collected: 04/29/09 Sample Received: 04/30/09 11:20

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC352-CBstoSE-0409 (#10 SIEVED)

1050 N RIVER ST 3 CBs ON NE SIDE OF ST

Sample Point Code:

44_16

Sample Type: Sample Matrix: COMPOSITE

SEDIMENT

Report Page:

Page 3 of 5

System ID:

AN04742

EID File #: LocCode:

1020.001

Collected By: PTB/MJS/JXB/LAP

PORTHARI

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For Semivolatile Organics, low MS recovery for 4-Nitrophenol indicates low bias for this analyte. Due to required dilution for PAH/phthalate analysis, surrogate and MS recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of quantification for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Pyrene	120	μ g/Kg dry wt	96.7	EPA8270M-SIM	05/04/09
SEMI-VOLATILE ORGANICS - CAS			•		
1,2,4-Trichlorobenzene	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
1,2-Dichlorobenzene	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
1,3-Dichlorobenzene	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
1,4-Dichlorobenzene	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
2,4,5-Trichlorophenol	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
2,4,6-Trichlorophenol	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
2,4-Dichlorophenol	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
2,4-Dimethylphenol	<50	μg/Kg dry wt	50	EPA 8270 LV	05/06/09
2,4-Dinitrophenol	<200	μg/Kg dry wt	200	EPA 8270 LV	05/06/09
2,4-Dinitrotoluene	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
2,6-Dinitrotoluene	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
2-Chloronaphthalene	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
2-Chlorophenol	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
2-Methylnaphthalene	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
2-Methylphenol	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
2-Nitroaniline	<20	μg/Kg dry wt	20	EPA 8270 LV	05/06/09
2-Nitrophenol	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
3,3'-Dichlorobenzidine	<100	μg/Kg dry wt	100	EPA 8270 LV	05/06/09
3-Nitroaniline	<20	μg/Kg dry wt	20	EPA 8270 LV	05/06/09
4,6-Dinitro-2-methylphenol	<100	μg/Kg dry wt	100	EPA 8270 LV	05/06/09
4-Bromophenylphenyl ether	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
4-Chloro-3-methylphenol	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
4-Chloroaniline	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
4-Chlorophenylphenyl ether	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
4-Methylphenol	· <10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
4-Nitroaniline	<20	μg/Kg dry wt	20	EPA 8270 LV	05/06/09
4-Nitrophenol	<100	μg/Kg dry wt	100	EPA 8270 LV	05/06/09
Acenaphthene	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Acenaphthylene	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Anthracene	18	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Benzo(a)anthracene	39	μg/Kg dry wt	10	EPA 8270 LV	05/06/09

Report Date: 05/27/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095557

Sample Collected: 04/29/09 Sample Received: 04/30/09 11:20

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-ABC352-CBstoSE-0409 (#10 SIEVED)

System ID:

Page 4 of 5

Sample Point Code:

1050 N RIVER ST 3 CBs ON NE SIDE OF ST 44.16

AN04742

COMPOSITE

EID File #: LocCode:

1020.001 **PORTHARI**

Sample Type: Sample Matrix:

SEDIMENT

Report Page:

Collected By: PTB/MJS/JXB/LAP

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For Semivolatile Organics, low MS recovery for 4-Nitrophenol indicates low bias for this analyte. Due to required dilution for PAH/phthalate analysis, surrogate and MS recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of quantification for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Benzo(a)pyrene	57	μġ/Kg dry wt	10	EPA 8270 LV	05/06/09
Benzo(a)pyrene Benzo(b)fluoranthene	100	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Benzo(g,h,i)perylene	63	μg/Kg dry wt μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Benzo(k)fluoranthene	25	μ g/Kg dry wt μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Benzoic acid	<200	μ g/Kg dry wt	200	EPA 8270 LV	05/06/09
Benzyl alcohol	<200 <20	μg/Kg dry wt μg/Kg dry wt	200	EPA 8270 LV	05/06/09
Bis(2-chloroethoxy) methane	<10	μ g/Kg dry wt μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Bis(2-chloroethyt) ether	<10		10	EPA 8270 LV	05/06/09
•	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Bis(2-chloroisopropyl) ether		μg/Kg dry wt	100	EPA 8270 LV	05/06/09
Bis(2-ethylhexyl) phthalate	530	μg/Kg dry wt	100	EPA 8270 LV	05/06/09
Butyl benzyl phthalate	57	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Chrysene	97	μg/Kg dry wt		EPA 8270 LV	05/06/09
Dibenzo(a,h)anthracene	16	μg/Kg dry wt	10		05/06/09
Dibenzofuran	<10	μg/Kg dry wt	10	EPA 8270 LV	
Diethyl phthalate	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Dimethyl phthalate	480	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Di-n-butyl phthalate	<20	μg/Kg dry wt	20	EPA 8270 LV	05/06/09
Di-n-octyl phthalate	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Fluoranthene	120	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Fluorene	<10	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Hexachlorobenzene	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Hexachlorobutadiene	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Hexachlorocyclopentadiene	<50	μ g/Kg dry wt	50	EPA 8270 LV	05/06/09
Hexachloroethane	<10	µg/Kg dry wt	10	EPA 8270 LV	05/06/09
Indeno(1,2,3-cd)pyrene	51	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Isophorone	15	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Naphthalene	26	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Nitrobenzene	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
N-Nitrosodi-n-propylamine	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
N-Nitrosodiphenylamine	<10	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09
Pentachlorophenol	<100	μ g/Kg dry wt	100	EPA 8270 LV	05/06/09
Phenanthrene	48	μg/Kg dry wt	10	EPA 8270 LV	05/06/09
Phenol	<30	μg/Kg dry wt	30	EPA 8270 LV	05/06/09

Report Date: 05/27/09





6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample ID: FO095557 Sample Collected: 04/29/09 11:20

VALIDATED Sample Received: 04/30/09

Page 5 of 5

PORTLAND HARBOR INLINE SAMP Report Page: Proj./Company Name: Address/Location: IL-44-ABC352-CBstoSE-0409 (#10 SIEVED)

AN04742 1050 N RIVER ST 3 CBs ON NE SIDE OF ST System ID: EID File #: 1020.001

44 16 Sample Point Code: PORTHARI Sample Type: COMPOSITE LocCode:

Collected By: PTB/MJS/JXB/LAP Sample Matrix: SEDIMENT

Comments:

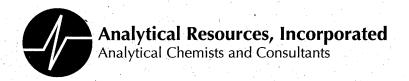
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For Semivolatile Organics, low MS recovery for 4-Nitrophenol indicates low bias for this analyte. Due to required dilution for PAH/phthalate analysis, surrogate and MS recovery data are not useful; MS/MSD results indicate non-homogeneous sample matrix. Precision of quantification for PCB Aroclors may be reduced due to overlapping peaks in Aroclors 1254 and 1260.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Pyrene	110	μ g/Kg dry wt	10	EPA 8270 LV	05/06/09

End of Report for Sample ID: FO095557

Validated By:

Report Date: 05/27/09



May 11, 2009

Mr. Howard Holmes Test America, Inc. 9405 SW Nimbus Ave. Beaverton, OR 97008

Subject: Project No.: PSE0031 OR-Oregon

ARI Project No.: OX63

Dear Mr. Holmes,

The following pages provide the information you requested. Please call me to discuss any questions or comments you may have on the data or its presentation.

Best Regards,

Analytical Resources Incorporated

Guenna Smith

Geotechnical Division Manager

206-695-6246

guennas@arilabs.com

Enclosures

cc: File OX63

SUBCONTRACT ORDER

TestAmerica Portland PSE0031

RECEIVING LABORATORY:

SENDING LABORATORY: TestAmerica Portland Analytical Resources, Inc. (ARI) 4611 S 134th Place. Suite 100 9405 SW Nimbus Ave. Beaverton, OR 97008 Tukwilla, WA 98168 Phone: (206) 621-6490 Phone: (503) 906-9200 Fax: (503) 906-9210 Fax: 206-621-7523 Project Manager: Howard Holmes Project Location: OR - OREGON Receipt Temperature: 7. needs Excel EDD Analysis Units Due **Expires** Comments Sample ID: PSE0031-01 Soil Sampled: 04/29/09 08:42 Grain Size (ASTM) - SUB ug/l 05/15/09 10/26/09 08:42 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A) Sample ID: PSE0031-02 Soil Sampled: 04/29/09 09:50 Grain Size (ASTM) - SUB ug/l 05/15/09 10/26/09 09:50 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A) Sample ID: PSE0031-03 Soil Sampled: 04/29/09 10:30 Grain Size (ASTM) - SUB ug/l 05/15/09 10/26/09 10:30 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A) Sample ID: PSE0031-04 Soil Sampled: 04/29/09 10:52 Grain Size (ASTM) - SUB ug/l 05/15/09 10/26/09 10:52 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A) Sample ID: PSE0031-05 Soil Sampled: 04/29/09 11:20 Grain Size (ASTM) - SUB ug/l 05/15/09 10/26/09 11:20 sub to Analytical Resources Inc (ARI) Containers Supplied: 8 oz. jar (A) Sample ID: PSE0031-06 Soil Sampled: 04/29/09 13:29 Grain Size (ASTM) - SUB ug/l 05/15/09 10/26/09 13:29 sub to Analytical Resources Inc (ARI) Containers Supplied:

Date/Time

8 oz. jar (A)

Released By

La Mulumba 515

Received By Date/Time Page 1 of 2

SUBCONTRACT ORDER

TestAmerica Portland PSE0031

Analysis	Units	Due	Expires	Comments
Sample ID: PSE0031-07	Soil		Sampled: 04/29/09 14:38	
Grain Size (ASTM) - SUB	ug/l	05/15/09	10/26/09 14:38	sub to Analytical Resources Inc (ARI)
Containers Supplied: 8 oz. jar (A)				

Client: Test America, Inc. ARI Project No.: OX63

Client Project: OR-Oregon Client Project No.: PSE0031

Case Narrative

- 1. Seven samples were received on May 5, 2009, and were in good condition. The samples were submitted for grain size distribution, according to ASTM D422. The samples were prepared according to ASTM D421.
- 2. An assumed specific gravity of 2.65 was used in the calculations.
- 3. A standard milkshake mixer type device was used to disperse the sample.
- 4. One sample contained woody or other organic debris that may have broken down during the sieving process, thereby affecting grain size analysis.
- 5. The data is provided in summary tables and plots.
- 6. There were no further anomalies in the samples or test method.

Approved by: Date: 05/11/09

Title: Lead Technician

Test America, Inc. PSE0031 OR-Oregon

Percent Finer (Passing) Than the Indicated Size

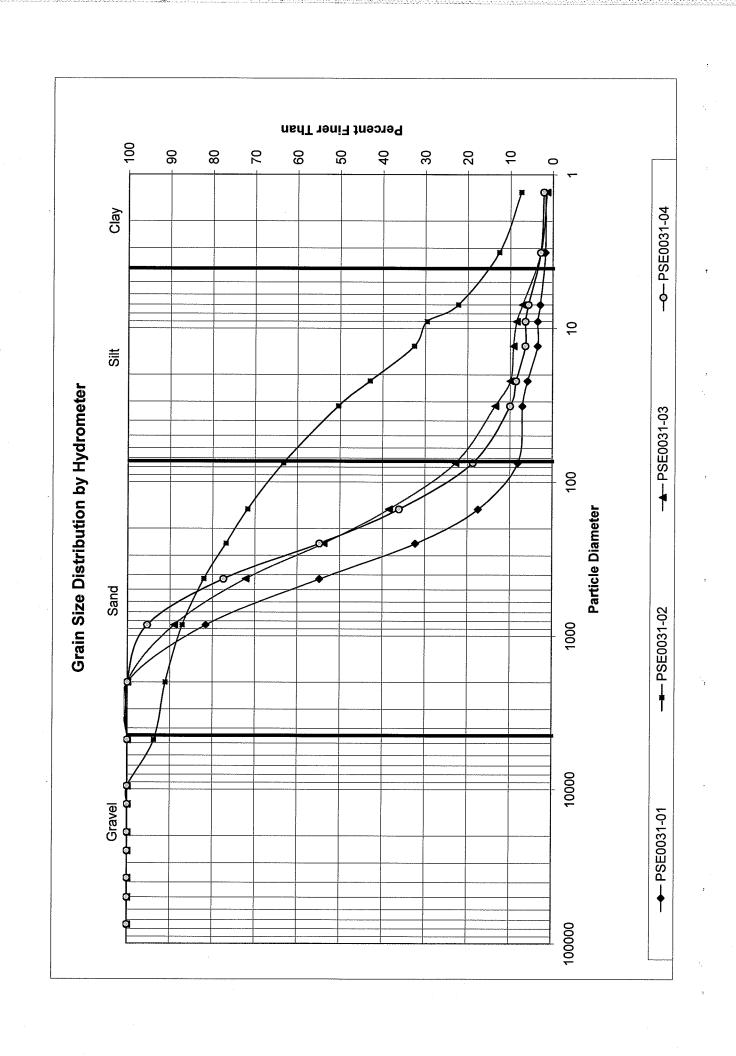
		_			,	,	
1.3	1.8	7.4	1.4	2.1	1.2	1.2	3.3
3.2	1.8	12.6	2.8	2.8	1.8	1.2	5.3
7	2.9	22.2	7.1	5.7	4.7	3.0	12.5
o	3.5	29.6	8.5	6.4	5.3	4.8	14.5
13	3.5	32.6	9.2	6.4	6.5	4.8	17.2
22	5.9	43.0	9.9	8.5	7.7	8.4	21.1
32	7.0	50.4	13.5	10.0	9.4	10.8	23.8
#200 (75)	8.1	63.3	22.8	18.7	18.3	32.7	32.4
#100 (150)	17.4	71.7	38.4	36.0	35.7	55.5	39.6
#60 (250)	32.2	76.8	53.8	54.7	53.9	72.1	49.5
#40 (425)	54.7	82.0	72.2	4.77	75.1	88.9	9.99
#20 (850)	81.5	87.1	89.0	62.3	92.0	5'26	83.7
#10 (2000)	6.66	91.1	100.0	100.0	100.0	100.0	6.66
#4 (4750)	100.0	93.8	100.0	100.0	100.0	100.0	100.0
3/8"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1/2"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3/4"	100.0	100.0	100.0 100.0 100.0	100.0 100.0	100.0	100.0 100.0	100.0
-1-	100.0 100.0	100.0	100.0	100.0 100.0	100.0	100.0 100.0	100.0
1 1/2" 1"	100.0	100.0	100.0	100.0	100.0 100.0 100.0		100.0 100.0 100.0 100.0
2	100.0 100.0	100.0 100.0 100.0 100.0	100.0 100.0	100.0	100.0	100.0 100.0	100.0 100.0
je,		100.0	100.0		100.0	100.0	- 1
Sieve Size (microns)	PSE0031-01	PSE0031-02	PSE0031-03	PSE0031-04	PSE0031-05	PSE0031-06	PSE0031-07

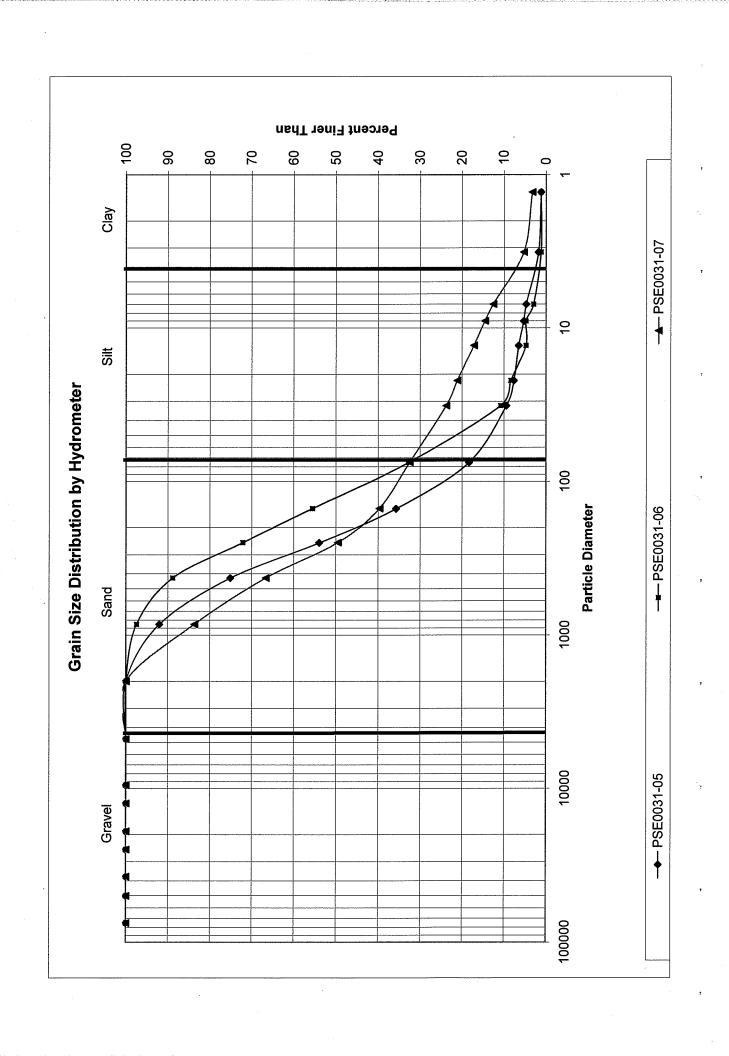
Testing performed according to ASTM D421/D422

Test America, Inc. PSE0031 OR-Oregon

Percent Retained in Each Size Fraction

Description		%Coarse Gravel	s Gravel			% Gravel		% Coarse Sand	% Medium Sand	m Sand	%	% Fine Sand	73	% Very Coarse Silt	% Coarse Silt	% Medium Silt	% Fine Silt	% Fine Silt	% Very Fine Silt	% Clay
Particle Size (microns)	3-2"	2-1 1/2"	1 1/2"-1"	1-3/4"	2-1 1/2" 1 1/2"-1" 1-3/4" 3/4-1/2" 1/2-3/8" 3/8"-4750	1/2-3/8"	3/8"-4750	4750- 2000	2000-850	850-425	425-250	250-150	150-75	75-32	32-22	22-13	13-9	2-6	7-3.2	<3.2
PSE0031-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	18.4	26.8	22.5	14.8	9.3	1.1	1.2	2.3	0.0	9.0	1.2	1.8
PSE0031-02	0.0	0.0	0.0	0.0	0.0	0.0	6.2	2.7	4.0	5.1	5.2	5.1	8.5	12.9	7.4	10.4	3.0	7.4	9.6	12.6
PSE0031-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	16.9	18.4	15.3	15.7	9.3	3.5	0.7	0.7	1.4	4.3	2.8
PSE0031-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	18.0	22.7	18.7	17.4	8.7	1.4	2.1	0.0	2.0	2.8	2.8
PSE0031-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	16.9	21.2	18.3	17.4	8.8	1.8	1.2	1.2	9.0	2.9	1.8
PSE0031-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	8.6	16.8	16.6	22.8	21.9	2.4	3.6	0.0	1.8	1.8	1.2
PSE0031-07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	16.3	17.1	17.1	9.6	7.2	8.7	2.6	4.0	2.6	2.0	7.3	5.3







May 20, 2009

Analytical Report for Service Request No: K0903811

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor Inline

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on May 01, 2009. For your reference, these analyses have been assigned our service request number K0903811.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/rh

Page 1 of <u>35</u>

cc: Peter Abrams, City of Portland, Portland, OR

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	_







COLUMBIA ANALYTICAL SERVICES, INC.

Client: Project:

Portland, City of

Portland Harbor Inline

Service Request No.:

Date Received:

K0903811 05/01/2009

Sample Matrix:

Soil

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Six soil samples were received for analysis at Columbia Analytical Services on 05/01/2009. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Semivolatile Organic Compounds by EPA Method 8270C-LL

Surrogate Exceptions:

The control criteria for surrogates in samples F0095556 and F0095558 were not applicable. The analysis of the samples required a dilution, which resulted in a surrogate concentration below the reporting limit. No further corrective action was appropriate.

The control criteria for 2-Fluorophenol in sample F0095553 were not applicable. The analysis of the sample required a dilution, which resulted in a surrogate concentration below the reporting limit. No further corrective action was appropriate.

Matrix Spike Recovery Exceptions:

The matrix spike recovery of 4-Nitrophenol for sample F0095557MS was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for 4-Chloro-3-methylphenol in the replicate matrix spike analyses of sample F0095557 was outside control criteria. All spike recoveries for the analyte in question were within acceptance limits in the MS, DMS, and associated Laboratory Control Sample (LCS), indicating the analytical batch was in control. No further corrective action was appropriate.

The Relative Percent Difference (RPD) criterion for 4-Nitrophenol in the replicate matrix spike of sample F0095557 was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

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Approved by		Date	

Elevated Method Reporting Limits:

The detection limits were elevated in numerous samples. The sample extracts were diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extracts were highly colored and viscous, which indicated the need to perform dilutions prior to injection into the instrument. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilutions. Semi-quantitative screens were performed prior to final analysis. The results of the screening indicated the need to perform dilutions.

No other anomalies associated with the analysis of these samples were observed.

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inli

Sample Matrix:

Soil

Total Solids

Prep Method: Analysis Method: NONE 160.3M Units: PERCENT

Test Notes:

Basis: Wet

Service Request: K0903811

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
F0095553	K0903811-001	04/29/2009	05/01/2009	05/01/2009	71.2	
F0095555	K0903811-002	04/29/2009	05/01/2009	05/01/2009	73.3	
F0095556	K0903811-003	04/29/2009	05/01/2009	05/01/2009	68.3	
F0095557	K0903811-004	04/29/2009	05/01/2009	05/01/2009	74.5	
F0095558	K0903811-005	04/29/2009	05/01/2009	05/01/2009	43.3	
F0095559	K0903811-006	04/29/2009	05/01/2009	05/01/2009	64.0	

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Inli

Sample Matrix:

Soil

Service Request: K0903811

Date Collected: 04/29/2009

Date Received: 05/01/2009

Date Analyzed: 05/01/2009

Duplicate Sample Summary Total Solids

Prep Method:

NONE

Analysis Method:

Units: PERCENT

Basis: Wet

Test Notes:

160.3M

Duplicate Relative Sample Percent

Sample Name

Lab Code

Result

Sample

62.8

Average

Result Notes

F0095559

K0903811-006

63.4

2

Difference

64.0

Result

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SuperSet Reference: W0903674

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Analytical Results

Client: Project: Portland, City of Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811 **Date Collected:** 04/29/2009

Date Received: 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095553

Lab Code:

K0903811-001

Extraction Method: Analysis Method:

EPA 3541 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND U	250	48	25	05/06/09	05/14/09	KWG0903761	
Phenol	ND U	750	50	25	05/06/09	05/14/09	KWG0903761	
2-Chlorophenol	ND U	250	50	25	05/06/09	05/14/09	KWG0903761	
1,3-Dichlorobenzene	ND U	250	75	25	05/06/09	05/14/09	KWG0903761	**************************************
1,4-Dichlorobenzene	ND U	250	73	25	05/06/09	05/14/09	KWG0903761	
1,2-Dichlorobenzene	ND U	250	73	25	05/06/09	05/14/09	KWG0903761	
Benzyl Alcohol	ND U	500	53	25	05/06/09	05/14/09	KWG0903761	
Bis(2-chloroisopropyl) Ether	ND U	250	65	25	05/06/09	05/14/09	KWG0903761	
2-Methylphenol	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
Hexachloroethane	ND U	250	78	25	05/06/09	05/14/09	KWG0903761	
N-Nitrosodi-n-propylamine	ND U	250	60	25	05/06/09	05/14/09	KWG0903761	
4-Methylphenol†	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
Nitrobenzene	ND U	250	55	25	05/06/09	05/14/09	KWG0903761	
Isophorone	ND U	250	25	25	05/06/09	05/14/09	KWG0903761	
2-Nitrophenol	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
2,4-Dimethylphenol	ND U	1300	140	25	05/06/09	05/14/09	KWG0903761	
Bis(2-chloroethoxy)methane	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
2,4-Dichlorophenol	ND U	250	25	25	05/06/09	05/14/09	KWG0903761	
Benzoic Acid	ND U	5000	2400	25	05/06/09	05/14/09	KWG0903761	
1,2,4-Trichlorobenzene	ND U	250	65	25	05/06/09	05/14/09	KWG0903761	
Naphthalene	ND U	250	58	25	05/06/09	05/14/09	KWG0903761	
4-Chloroaniline	ND U	250	48	25	05/06/09	05/14/09	KWG0903761	
Hexachlorobutadiene	ND U	250	63	25	05/06/09	05/14/09	KWG0903761	
4-Chloro-3-methylphenol	ND U	250	35	25	05/06/09	05/14/09	KWG0903761	
2-Methylnaphthalene	ND U	250	55	25	05/06/09	05/14/09	KWG0903761	
Hexachlorocyclopentadiene	ND U	1300	730	25	05/06/09	05/14/09	KWG0903761	
2,4,6-Trichlorophenol	ND U	250	35	25	05/06/09	05/14/09	KWG0903761	
2,4,5-Trichlorophenol	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
2-Chloronaphthalene	ND U	250	40	25	05/06/09	05/14/09	KWG0903761	
2-Nitroaniline	ND U	500	80	25	05/06/09	05/14/09	KWG0903761	
Acenaphthylene	ND U	250	30	25	05/06/09	05/14/09	KWG0903761	
Dimethyl Phthalate	190 JD	250	25	25	05/06/09	05/14/09	KWG0903761	
2,6-Dinitrotoluene	ND U	250	50	25	05/06/09	05/14/09	KWG0903761	
Acenaphthene	ND U	250	35	25	05/06/09	05/14/09	KWG0903761	y (84.4 - 8 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -

Comments:	
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Analytical Results

Client:

Portland, City of Portland Harbor Inline

Project: Sample Matrix:

Soil

Service Request: K0903811 **Date Collected:** 04/29/2009

Date Received: 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095553

Lab Code:

K0903811-001

Extraction Method: Analysis Method:

K0703811-001

od: EPA 3541 : 8270C Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND U	500	63	25	05/06/09	05/14/09	KWG0903761	
2,4-Dinitrophenol	ND U	5000	430	25	05/06/09	05/14/09	KWG0903761	
Dibenzofuran	ND U	250	30	25	05/06/09	05/14/09	KWG0903761	
4-Nitrophenol	ND U	2500	450	25	05/06/09	05/14/09	KWG0903761	
2,4-Dinitrotoluene	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
Fluorene	ND U	250	28	25	05/06/09	05/14/09	KWG0903761	
4-Chlorophenyl Phenyl Ether	ND U	250	35	25	05/06/09	05/14/09	KWG0903761	
Diethyl Phthalate	ND U	250	33	25	05/06/09	05/14/09	KWG0903761	
4-Nitroaniline	ND U	500	45	25	05/06/09	05/14/09	KWG0903761	
2-Methyl-4,6-dinitrophenol	ND U	2500	35	25	05/06/09	05/14/09	KWG0903761	
N-Nitrosodiphenylamine	ND U	250	40	25	05/06/09	05/14/09	KWG0903761	
4-Bromophenyl Phenyl Ether	ND U	250	40	25	05/06/09	05/14/09	KWG0903761	
Hexachlorobenzene	ND U	250	30	25	05/06/09	05/14/09	KWG0903761	
Pentachlorophenol	ND U	2500	500	25	05/06/09	05/14/09	KWG0903761	
Phenanthrene	50 JD	250	35	25	05/06/09	05/14/09	KWG0903761	
Anthracene	ND U	250	40	25	05/06/09	05/14/09	KWG0903761	
Di-n-butyl Phthalate	ND U	500	200	25	05/06/09	05/14/09	KWG0903761	
Fluoranthene	100 JD	250	40	25	05/06/09	05/14/09	KWG0903761	
Pyrene	120 JD	250	38	25	05/06/09	05/14/09	KWG0903761	
Butyl Benzyl Phthalate	ND U	250	80	25	05/06/09	05/14/09	KWG0903761	
3,3'-Dichlorobenzidine	ND U	2500	93	25	05/06/09	05/14/09	KWG0903761	
Benz(a)anthracene	59 JD	250	43	25	05/06/09	05/14/09	KWG0903761	
Chrysene	120 JD	250	38	25	05/06/09	05/14/09	KWG0903761	
Bis(2-ethylhexyl) Phthalate	490 JD	2500	180	25	05/06/09	05/14/09	KWG0903761	
Di-n-octyl Phthalate	ND U	250	43	25	05/06/09	05/14/09	KWG0903761	
Benzo(b)fluoranthene	ND U	250	30	25	05/06/09	05/14/09	KWG0903761	
Benzo(k)fluoranthene	ND U	250	35	25	05/06/09	05/14/09	KWG0903761	
Benzo(a)pyrene	ND U	250	43	25	05/06/09	05/14/09	KWG0903761	
Indeno(1,2,3-cd)pyrene	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
Dibenz(a,h)anthracene	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
Benzo(g,h,i)perylene	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	

Analytical Results

Client:

Portland, City of Portland Harbor Inline

Project: Sample Matrix:

Soil

Service Request: K0903811 **Date Collected:** 04/29/2009

Date Received: 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095553

Lab Code:

K0903811-001

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	О	10-89	05/14/09	Outside Control Limits	***************************************
Phenol-d6	46	15-103	05/14/09	Acceptable	
Nitrobenzene-d5	55	10-108	05/14/09	Acceptable	
2-Fluorobiphenyl	53	10-105	05/14/09	Acceptable	
2,4,6-Tribromophenol	52	16-122	05/14/09	Acceptable	
Terphenyl-d14	88	31-126	05/14/09	Acceptable	

+ Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 11

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SuperSet Reference: RR101931

Analytical Results

Client: Portland, City of Project: Portland Harbor Inline

8270C

Sample Matrix: Soil

Analysis Method:

Service Request: K0903811 **Date Collected:** 04/29/2009 **Date Received:** 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

 Sample Name:
 F0095555
 Units:
 ug/Kg

 Lab Code:
 K0903811-002
 Basis:
 Dry

 Extraction Method:
 EPA 3541
 Level:
 Low

Date Dilution Date Extraction **Analyte Name** Result Q MRL MDL **Factor** Extracted Analyzed Lot Note Bis(2-chloroethyl) Ether KWG0903761 ND U 250 25 05/06/09 05/14/09 48 Phenol KWG0903761 ND U 750 50 25 05/06/09 05/14/09 2-Chlorophenol ND U 250 50 25 05/06/09 05/14/09 KWG0903761 1.3-Dichlorobenzene ND U 250 75 25 05/06/09 05/14/09 KWG0903761 1,4-Dichlorobenzene ND U 250 73 25 KWG0903761 05/06/09 05/14/09 1.2-Dichlorobenzene ND U 250 73 25 05/06/09 05/14/09 KWG0903761 Benzyl Alcohol 53 25 KWG0903761 ND U 500 05/06/09 05/14/09 Bis(2-chloroisopropyl) Ether KWG0903761 ND U 250 65 25 05/06/09 05/14/09 2-Methylphenol ND U 25 KWG0903761 250 38 05/06/09 05/14/09 Hexachloroethane KWG0903761 ND U 78 25 05/14/09 250 05/06/09 N-Nitrosodi-n-propylamine ND U 250 60 25 05/06/09 05/14/09 KWG0903761 4-Methylphenol† ND U 250 38 25 05/06/09 05/14/09 KWG0903761 Nitrobenzene ND U 250 55 25 05/06/09 05/14/09 KWG0903761 25 Isophorone ND U 250 25 05/06/09 05/14/09 KWG0903761 2-Nitrophenol ND U 250 38 25 KWG0903761 05/06/09 05/14/09 2,4-Dimethylphenol 25 ND U 1300 140 KWG0903761 05/06/09 05/14/09 Bis(2-chloroethoxy)methane ND U 250 38 25 KWG0903761 05/06/09 05/14/09 2,4-Dichlorophenol ND U 25 KWG0903761 250 25 05/06/09 05/14/09 Benzoic Acid ND U 2400 25 KWG0903761 5000 05/06/09 05/14/09 1,2,4-Trichlorobenzene ND U 250 65 25 05/06/09 05/14/09 KWG0903761 **69** JD Naphthalene 250 58 25 KWG0903761 05/06/09 05/14/09 4-Chloroaniline ND U 250 48 2.5 05/06/09 05/14/09 KWG0903761 Hexachlorobutadiene 25 ND U 63 KWG0903761 250 05/06/09 05/14/09 4-Chloro-3-methylphenol ND U 250 35 25 KWG0903761 05/06/09 05/14/09 2-Methylnaphthalene ND U 250 55 25 05/06/09 05/14/09 KWG0903761 Hexachlorocyclopentadiene ND U 25 KWG0903761 1300 730 05/14/09 05/06/09 2,4,6-Trichlorophenol ND U 250 35 25 05/06/09 05/14/09 KWG0903761 2,4,5-Trichlorophenol ND U 38 25 KWG0903761 250 05/06/09 05/14/09 2-Chloronaphthalene ND U 250 40 25 05/06/09 05/14/09 KWG0903761 2-Nitroaniline ND U 25 KWG0903761 500 80 05/06/09 05/14/09 Acenaphthylene ND U 250 30 25 KWG0903761 05/06/09 05/14/09 **Dimethyl Phthalate 1100** D 250 25 25 KWG0903761 05/06/09 05/14/09 2,6-Dinitrotoluene ND U 250 50 25 KWG0903761 05/06/09 05/14/09 Acenaphthene ND U 250 35 25 KWG0903761 05/06/09 05/14/09

Comments.	

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SuperSet Reference:

Analytical Results

Client: Portland, City of Project: Portland Harbor Inline

Sample Matrix: Soil Service Request: K0903811 **Date Collected:** 04/29/2009 **Date Received:** 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: F0095555 Lab Code: K0903811-002

Extraction Method: EPA 3541 Analysis Method: 8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND U	500	63	25	05/06/09	05/14/09	KWG0903761	
2,4-Dinitrophenol	ND U	5000	430	25	05/06/09	05/14/09	KWG0903761	
Dibenzofuran	ND U	250	30	25	05/06/09	05/14/09	KWG0903761	
4-Nitrophenol	ND U	2500	450	25	05/06/09	05/14/09	KWG0903761	
2,4-Dinitrotoluene	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
Fluorene	ND U	250	28	25	05/06/09	05/14/09	KWG0903761	
4-Chlorophenyl Phenyl Ether	ND U	250	35	25	05/06/09	05/14/09	KWG0903761	
Diethyl Phthalate	ND U	250	33	25	05/06/09	05/14/09	KWG0903761	
4-Nitroaniline	ND U	500	45	25	05/06/09	05/14/09	KWG0903761	
2-Methyl-4,6-dinitrophenol	ND U	2500	35	25	05/06/09	05/14/09	KWG0903761	
N-Nitrosodiphenylamine	ND U	250	40	25	05/06/09	05/14/09	KWG0903761	
4-Bromophenyl Phenyl Ether	ND U	250	40	25	05/06/09	05/14/09	KWG0903761	
Hexachlorobenzene	ND U	250	30	25	05/06/09	05/14/09	KWG0903761	
Pentachlorophenol	ND U	2500	500	25	05/06/09	05/14/09	KWG0903761	
Phenanthrene	65 JD	250	35	25	05/06/09	05/14/09	KWG0903761	
Anthracene	ND U	250	40	25	05/06/09	05/14/09	KWG0903761	
Di-n-butyl Phthalate	ND U	500	200	25	05/06/09	05/14/09	KWG0903761	
Fluoranthene	130 JD	250	40	25	05/06/09	05/14/09	KWG0903761	
Pyrene	120 JD	250	38	25	05/06/09	05/14/09	KWG0903761	
Butyl Benzyl Phthalate	ND U	250	80	25	05/06/09	05/14/09	KWG0903761	
3,3'-Dichlorobenzidine	ND U	2500	93	25	05/06/09	05/14/09	KWG0903761	
Benz(a)anthracene	74 JD	250	43	25	05/06/09	05/14/09	KWG0903761	
Chrysene	85 JD	250	38	25	05/06/09	05/14/09	KWG0903761	
Bis(2-ethylhexyl) Phthalate	770 JD	2500	180	25	05/06/09	05/14/09	KWG0903761	
Di-n-octyl Phthalate	ND U	250	43	25	05/06/09	05/14/09	KWG0903761	
Benzo(b)fluoranthene	160 JD	250	30	25	05/06/09	05/14/09	KWG0903761	
Benzo(k)fluoranthene	ND U	250	35	25	05/06/09	05/14/09	KWG0903761	
Benzo(a)pyrene	ND U	250	43	25	05/06/09	05/14/09	KWG0903761	
Indeno(1,2,3-cd)pyrene	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
Dibenz(a,h)anthracene	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	
Benzo(g,h,i)perylene	ND U	250	38	25	05/06/09	05/14/09	KWG0903761	

C	omm	ents:
U	omm	ents:

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Form 1A - Organic

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SuperSet Reference: RR101931 2 of 3

Analytical Results

Client: Project:

Portland, City of

Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811

Date Collected: 04/29/2009

Date Collected: 04/29/2009 **Date Received:** 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: F0095555

K0903811-002

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	50	10-89	05/14/09	Acceptable
Phenol-d6	57	15-103	05/14/09	Acceptable
Nitrobenzene-d5	56	10-108	05/14/09	Acceptable
2-Fluorobiphenyl	49	10-105	05/14/09	Acceptable
2,4,6-Tribromophenol	51	16-122	05/14/09	Acceptable
Terphenyl-d14	72	31-126	05/14/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 14

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SuperSet Reference: RR101931

Analytical Results

Client: Project: Portland, City of Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811 **Date Collected:** 04/29/2009

Date Received: 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095556

Lab Code:

K0903811-003

Extraction Method:

EPA 3541

Units: ug/Kg Basis: Dry

Level: Low

Analysis Method: 8270C

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND U	500	95	50	05/06/09	05/14/09	KWG0903761	
Phenol	ND U	1500	100	50	05/06/09	05/14/09	KWG0903761	
2-Chlorophenol	ND U	500	100	50	05/06/09	05/14/09	KWG0903761	
1,3-Dichlorobenzene	ND U	500	150	50	05/06/09	05/14/09	KWG0903761	Personancementalists
1,4-Dichlorobenzene	ND U	500	150	50	05/06/09	05/14/09	KWG0903761	
1,2-Dichlorobenzene	ND U	500	150	50	05/06/09	05/14/09	KWG0903761	
Benzyl Alcohol	ND U	1000	110	50	05/06/09	05/14/09	KWG0903761	
Bis(2-chloroisopropyl) Ether	ND U	500	130	50	05/06/09	05/14/09	KWG0903761	
2-Methylphenol	ND U	500	75	50	05/06/09	05/14/09	KWG0903761	
Hexachloroethane	ND U	500	160	50	05/06/09	05/14/09	KWG0903761	***************************************
N-Nitrosodi-n-propylamine	ND U	500	120	50	05/06/09	05/14/09	KWG0903761	
4-Methylphenol†	ND U	500	75	50	05/06/09	05/14/09	KWG0903761	
Nitrobenzene	ND U	500	110	50	05/06/09	05/14/09	KWG0903761	
Isophorone	ND U	500	50	50	05/06/09	05/14/09	KWG0903761	
2-Nitrophenol	ND U	500	75	50	05/06/09	05/14/09	KWG0903761	
2,4-Dimethylphenol	ND U	2500	280	50	05/06/09	05/14/09	KWG0903761	
Bis(2-chloroethoxy)methane	ND U	500	75	50	05/06/09	05/14/09	KWG0903761	
2,4-Dichlorophenol	ND U	500	50	50	05/06/09	05/14/09	KWG0903761	
Benzoic Acid	ND U	10000	4800	50	05/06/09	05/14/09	KWG0903761	
1,2,4-Trichlorobenzene	ND U	500	130	50	05/06/09	05/14/09	KWG0903761	
Naphthalene	ND U	500	120	50	05/06/09	05/14/09	KWG0903761	
4-Chloroaniline	ND U	500	95	50	05/06/09	05/14/09	KWG0903761	
Hexachlorobutadiene	ND U	500	130	50	05/06/09	05/14/09	KWG0903761	
4-Chloro-3-methylphenol	ND U	500	70	50	05/06/09	05/14/09	KWG0903761	
2-Methylnaphthalene	ND U	500	110	50	05/06/09	05/14/09	KWG0903761	
Hexachlorocyclopentadiene	ND U	2500	1500	50	05/06/09	05/14/09	KWG0903761	
2,4,6-Trichlorophenol	ND U	500	70	50	05/06/09	05/14/09	KWG0903761	
2,4,5-Trichlorophenol	ND U	500	75	50	05/06/09	05/14/09	KWG0903761	
2-Chloronaphthalene	ND U	500	80	50	05/06/09	05/14/09	KWG0903761	
2-Nitroaniline	ND U	1000	160	50	05/06/09	05/14/09	KWG0903761	
Acenaphthylene	ND U	500	60	50	05/06/09	05/14/09	KWG0903761	
Dimethyl Phthalate	790 D	500	50	50	05/06/09	05/14/09	KWG0903761	
2,6-Dinitrotoluene	ND U	500	100	50	05/06/09	05/14/09	KWG0903761	
Acenaphthene	ND U	500	70	50	05/06/09	05/14/09	KWG0903761	

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Form 1A - Organic

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Page SuperSet Reference:

RR101931

Analytical Results

Client: Project:

Portland, City of Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811

Date Collected: 04/29/2009 **Date Received:** 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095556

Lab Code:

K0903811-003

Extraction Method: EPA 3541

Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND	U	1000	130	50	05/06/09	05/14/09	KWG0903761	***************************************
2,4-Dinitrophenol	ND	U	10000	850	50	05/06/09	05/14/09	KWG0903761	
Dibenzofuran	ND	U	500	60	50	05/06/09	05/14/09	KWG0903761	
4-Nitrophenol	ND	U	5000	900	50	05/06/09	05/14/09	KWG0903761	
2,4-Dinitrotoluene	ND	U	500	75	50	05/06/09	05/14/09	KWG0903761	
Fluorene	ND	U	500	55	50	05/06/09	05/14/09	KWG0903761	
4-Chlorophenyl Phenyl Ether	ND	U	500	70	50	05/06/09	05/14/09	KWG0903761	
Diethyl Phthalate	ND	U	500	65	50	05/06/09	05/14/09	KWG0903761	
4-Nitroaniline	ND	U	1000	90	50	05/06/09	05/14/09	KWG0903761	***************************************
2-Methyl-4,6-dinitrophenol	ND	U	5000	70	50	05/06/09	05/14/09	KWG0903761	
N-Nitrosodiphenylamine	ND	U	500	80	50	05/06/09	05/14/09	KWG0903761	
4-Bromophenyl Phenyl Ether	ND	U	500	80	50	05/06/09	05/14/09	KWG0903761	
Hexachlorobenzene	ND	U	500	60	50	05/06/09	05/14/09	KWG0903761	
Pentachlorophenol	ND	U	5000	1000	50	05/06/09	05/14/09	KWG0903761	
Phenanthrene	ND	U	500	70	50	05/06/09	05/14/09	KWG0903761	
Anthracene	ND	U	500	80	50	05/06/09	05/14/09	KWG0903761	
Di-n-butyl Phthalate	ND	U	1000	400	50	05/06/09	05/14/09	KWG0903761	
Fluoranthene	260		500	80	50	05/06/09	05/14/09	KWG0903761	
Pyrene	310		500	75	50	05/06/09	05/14/09	KWG0903761	
Butyl Benzyl Phthalate	ND	U	500	160	50	05/06/09	05/14/09	KWG0903761	
3,3'-Dichlorobenzidine	ND	U	5000	190	50	05/06/09	05/14/09	KWG0903761	
Benz(a)anthracene	160	JD	500	85	50	05/06/09	05/14/09	KWG0903761	
Chrysene	290	\mathbb{D}	500	75	50	05/06/09	05/14/09	KWG0903761	
Bis(2-ethylhexyl) Phthalate	890	ЛD	5000	350	50	05/06/09	05/14/09	KWG0903761	
Di-n-octyl Phthalate	ND	U	500	85	50	05/06/09	05/14/09	KWG0903761	
Benzo(b)fluoranthene	280	$\mathcal{I}\mathcal{D}$	500	60	50	05/06/09	05/14/09	KWG0903761	
Benzo(k)fluoranthene	ND	U	500	70	50	05/06/09	05/14/09	KWG0903761	
Benzo(a)pyrene	ND	U	500	85	50	05/06/09	05/14/09	KWG0903761	
Indeno(1,2,3-cd)pyrene	ND	U	500	75	50	05/06/09	05/14/09	KWG0903761	
Dibenz(a,h)anthracene	ND	U	500	75	50	05/06/09	05/14/09	KWG0903761	
Benzo(g,h,i)perylene	370	ЛD	500	75	50	05/06/09	05/14/09	KWG0903761	

Comments:

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SuperSet Reference: RR101931

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811 **Date Collected:** 04/29/2009

Date Received: 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095556

Lab Code:

K0903811-003

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	0	10-89	05/14/09	Outside Control Limits
Phenol-d6	0	15-103	05/14/09	Outside Control Limits
Nitrobenzene-d5	0	10-108	05/14/09	Outside Control Limits
2-Fluorobiphenyl	57	10-105	05/14/09	Acceptable
2,4,6-Tribromophenol	45	16-122	05/14/09	Acceptable
Terphenyl-d14	92	31-126	05/14/09	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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SuperSet Reference: RR101931

Analytical Results

Client: Project: Portland, City of Portland Harbor Inline

Sample Matrix:

Soil

 Service Request:
 K0903811

 Date Collected:
 04/29/2009

 Date Received:
 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095557

Lab Code:

K0903811-004

Extraction Method:
Analysis Method:

EPA 3541

8270C

Units: ug/Kg
Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	10	1.9	1	05/06/09	05/12/09	KWG0903761	
Phenol	10 J	30	2.0	1	05/06/09	05/12/09	KWG0903761	
2-Chlorophenol	ND U	10	2.0	1	05/06/09	05/12/09	KWG0903761	
1,3-Dichlorobenzene	ND U	10	3.0	1	05/06/09	05/12/09	KWG0903761	
1,4-Dichlorobenzene	ND U	10	2.9	1	05/06/09	05/12/09	KWG0903761	
1,2-Dichlorobenzene	ND U	10	2.9	1	05/06/09	05/12/09	KWG0903761	
Benzyl Alcohol	ND U	20	2.1	1	05/06/09	05/12/09	KWG0903761	
Bis(2-chloroisopropyl) Ether	ND U	10	2.6	1	05/06/09	05/12/09	KWG0903761	
2-Methylphenol	ND U	10	1.5	1	05/06/09	05/12/09	KWG0903761	
Hexachloroethane	ND U	10	3.1	1	05/06/09	05/12/09	KWG0903761	
N-Nitrosodi-n-propylamine	ND U	10	2.4	1	05/06/09	05/12/09	KWG0903761	
4-Methylphenol†	ND U	10	1.5	I	05/06/09	05/12/09	KWG0903761	
Nitrobenzene	ND U	10	2.2	1	05/06/09	05/12/09	KWG0903761	
Isophorone	15	10	1.0	1	05/06/09	05/12/09	KWG0903761	
2-Nitrophenol	ND U	10	1.5	1	05/06/09	05/12/09	KWG0903761	
2,4-Dimethylphenol	ND U	50	5.5	1	05/06/09	05/12/09	KWG0903761	
Bis(2-chloroethoxy)methane	ND U	. 10	1.5	1	05/06/09	05/12/09	KWG0903761	
2,4-Dichlorophenol	ND U	10	1.0	1	05/06/09	05/12/09	KWG0903761	
Benzoic Acid	ND U	200	96	1	05/06/09	05/12/09	KWG0903761	
1,2,4-Trichlorobenzene	ND U	10	2.6	1	05/06/09	05/12/09	KWG0903761	
Naphthalene	26	10	2.3	1	05/06/09	05/12/09	KWG0903761	
4-Chloroaniline	ND U	10	1.9	1	05/06/09	05/12/09	KWG0903761	
Hexachlorobutadiene	ND U	10	2.5	1	05/06/09	05/12/09	KWG0903761	
4-Chloro-3-methylphenol	ND U	10	1.4	1	05/06/09	05/12/09	KWG0903761	
2-Methylnaphthalene	5.3 J	10	2.2	1	05/06/09	05/12/09	KWG0903761	
Hexachlorocyclopentadiene	ND U	50	29	1	05/06/09	05/12/09	KWG0903761	
2,4,6-Trichlorophenol	ND U	10	1.4	1	05/06/09	05/12/09	KWG0903761	
2,4,5-Trichlorophenol	ND U	10	1.5	1	05/06/09	05/12/09	KWG0903761	
2-Chloronaphthalene	ND U	10	1.6	1	05/06/09	05/12/09	KWG0903761	
2-Nitroaniline	ND U	20	3.2	1	05/06/09	05/12/09	KWG0903761	
Acenaphthylene	8.5 J	10	1.2	1	05/06/09	05/12/09	KWG0903761	• •
Dimethyl Phthalate	480	10	1.0	1	05/06/09	05/12/09	KWG0903761	
2,6-Dinitrotoluene	ND U	10	2.0	1	05/06/09	05/12/09	KWG0903761	
Acenaphthene	2.9 J	10	1.4	1	05/06/09	05/12/09	KWG0903761	***************************************

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Comments:

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SuperSet Reference: RR101931

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811 Date Collected: 04/29/2009

Date Received: 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095557

Lab Code:

K0903811-004

Extraction Method:

EPA 3541

Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND U	20	2.5	I	05/06/09	05/12/09	KWG0903761	the same of the sa
2,4-Dinitrophenol	ND U	200	17	1	05/06/09	05/12/09	KWG0903761	
Dibenzofuran	3.5 J	10	1.2	1	05/06/09	05/12/09	KWG0903761	
4-Nitrophenol	ND U	100	18	1	05/06/09	05/12/09	KWG0903761	
2,4-Dinitrotoluene	ND U	10	1.5	1	05/06/09	05/12/09	KWG0903761	
Fluorene	4.0 J	10	1.1	1	05/06/09	05/12/09	KWG0903761	
4-Chlorophenyl Phenyl Ether	ND U	10	1.4	1	05/06/09	05/12/09	KWG0903761	
Diethyl Phthalate	2.7 J	10	1.3	1	05/06/09	05/12/09	KWG0903761	
4-Nitroaniline	ND U	20	1.8	1	05/06/09	05/12/09	KWG0903761	
2-Methyl-4,6-dinitrophenol	ND U	100	1.4	1	05/06/09	05/12/09	KWG0903761	
N-Nitrosodiphenylamine	3.5 J	10	1.6	1	05/06/09	05/12/09	KWG0903761	
4-Bromophenyl Phenyl Ether	ND U	10	1.6	1	05/06/09	05/12/09	KWG0903761	
Hexachlorobenzene	ND U	10	1.2	1	05/06/09	05/12/09	KWG0903761	
Pentachlorophenol	ND U	100	20	1	05/06/09	05/12/09	KWG0903761	
Phenanthrene	48	10	1.4	1	05/06/09	05/12/09	KWG0903761	
Anthracene	18	10	1.6	1	05/06/09	05/12/09	KWG0903761	
Di-n-butyl Phthalate	9.8 J	20	7.9	1	05/06/09	05/12/09	KWG0903761	
Fluoranthene	120	10	1.6	l	05/06/09	05/12/09	KWG0903761	
Pyrene	110	10	1.5	1	05/06/09	05/12/09	KWG0903761	
Butyl Benzyl Phthalate	57	10	3.2	1	05/06/09	05/12/09	KWG0903761	
3,3'-Dichlorobenzidine	ND U	100	3.7	1	05/06/09	05/12/09	KWG0903761	
Benz(a)anthracene	3 9	10	1.7	1	05/06/09	05/12/09	KWG0903761	
Chrysene	97	10	1.5	1	05/06/09	05/12/09	KWG0903761	
Bis(2-ethylhexyl) Phthalate	530	100	7.0	1	05/06/09	05/12/09	KWG0903761	
Di-n-octyl Phthalate	ND U	10	1.7	1	05/06/09	05/12/09	KWG0903761	
Benzo(b)fluoranthene	100	10	1.2	1	05/06/09	05/12/09	KWG0903761	
Benzo(k)fluoranthene	25	10	1.4	1	05/06/09	05/12/09	KWG0903761	
Benzo(a)pyrene	57	10	1.7	1	05/06/09	05/12/09	KWG0903761	
Indeno(1,2,3-cd)pyrene	51	10	1.5	1	05/06/09	05/12/09	KWG0903761	
Dibenz(a,h)anthracene	16	10	1.5	1	05/06/09	05/12/09	KWG0903761	
Benzo(g,h,i)perylene	63	10	1.5	1	05/06/09	05/12/09	KWG0903761	

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RR101931

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811 **Date Collected:** 04/29/2009 **Date Received:** 05/01/2009

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095557

Lab Code:

K0903811-004

Units: ug/Kg

Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	23	10-89	05/12/09	Acceptable	Matrices Colors on Colors of Colors
Phenol-d6	38	15-103	05/12/09	Acceptable	
Nitrobenzene-d5	46	10-108	05/12/09	Acceptable	
2-Fluorobiphenyl	45	10-105	05/12/09	Acceptable	
2,4,6-Tribromophenol	36	16-122	05/12/09	Acceptable	
Terphenyl-d14	54	31-126	05/12/09	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

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SuperSet Reference: RR101931

Analytical Results

Client: Project: Portland, City of Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

Method Blank

KWG0903761-5

Extraction Method: Analysis Method:

EPA 3541 8270C

Units: ug/Kg Basis: Dry

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND	U	5.0	1.9	1	05/06/09	05/11/09	KWG0903761	
Phenol	2.4		15	2.0	1	05/06/09	05/11/09	KWG0903761	
2-Chlorophenol	ND	U	5.0	2.0	1	05/06/09	05/11/09	KWG0903761	
1,3-Dichlorobenzene	ND	U	5.0	3.0	1	05/06/09	05/11/09	KWG0903761	
1,4-Dichlorobenzene	ND	U	5.0	2.9	1	05/06/09	05/11/09	KWG0903761	
1,2-Dichlorobenzene	ND	U	5.0	2.9	1	05/06/09	05/11/09	KWG0903761	
Benzyl Alcohol	ND	U	10	2.1	1	05/06/09	05/11/09	KWG0903761	
Bis(2-chloroisopropyl) Ether	ND	U	5.0	2.6	1	05/06/09	05/11/09	KWG0903761	
2-Methylphenol	ND	U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
Hexachloroethane	ND	U	5.0	3.1	1	05/06/09	05/11/09	KWG0903761	
N-Nitrosodi-n-propylamine	ND	U	5.0	2.4	1	05/06/09	05/11/09	KWG0903761	
4-Methylphenol†	ND	U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
Nitrobenzene	ND		5.0	2.2	1	05/06/09	05/11/09	KWG0903761	
Isophorone		U	5.0	1.0	1	05/06/09	05/11/09	KWG0903761	
2-Nitrophenol	ND	U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
2,4-Dimethylphenol	ND	U	25	5.5	1	05/06/09	05/11/09	KWG0903761	
Bis(2-chloroethoxy)methane	ND	U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
2,4-Dichlorophenol	ND	U	5.0	1.0	1	05/06/09	05/11/09	KWG0903761	
Benzoic Acid	ND		100	96	1	05/06/09	05/11/09	KWG0903761	
1,2,4-Trichlorobenzene	ND		5.0	2.6	1	05/06/09	05/11/09	KWG0903761	
Naphthalene	ND	U	5.0	2.3	1	05/06/09	05/11/09	KWG0903761	
4-Chloroaniline	ND		5.0	1.9	1	05/06/09	05/11/09	KWG0903761	
Hexachlorobutadiene	ND		5.0	2.5	1	05/06/09	05/11/09	KWG0903761	
4-Chloro-3-methylphenol	ND	U	5.0	1.4	1	05/06/09	05/11/09	KWG0903761	
2-Methylnaphthalene	ND		5.0	2.2	1	05/06/09	05/11/09	KWG0903761	
Hexachlorocyclopentadiene	ND		29	29	1	05/06/09	05/11/09	KWG0903761	
2,4,6-Trichlorophenol	ND	U	5.0	1.4	1	05/06/09	05/11/09	KWG0903761	
2,4,5-Trichlorophenol	ND	U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
2-Chloronaphthalene	ND	U	5.0	1.6	1	05/06/09	05/11/09	KWG0903761	
2-Nitroaniline	ND	U	10	3.2	1	05/06/09	05/11/09	KWG0903761	
Acenaphthylene	ND	U	5.0	1.2	1	05/06/09	05/11/09	KWG0903761	
Dimethyl Phthalate	ND		5.0	1.0	1	05/06/09	05/11/09	KWG0903761	
2,6-Dinitrotoluene	ND	U	5.0	2.0	1	05/06/09	05/11/09	KWG0903761	
Acenaphthene	ND	U	5.0	1.4	1	05/06/09	05/11/09	KWG0903761	

Comments:

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Form 1A - Organic

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Page SuperSet Reference: RR101931

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0903761-5

Extraction Method: Analysis Method:

EPA 3541

8270C

Units: ug/Kg Basis: Dry

Level: Low

			5 .	Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
3-Nitroaniline	ND U	10	2,5	1	05/06/09	05/11/09	KWG0903761	
2,4-Dinitrophenol	ND U	100	17	1	05/06/09	05/11/09	KWG0903761	
Dibenzofuran	ND U	5.0	1.2	1	05/06/09	05/11/09	KWG0903761	
4-Nitrophenol	ND U	50	18	1	05/06/09	05/11/09	KWG0903761	
2,4-Dinitrotoluene	ND U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
Fluorene	ND U	5.0	1.1	1	05/06/09	05/11/09	KWG0903761	
4-Chlorophenyl Phenyl Ether	ND U	5.0	1.4	1	05/06/09	05/11/09	KWG0903761	
Diethyl Phthalate	ND U	5.0	1.3	1	05/06/09	05/11/09	KWG0903761	
4-Nitroaniline	ND U	10	1.8	1	05/06/09	05/11/09	KWG0903761	
2-Methyl-4,6-dinitrophenol	ND U	50	1.4	1	05/06/09	05/11/09	KWG0903761	
N-Nitrosodiphenylamine	ND U	5.0	1.6	1	05/06/09	05/11/09	KWG0903761	
4-Bromophenyl Phenyl Ether	ND U	5.0	1.6	1	05/06/09	05/11/09	KWG0903761	
Hexachlorobenzene	ND U	5.0	1.2	1	05/06/09	05/11/09	KWG0903761	
Pentachlorophenol	ND U	50	20	1	05/06/09	05/11/09	KWG0903761	
Phenanthrene	ND U	5.0	1.4	1	05/06/09	05/11/09	KWG0903761	
Anthracene	ND U	5.0	1.6	1	05/06/09	05/11/09	KWG0903761	
Di-n-butyl Phthalate	ND U	10	7.9	1	05/06/09	05/11/09	KWG0903761	
Fluoranthene	ND U	5.0	1.6	1	05/06/09	05/11/09	KWG0903761	
Pyrene	ND U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
Butyl Benzyl Phthalate	ND U	5.0	3.2	1	05/06/09	05/11/09	KWG0903761	
3,3'-Dichlorobenzidine	ND U	50	3.7	1	05/06/09	05/11/09	KWG0903761	
Benz(a)anthracene	ND U	5.0	1.7	1	05/06/09	05/11/09	KWG0903761	
Chrysene	ND U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
Bis(2-ethylhexyl) Phthalate	ND U	50	7.0	1	05/06/09	05/11/09	KWG0903761	***************************************
Di-n-octyl Phthalate	ND U	5.0	1.7	1	05/06/09	05/11/09	KWG0903761	
Benzo(b)fluoranthene	ND U	5.0	1.2	1	05/06/09	05/11/09	KWG0903761	
Benzo(k)fluoranthene	ND U	5.0	1.4	1	05/06/09	05/11/09	KWG0903761	
Benzo(a)pyrene	ND U	5.0	1.7	1	05/06/09	05/11/09	KWG0903761	
Indeno(1,2,3-cd)pyrene	ND U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
Dibenz(a,h)anthracene	ND U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	
Benzo(g,h,i)perylene	ND U	5.0	1.5	1	05/06/09	05/11/09	KWG0903761	

Con	 ^B	40.

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Form 1A - Organic

28

Page SuperSet Reference: RR101931

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

Method Blank

KWG0903761-5

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	58	10-89	05/11/09	Acceptable	
Phenol-d6	63	15-103	05/11/09	Acceptable	
Nitrobenzene-d5	58	10-108	05/11/09	Acceptable	
2-Fluorobiphenyl	56	10-105	05/11/09	Acceptable	
2,4,6-Tribromophenol	67	16-122	05/11/09	Acceptable	
Terphenyl-d14	70	31-126	05/11/09	Acceptable	

+ Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

29

Page 3 of 3

SuperSet Reference: RR101931

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 Analysis Method:

8270C

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4	Sur5	<u>Sur6</u>
F0095553	K0903811-001	0 D *	46 D	55 D	53 D	52 D	88 D
F0095555	K0903811-002	50 D	57 D	56 D	49 D	51 D	72 D
F0095556	K0903811-003	0 D #	0 D #	0 D #	57 D #	45 D #	92 D #
F0095557	K0903811-004	23	38	46	45	36	54
F0095558	K0903811-005	0 D #	62 D #	89 D #	86 D #	68 D #	105 D #
F0095559	K0903811-006	33 D	45 D	43 D	42 D	56 D	60 D
Method Blank	KWG0903761-5	58	63	58	56	67	70
F0095557MS	KWG0903761-1	39	50	51	51	52	61
F0095557DMS	KWG0903761-2	53	58	53	54	72	63
Lab Control Sample	KWG0903761-3	54	60	54	51	65	65
Duplicate Lab Control Sample	KWG0903761-4	47	50	45	43	57	55

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	10-89	Sur5 = 2,4,6-Tribromophenol	16-122
Sur2 = Phenol-d6	15-103	Sur6 = Terphenyl-d14	31-126
Sur3 = Nitrobenzene-d5	10-108	1 ,	
Sur4 = 2-Fluorobiphenyl	10-105		

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic 30

SuperSet Reference: RR101931

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811 **Date Extracted:** 05/06/2009

Date Analyzed: 05/12/2009

Matrix Spike/Duplicate Matrix Spike Summary Semi-Volatile Organic Compounds by GC/MS

Sample Name:

F0095557

Lab Code:

K0903811-004

Extraction Method: Analysis Method:

EPA 3541

8270C

Units: ug/Kg Basis: Dry

Level: Low

Extraction Lot: KWG0903761

18

F0095557MS

KWG0903761-1

F0095557DMS

KWG0903761-2 Matrix Spike **Duplicate Matrix Spike** Sample %Rec **RPD Analyte Name** Result Limits **RPD** Limit Result %Rec Expected Result Expected %Rec Phenol 10 134 249 50 175 40 250 66 10-120 27 2-Chlorophenol ND 130 249 52 153 250 61 12-105 16 40 1,4-Dichlorobenzene ND 140 249 56 151 250 60 7 40 10-105 ND N-Nitrosodi-n-propylamine 162 249 65 181 250 72 40 10-111 11 1,2,4-Trichlorobenzene ND 149 249 60 162 250 65 10-102 8 40 4-Chloro-3-methylphenol ND 85.3 249 34 176 250 70 10-119 69 * 40 Acenaphthene 2.9 162 249 72 23-106 64 184 250 12 40 4-Nitrophenol ND ND 249 0 130 250 52 11-143 200 * 40 2,4-Dinitrotoluene ND 147 249 59 250 22-125 164 66 11 40 Pentachlorophenol ND 146 249 59 192 250 77 10-146 27 40 252 Pyrene 110 249 56 303 250 76 10-146 40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3A - Organic

Page 1 of

QA/QC Report

Client: Project:

Portland, City of Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811 **Date Extracted:** 05/06/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 Analysis Method:

8270C

Units: ug/Kg Basis: Dry Level: Low

Date Analyzed: 05/11/2009

Extraction Lot: KWG0903761

Lab Control Sample KWG0903761-3

Duplicate Lab Control Sample KWG0903761-4

		Control Spik			Lab Control	%Rec		RPD	
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Bis(2-chloroethyl) Ether	159	250	64	130	250	52	22-98	20	40
Phenol	159	250	64	130	250	52	34-101	20	40
2-Chlorophenol	153	250	61	126	250	50	30-91	19	40
1,3-Dichlorobenzene	154	250	62	126	250	50	10-97	20	40
1,4-Dichlorobenzene	154	250	61	124	250	50	10-98	21	40
1,2-Dichlorobenzene	152	250	61	127	250	51	10-98	18	40
Benzyl Alcohol	166	250	66	138	250	55	30-101	19	40
Bis(2-chloroisopropyl) Ether	162	250	65	130	250	52	17-100	22	40
2-Methylphenol	133	250	53	108	250	43	10-93	21	40
Hexachloroethane	157	250	63	132	250	53	10-99	17	40
N-Nitrosodi-n-propylamine	169	250	68	140	250	56	10-103	19	40
4-Methylphenol	138	250	55	112	250	45	10-98	21	40
Nitrobenzene	171	250	68	139	250	56	22-99	20	40
sophorone	161	250	64	133	250	53	35-91	19	40
2-Nitrophenol	161	250	64	133	250	53	30-98	19	40
2,4-Dimethylphenol	48.9	250	20	38.4	250	15	10-81	24	40
Bis(2-chloroethoxy)methane	160	250	64	131	250	52	34-93	20	40
2,4-Dichlorophenol	150	250	60	125	250	50	35-91	19	40
Benzoic Acid	203	750	27	185	750	25	10-50	9	40
,2,4-Trichlorobenzene	152	250	61	129	250	52	18-96	16	40
Naphthalene	160	250	64	132	250	53	23-95	19	40
4-Chloroaniline	137	250	55	113	250	45	10-95	19	40
-lexachlorobutadiene	153	250	61	127	250	51	14-100	18	40
4-Chloro-3-methylphenol	149	250	59	124	250	50	28-98	18	40
2-Methylnaphthalene	158	250	63	127	250	51	30-92	22	40
Hexachlorocyclopentadiene	101	250	40	89.8	250	36	10-81	11	40
2,4,6-Trichlorophenol	154	250	61	125	250	50	31-96	20	40
2,4,5-Trichlorophenol	161	250	64	133	250	53	38-95	19	40
2-Chloronaphthalene	161	250	64	128	250	51	33-95	22	40
2-Nitroaniline	187	250	75	151	250	60	40-104	21	40
Acenaphthylene	172	250	69	139	250	55	38-99	21	40
Dimethyl Phthalate	169	250	67	140	250	56	44-99	19	40
2,6-Dinitrotoluene	173	250	69	143	250	57	42-100	19	40
Acenaphthene	164	250	65	133	250	53	39-90	21	40
3-Nitroaniline	170	250	68	139	250	56	28-100	20	40
2,4-Dinitrophenol	158	250	63	140	250	56	14-104	12	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

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QA/QC Report

Client: Project: Portland, City of Portland Harbor Inline

Sample Matrix:

Soil

Service Request: K0903811 **Date Extracted:** 05/06/2009

Date Analyzed: 05/11/2009

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low Extraction Lot: KWG0903761

Lab Control Sample KWG0903761-3

Duplicate Lab Control Sample KWG0903761-4

		Control Spik			Lab Control	%Rec		RPD	
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Dibenzofuran	164	250	66	133	250	53	40-91	21	40
4-Nitrophenol	179	250	72	140	250	56	42-115	24	40
2,4-Dinitrotoluene	194	250	78	159	250	64	43-106	20	40
Fluorene	171	250	68	140	250	56	41-94	20	40
4-Chlorophenyl Phenyl Ether	164	250	66	135	250	54	41-93	20	40
Diethyl Phthalate	176	250	71	146	250	58	46-104	19	40
4-Nitroaniline	174	250	70	139	250	55	29-107	23	40
2-Methyl-4,6-dinitrophenol	189	250	76	159	250	64	30-107	17	40
N-Nitrosodiphenylamine	167	250	67	133	250	53	20-100	23	40
4-Bromophenyl Phenyl Ether	163	250	65	138	250	55	42-97	16	40
Hexachlorobenzene	167	250	67	140	250	56	42-98	18	40
Pentachlorophenol	139	250	56	112	250	45	28-100	22	40
Phenanthrene	172	250	69	143	250	57	44-97	18	40
Anthracene	170	250	68	141	250	56	31-104	18	40
Di-n-butyl Phthalate	192	250	77	151	250	60	47-129	24	40
Fluoranthene	184	250	74	148	250	59	45-111	21	40
Pyrene	177	250	71	142	250	57	46-112	22	40
Butyl Benzyl Phthalate	188	250	75	152	250	61	50-119	21	40
3,3'-Dichlorobenzidine	149	250	59	124	250	49	10-112	18	40
Benz(a)anthracene	177	250	71	144	250	58	45-110	21	40
Chrysene	184	250	74	145	250	58	50-108	24	40
Bis(2-ethylhexyl) Phthalate	188	250	75	155	250	62	48-127	19	40
Di-n-octyl Phthalate	198	250	79	163	250	65	52-126	20	40
Benzo(b)fluoranthene	181	250	72	152	250	61	51-111	18	40
Benzo(k)fluoranthene	187	250	75	155	250	62	52-109	19	40
Benzo(a)pyrene	158	250	63	132	250	53	26-125	18	40
Indeno(1,2,3-cd)pyrene	194	250	78	164	250	66	47-119	17	40
Dibenz(a,h)anthracene	197	250	79	163	250	65	50-115	19	40
Benzo(g,h,i)perylene	183	250	73	154	250	61	43-115	17	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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SuperSet Reference:

Columbia Analytical Services Mc

CHAIN OF CUSTODY

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: A SR

ř REMARKS ņ Z Z CIRCLE ONE) > S S F ļ.... Š Š Se Se Š Sa OTHER 10991 XOA Ag Αg COD TOLSION (GIO) 70X 9020 × ¥ CA WI NORTHWEST ź Z 04 PO 1 5 801 SST Ω Mn Mo Cond. Cl Hex-Chrom (Pb Mg Mn δM Total or Dissolved (woled Pp RELINGUISHED BY: Œ. PCP Ö 3 W1218 Ö Ö *INDICATE STATE HYDROCARBON PROCEDURE: ô 00 CO CG 8270-LOW COUR 1508 p991 Be B Ca Ca SPECIAL INSTRUCTIONS/COMMENTS: Ω Be Circle which metals are to be analyzed Gess Diesel Diesel Doll Cass Delow) eg eg Ва Sb Sp Dissolved Metals: Al As As Total Metals: Al RECEIVED BY: NUMBER OF CONTAINERS HALDEN TALINE SURED TURNAROUND REQUIREMENTS Standard (10-15 working days) INVOICE INFORMATION LAB I.D. MATRIX Requested Report Date Provide FAX Results SARCLE LYD 24 hr. 5 Day 1435 0842 P.O. # BIII To: 578 TIME 10.50 10S1 2 RANKHEL DATE Report Dup., MS, MSD as RELINQUISHED BY: Routine Report: Method IV. CLP Deliverable Report REPORT REQUIREMENTS Data Validation Report (includes all raw data) Blank, Surrogate, as 556 (3" Signature Konk Kluek Printed Name 0.09555 SAMPLE I.D. F009555 F009555 required required FOOGKE FOORKS AMPLER'S SIGNATURE 2000 EDD PROJECT MANAGER -MAIL ADDRESS PROJECT NAME HY/STATE/ZIP Š <u>:</u> ____

RCOC #1 06/03

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Columbia Analytical Services, Inc. Cooler Receipt and Preservation Form

Client / Project: CHy of Longvia Partland Service Request K09 01335/09	20381/
Received: 5109 Opened: 5109 By: DW	
	Delivered IA
3. Were <u>custody seals</u> on coolers? <u>NA</u> Y N If yes, how many and where?	
If present, were custody seals intact? Y N If present, were they signed and dated?	Y N
4. Is shipper's air-bill filed? If not, record air-bill number: NA	Y N
5. Temperature of cooler(s) upon receipt (°C):	
Temperature Blank (°C):	
Thermometer ID: SMD 268	
6. If applicable, list Chain of Custody Numbers:	
7. Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Ice Sleeves Other	
8. Were custody papers properly filled out (ink, signed, etc.)?	\overline{Y} N
9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below.	N Y
10. Were all sample labels complete (i.e analysis, preservation, etc.)?	Y N
11. Did all sample labels and tags agree with custody papers? <i>Indicate in the table below</i> NA	Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated?	YN
	Y N
14. Were VOA vials received without headspace? <i>Indicate in the table below</i> .	Y N
	Y N
	Y N
Sample ID on Bottle Sample ID on COC Sample ID on Bottle Sample ID on CO	C
Bottle Count Out of Head-Sample ID Bottle Type Temp space Broke pH Reagent added Number Init	als Time
*Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN).	
Additional Notes, Discrepancies, & Resolutions:	

1



PORTLAND, OR 9405 S.W. NIMBUS AVENUE

BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

May 19, 2009

Amended Report

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 05/01/09 14:05. The following list is a summary of the Work Orders contained in this report, generated on 05/19/09 09:00.

If you have any questions concerning this report, please feel free to contact me.

Work Order	<u>Project</u>	<u>ProjectNumber</u>
PSE0031	Portland Harbor	36238

TestAmerica Portland

Amended Report



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 05/19/09 09:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO095553	PSE0031-01	Soil	04/29/09 08:42	05/01/09 14:05
FO095554	PSE0031-02	Soil	04/29/09 09:50	05/01/09 14:05
FO095555	PSE0031-03	Soil	04/29/09 10:30	05/01/09 14:05
FO095556	PSE0031-04	Soil	04/29/09 10:52	05/01/09 14:05
FO095557	PSE0031-05	Soil	04/29/09 11:20	05/01/09 14:05
FO095558	PSE0031-06	Soil	04/29/09 13:29	05/01/09 14:05
FO095559	PSE0031-07	Soil	04/29/09 14:38	05/01/09 14:05
FO095560	PSE0031-08	Soil	04/29/09 14:38	05/01/09 14:05

TestAmerica Portland

Howard Holmes, Project Manager

Amended Report



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford05/19/09 09:00

Analytical Case Narrative

TestAmerica - Portland, OR

PSE0031

Amended Report.

This report includes the TOC by 9060 results which were missing in the previous report created on May 15, 2009

TestAmerica Portland

Howard Holmes, Project Manager

Amended Report



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.

Portland, OR 97203

Y Project Name: Project Number: **Portland Harbor**

Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 05/19/09 09:00

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSE0031-01 (FO095553)			So	il	_	Samp	led: 04/29/	09 08:42		RL
Acenaphthene	EPA 8270m	ND		53.4	ug/kg dry	3x	9050065	05/04/09 16:35	05/06/09 20:05	
Acenaphthylene	"	ND		53.4	"	"	"	"	"	
Anthracene	"	ND		53.4	"	"	"	"	"	
Benzo (a) anthracene	"	62.3		53.4	"	"	"	"	"	
Benzo (a) pyrene	"	91.5		53.4	"	"	"	"	"	
Benzo (b) fluoranthene	"	106		53.4	"	"	"	"	"	
Benzo (ghi) perylene	"	124		53.4	•	"	"	"	"	
Benzo (k) fluoranthene	"	77.1		53.4	•	"	"	"	"	
Chrysene	"	137		53.4	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND		53.4	"	"	"	"	"	
Fluoranthene	"	141		53.4	•	"	"	"	"	
Fluorene	"	ND		53.4	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	78.9		53.4	"	"	"	"	"	
Naphthalene	"	ND		53.4	"	"	"	"	"	
Phenanthrene	"	75.7		53.4	"	"	"	"	"	
Pyrene	"	134		53.4	"	"	"	"	"	
Surrogate(s): Fluorene-d10				107%		24 - 125 %	"			"
Pyrene-d10				90.4%		41 - 141 %	"			"
Benzo (a) pyren	e-d12			95.7%		38 - 143 %	"			"

PSE0031-02 (FO095554)	PSE0031-02 (FO095554)			Soil				Sampled: 04/29/09 09:50			
Acenaphthene	EPA 8270m	ND		131	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 20:36		
Acenaphthylene	"	ND		131	"	"	"	"	"		
Anthracene	"	ND		131	"	"	"	"	"		
Benzo (a) anthracene	"	ND		131	"	"	"	"	"		
Benzo (a) pyrene	"	ND		131	"	"	"	"	"		
Benzo (b) fluoranthene	"	ND		131	"	"	"	"	"		
Benzo (ghi) perylene	"	153		131	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		131	"	"	"	"	"		
Chrysene	"	134		131	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		131	"	"	"	"	"		
Fluoranthene	"	180		131	"	"	"	"	"		
Fluorene	"	ND		131	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	ND		131	"	"	"	"	"		
Naphthalene	"	ND		131	"	"	"	"	"		
Phenanthrene	"	ND		131	"	"	"	"	"		

TestAmerica Portland

Haulus & Holius

Amended Report



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

Portland Harbor Project Name: 36238

Project Number:

6543 N. Burlington Ave. Portland, OR 97203

Project Manager: Jennifer Shackelford

Report Created: 05/19/09 09:00

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

					icrica i or						
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSE0031-02 (FO095554)			So	oil		Samp	led: 04/29/	/09 09:50			RL
Pyrene	EPA 8270m	152		131	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 20:36		
Surrogate(s): Fluorene-d10)			102%		24 - 125 %	"			"	
Pyrene-d10				88.6%		41 - 141 %	"			"	
Benzo (a) pyr	rene-d12			92.8%		38 - 143 %	"			"	
PSE0031-03 (FO095555)			So	il		Samp	led: 04/29/	09 10:30			RL
Acenaphthene	EPA 8270m	ND		97.0	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 21:08		
Acenaphthylene	"	ND		97.0	"	"	"	"	"		
Anthracene	"	ND		97.0	"	"	"	"	"		
Benzo (a) anthracene	"	ND		97.0	"	"	"	"	"		
Benzo (a) pyrene	"	ND		97.0	"	"	"	"	"		
Benzo (b) fluoranthene	"	98.9		97.0	"	"	"	"	"		
Benzo (ghi) perylene	"	136		97.0	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		97.0	"	"	"	"	"		
Chrysene	"	117		97.0	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		97.0	"	"	"	"	"		
Fluoranthene	"	106		97.0	"	"	"	"	"		
Fluorene	"	ND		97.0	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	ND		97.0	"	"	"	"	"		
Naphthalene	"	ND		97.0	"	"	"	"	"		
Phenanthrene	"	ND		97.0	"	"	"	"	"		
Pyrene	"	ND		97.0	"	"	"	"	"		
Surrogate(s): Fluorene-d10)			111%		24 - 125 %	"			"	
Pyrene-d10				93.1%		41 - 141 %	"			"	
Benzo (a) pyr	rene-d12			99.3%		38 - 143 %	"			"	
PSE0031-04 (FO095556)			So	il		Samp	led: 04/29/	09 10:52			RL
Acenaphthene	EPA 8270m	ND		98.5	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 21:39		
Acenaphthylene	"	ND		98.5	"	"	"	"	"		
Anthracene	"	ND		98.5	"	"	"	"	"		
Benzo (a) anthracene	"	ND		98.5	"	"	"	"	"		
Benzo (a) pyrene	"	107		98.5	"	"	"	"	"		
Benzo (b) fluoranthene	"	152		98.5	"	"	"	"	"		
Benzo (ghi) perylene	"	186		98.5	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		98.5	"	"	"	"	"		
Chrysene	"	150		98.5		"	"	"	"		

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PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

Project Name: Portland Harbor

6543 N. Burlington Ave. Portland, OR 97203

Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 05/19/09 09:00

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSE0031-04 (FO09555	56)		So	oil		Samp	led: 04/29/	/09 10:52			RL3
Dibenzo (a,h) anthracene	EPA 8270m	ND		98.5	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 21:39		
Fluoranthene	"	147		98.5	"	"	"	"	"		
Fluorene	"	ND		98.5	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	118		98.5	"	"	"	"	"		
Naphthalene	"	ND		98.5	"	"	"	"	"		
Phenanthrene	"	ND		98.5	"	"	"	"	"		
Pyrene	"	113		98.5	"	"	"	"	"		
Surrogate(s): Fluorene	e-d10			112%		24 - 125 %	"			"	
Pyrene-d				93.3%		41 - 141 %	"			"	
Benzo (a)) pyrene-d12			100%		38 - 143 %	"			"	
PSE0031-05 (FO09555	57)		So	oil		Samp	led: 04/29/	09 11:20			RL3
Acenaphthene	EPA 8270m	ND		96.7	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 22:11		
Acenaphthylene	"	ND		96.7	"	"	"	"	"		
Anthracene	"	ND		96.7	"	"	"	"	"		
Benzo (a) anthracene	"	ND		96.7	"	"	"	"	"		
Benzo (a) pyrene	"	121		96.7	"	"	"	"	"		
Benzo (b) fluoranthene	"	144		96.7	"	"	"	"	"		
Benzo (ghi) perylene	"	160		96.7	"	"	"	"	"		
Benzo (k) fluoranthene	"	ND		96.7	"	"	"	"	"		
Chrysene	"	218		96.7	"	"	"	"	"		
Dibenzo (a,h) anthracene	"	ND		96.7	"	"	"	"	"		
Fluoranthene	"	137		96.7	"	"	"	"	"		
Fluorene	"	ND		96.7	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	"	104		96.7	"	"	"	"	"		
Naphthalene	"	ND		96.7	"	"	"	"	"		
Phenanthrene	"	ND		96.7	"	"	"	"	"		
Pyrene	"	120		96.7	"	"	"	"	"		
Surrogate(s): Fluorene	e-d10			109%		24 - 125 %	"			"	
Pyrene-d				90.5%		41 - 141 %	"			"	
Benzo (a)) pyrene-d12			97.7%		38 - 143 %	"			"	

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Howard Holmes, Project Manager

Amended Report



Method

Result

MDL*

Soil

PORTLAND, OR

Batch

Sampled: 04/29/09 08:42

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Report Created:

Notes

RL3

Amended Report

Project Manager:

MRL

City of Portland Water Pollution Laboratory

(FO095553)

6543 N. Burlington Ave. Portland, OR 97203

Analyte

PSE0031-01

Project Name: Portland Harbor

Project Number: 36238

Jennifer Shackelford 05/19/09 09:00

Analyzed

Prepared

Phthalates per EPA 8270-SIM

Units

TestAmerica Portland

Dimethyl phthalate	EPA 8270m	ND		712	ug/kg dry	20x	9050065	05/04/09 16:35	05/06/09 14:19		
Diethyl phthalate	"	ND		712	"	"	"	"	"		
Di-n-butyl phthalate	"	ND		712	"	"	"	"	"		
Butyl benzyl phthalate	"	ND		712	"	"	"	"	"		
Bis(2-ethylhexyl)phthalate	"	2080		712	"	"	"	"	"		
Di-n-octyl phthalate	"	ND		1780	"	"	"	"	"	RL1	
Surrogate(s): 2-Fluorobiphenyl-p-Terphenyl-d14	l			109% 131%		10 - 150 % 10 - 150 %	"		"	Z3 Z3	
PSE0031-02 (FO095554)		Soi	il		Sampl	led: 04/29/	09 09:50			RL3	
Dimethyl phthalate	EPA 8270m	ND		261	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 18:34		
Diethyl phthalate	"	ND		261	"	"	"	"	"		
Di-n-butyl phthalate	"	ND		261	"	"	"	"	"		
Butyl benzyl phthalate	"	ND		261	"	"	"	"	"		
Bis(2-ethylhexyl)phthalate	"	397		261	"	"	"	"	"		
Di-n-octyl phthalate	"	ND		1310	"	10x	"	"	05/06/09 14:56	RL1	
Surrogate(s): 2-Fluorobipheny. p-Terphenyl-d14	1			104% 127%		10 - 150 % 10 - 150 %	2x 10x		05/06/09 18:34 05/06/09 14:56	Z3	
PSE0031-03 (FO095555)			Soi	il		Sampl	led: 04/29/	09 10:30			RL3
PSE0031-03 (FO095555) Dimethyl phthalate	EPA 8270m	ND	Soi	il 194	ug/kg dry	Sample 2x	9050065	09 10:30	05/06/09 19:10		RL3
,	EPA 8270m	ND ND			ug/kg dry				05/06/09 19:10		RL3
Dimethyl phthalate	EPA 8270m			194		2x	9050065	05/04/09 16:35	05/06/09 19:10		RL3
Dimethyl phthalate Diethyl phthalate	EPA 8270m "	ND		194 194	"	2x	9050065	05/04/09 16:35	05/06/09 19:10		RL3
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate	EPA 8270m	ND ND		194 194 194	"	2x	9050065	05/04/09 16:35	05/06/09 19:10		RL3
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate	EPA 8270m " " " "	ND ND 297		194 194 194	" "	2x " " " " " " " " " " " " " " " " " " "	9050065	05/04/09 16:35	05/06/09 19:10 " " " " 05/06/09 15:32	RL1	RL3
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate Bis(2-ethylhexyl)phthalate	" " " " " " " " " " " " " " " " " " " "	ND ND 297 1360		194 194 194 194 194	"	2x " " " " " " " " " " " " " " " " " " "	9050065	05/04/09 16:35	" " "	RL1	RL3
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate Bis(2-ethylhexyl)phthalate Di-n-octyl phthalate	" " " " " " " " " " " " " " " " " " " "	ND ND 297 1360		194 194 194 194 194 970	"	2x " " " " 10x	9050065	05/04/09 16:35	" " " 05/06/09 15:32		RL3
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate Bis(2-ethylhexyl)phthalate Di-n-octyl phthalate Surrogate(s): 2-Fluorobipheny.	" " " " " " " " " " " " " " " " " " " "	ND ND 297 1360		194 194 194 194 194 970 100% 120%	"	2x " " " 10x 10 - 150 %	9050065 " " " " " 2x	05/04/09 16:35	" " " 05/06/09 15:32		RL3
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate Bis(2-ethylhexyl)phthalate Di-n-octyl phthalate Surrogate(s): 2-Fluorobiphenyl-p-Terphenyl-d14	" " " " " " " " " " " " " " " " " " " "	ND ND 297 1360		194 194 194 194 194 970 100% 120%	"	2x " " " 10x 10 - 150 %	9050065 " " " " " 2x 10x	05/04/09 16:35	" " " 05/06/09 15:32		
Dimethyl phthalate Diethyl phthalate Dien-butyl phthalate Butyl benzyl phthalate Bis(2-ethylhexyl)phthalate Dien-octyl phthalate Dien-octyl phthalate Surrogate(s): 2-Fluorobiphenyl p-Terphenyl-d14 PSE0031-04 (FO095556)	" " "	ND ND 297 1360 ND		194 194 194 194 194 970 100% 120%	" " "	2x " " " 10x 10 - 150 % Sample	9050065 " " " " " 2x 10x	05/04/09 16:35 " " " "	" " 05/06/09 15:32 05/06/09 15:32		
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate Bis(2-ethylhexyl)phthalate Di-n-octyl phthalate Di-n-octyl phthalate Surrogate(s): 2-Fluorobiphenyl-p-Terphenyl-d14 PSE0031-04 (FO095556) Dimethyl phthalate	" " "	ND ND 297 1360 ND	Soi	194 194 194 194 194 970 100% 120%	" " " ug/kg dry	2x " " " 10x 10 - 150 % Sample	9050065 " " " " " 2x 10x led: 04/29/	05/04/09 16:35 " " " " " 09 10:52 05/04/09 16:35	" " 05/06/09 15:32 05/06/09 15:32		
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate Bis(2-ethylhexyl)phthalate Di-n-octyl phthalate Di-n-octyl phthalate Surrogate(s): 2-Fluorobipheny. p-Terphenyl-d14 PSE0031-04 (FO095556) Dimethyl phthalate Diethyl phthalate	" " "	ND ND 297 1360 ND ND ND ND	Soil	194 194 194 194 194 970 100% 120%	" " " ug/kg dry	2x " " " 10x 10 - 150 % 10 - 150 % Sample	9050065 " " " " " 2x 10x led: 04/29/	05/04/09 16:35 " " " " " " " " " " " " " " 09 10:52	" " 05/06/09 15:32 05/06/09 15:32		
Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate Bis(2-ethylhexyl)phthalate Di-n-octyl phthalate Surrogate(s): 2-Fluorobiphenyl. p-Terphenyl-d14 PSE0031-04 (FO095556) Dimethyl phthalate Diethyl phthalate Di-n-butyl phthalate	" " "	ND ND 297 1360 ND	Soi	194 194 194 194 194 970 100% 120% ill 197	ug/kg dry	2x " " " 10x 10 - 150 % Sample 2x "	9050065 " " " " " 2x 10x led: 04/29/	05/04/09 16:35 " " " " " " " " " " " " " " " " " " "	" " 05/06/09 15:32 05/06/09 15:32		

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Amended Report



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

6543 N. Burlington Ave. Portland, OR 97203

Project Name: Portland Harbor

Project Number: 36238 Project Manager: Jennife

Jennifer Shackelford

Report Created: 05/19/09 09:00

Phthalates per EPA 8270-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
PSE0031-04 (FO095556)			So	il		Samp	led: 04/29/	09 10:52			RI
Surrogate(s): 2-Fluorobiphenyl p-Terphenyl-d14				76.8% 130%		10 - 150 % 10 - 150 %	2x 10x		05/06/09 19:46 05/06/09 16:08		
PSE0031-05 (FO095557)			So	il		Samp	led: 04/29/	09 11:20			RL
Dimethyl phthalate	EPA 8270m	ND		193	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 20:22		
Diethyl phthalate	"	ND		193	"	"	"	"	"		
Di-n-butyl phthalate	"	ND		193	"	"	"	"	"		
Butyl benzyl phthalate		ND		193	"	"	"	"	"		
Bis(2-ethylhexyl)phthalate	"	2810		193	"	"	"	"	"		
Di-n-octyl phthalate	"	ND		967	"	10x	"	"	05/06/09 16:45	RL1	
Surrogate(s): 2-Fluorobiphenyl p-Terphenyl-d14				102% 124%		10 - 150 % 10 - 150 %	2x 10x		05/06/09 20:22 05/06/09 16:45		
PSE0031-06 (FO095558)	Soil Sampled: 04/29/09 13:29									RL	
Dimethyl phthalate	EPA 8270m	ND		214	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 20:58		
Diethyl phthalate	"	ND		214	"	"	"	"	"		
Di-n-butyl phthalate	"	ND		214	"	"	"	"	"		
Butyl benzyl phthalate	"	4400		1070	"	10x	"	"	05/06/09 17:21		
Bis(2-ethylhexyl)phthalate	"	16800		1070	"	"	"	"	"		
Di-n-octyl phthalate	"	ND		3210	"	"	"	"	"	RL1	
Surrogate(s): 2-Fluorobiphenyl				98.8%		10 - 150 %	2x		05/06/09 20:58		
p-Terphenyl-d14				123%		10 - 150 %	10x		05/06/09 17:21	Z 3	
PSE0031-07 (FO095559)			So	il		Samp	led: 04/29/	09 14:38			RL
Dimethyl phthalate	EPA 8270m	ND		224	ug/kg dry	2x	9050065	05/04/09 16:35	05/06/09 21:35		
Diethyl phthalate	"	ND		224	"	"	"	"	"		
Di-n-butyl phthalate	"	ND		224	"	"	"	"	"		
Butyl benzyl phthalate	"	ND		224	"	"	"	"	"		
Bis(2-ethylhexyl)phthalate	"	840		224	"	"	"	"	"		
Di-n-octyl phthalate	"	ND		1120	"	10x	"	"	05/06/09 17:57	RL1	
Surrogate(s): 2-Fluorobiphenyl				83.8%		10 - 150 %	2x		05/06/09 21:35		
p-Terphenyl-d14				114%		10 - 150 %	10x		05/06/09 17:57	Z 3	

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Amended Report



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9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

6543 N. Burlington Ave. Portland, OR 97203 Project Name: Portland Harbor

Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 05/19/09 09:00

*** DEFAULT GENERAL METHOD ***

TestAmerica Portland

					1 0001 111	1011041 1 011					
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSE0031-01	(FO095553)			Soi	l		Sam				
% Solids		NCA SOP	75.0		0.0100	% by Weight	1x	9050203	05/07/09 07:30	05/07/09 07:30	
PSE0031-02	(FO095554)			Soi	l		Sam	pled: 04/29/	09 09:50		
% Solids		NCA SOP	51.2		0.0100	% by Weight	1x	9050203	05/07/09 07:30	05/07/09 07:30	
PSE0031-03	(FO095555)			Soi	l		Sam	pled: 04/29/			
% Solids		NCA SOP	68.4		0.0100	% by Weight	1x	9050203	05/07/09 07:30	05/07/09 07:30	
PSE0031-04	(FO095556)			Soi	l		Sam	pled: 04/29/			
% Solids		NCA SOP	68.0		0.0100	% by Weight	1x	9050203	05/07/09 07:30	05/07/09 07:30	
PSE0031-05	(FO095557)			Soi	l		Sam	pled: 04/29/			
% Solids		NCA SOP	69.2		0.0100	% by Weight	1x	9050203	05/07/09 07:30	05/07/09 07:30	
PSE0031-06	(FO095558)			Soi	l		Sam	pled: 04/29/	09 13:29		
% Solids		NCA SOP	62.2		0.0100	% by Weight	1x	9050203	05/07/09 07:30	05/07/09 07:30	
PSE0031-07	(FO095559)			Soi	l		Sam	pled: 04/29/	09 14:38		
% Solids		NCA SOP	59.7		0.0100	% by Weight	1x	9050203	05/07/09 07:30	05/07/09 07:30	

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Amended Report

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Howard Holmes, Project Manager



PORTLAND, OR

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Amended Report

City of Portland Water Pollution Laboratory

Portland, OR 97203

Project Name: 6543 N. Burlington Ave. Project Number:

> Project Manager: Jennifer Shackelford

36238

Portland Harbor

Report Created: 05/19/09 09:00

Organic Carbon, Total (TOC)

TestAmerica Connecticut

			1	CSLAIIICI	ica Comic	Circut						
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes		
PSE0031-01 (FO095553)			Soil	Soil			pled: 04/29	/09 08:42				
Total Organic Carbon - Duplicates	9060	11800	10.4	100	mg/Kg	1x	27145	05/13/09 16:57	05/13/09 16:57			
PSE0031-02 (FO095554)		Soil Sampled: 04/29/09 09:50										
Total Organic Carbon - Duplicates	9060	16900	10.4	100	mg/Kg	1x	27145	05/13/09 17:11	05/13/09 17:11			
PSE0031-03 (FO095555)			Soil			Sam	pled: 04/29	/09 10:30				
Total Organic Carbon - Duplicates	9060	19500	10.4	100	mg/Kg	1x	27145	05/13/09 17:24	05/13/09 17:24			
PSE0031-04 (FO095556)												
Total Organic Carbon - Duplicates	9060	15300	10.4	100	mg/Kg	1x	27145	05/13/09 17:52	05/13/09 17:52			
PSE0031-05 (FO095557)			Soil			Sam	pled: 04/29					
Total Organic Carbon - Duplicates	9060	17000	10.4	100	mg/Kg	1x	27145	05/13/09 18:05	05/13/09 18:05			
PSE0031-06 (FO095558)			Soil			Sam	pled: 04/29					
Total Organic Carbon - Duplicates	9060	25000	10.4	100	mg/Kg	1x	27145	05/13/09 18:19	05/13/09 18:19			
PSE0031-07 (FO095559)			Soil			Sampled: 04/29/09 14:38						
Total Organic Carbon - Duplicates	9060	36800	10.4	100	mg/Kg	1x	27145	05/13/09 18:34	05/13/09 18:34			
PSE0031-08 (FO095560)			Soil			Sam	pled: 04/29	/09 14:38				
Total Organic Carbon - Duplicates	9060	30300	10.4	100	mg/Kg	lx	27145	05/13/09 18:51	05/13/09 18:51			

TestAmerica Portland

Amended Report



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

Portland Harbor Project Name:

6543 N. Burlington Ave. Portland, OR 97203

Project Number: Project Manager: Jennifer Shackelford

36238

Report Created: 05/19/09 09:00

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batc	h: 9050065	Soil Pre	paration N	[ethod:]	EPA 3550										
Analyte		Method	Result	MD	L* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (905006	65-BLK1)								Ext	racted:	05/04/09 16	5:35			
Acenaphthene		EPA 8270m	ND		13.3	ug/kg wet	1x							05/05/09 23:15	
Acenaphthylene		"	ND		13.3	"	"							"	
Anthracene		"	ND		13.3	"	"							"	
Benzo (a) anthracene	e	"	ND		13.3	"	"							"	
Benzo (a) pyrene		"	ND		13.3	"	"							"	
Benzo (b) fluoranthe	ene	"	ND		13.3	"	"							"	
Benzo (ghi) perylene	e	"	ND		13.3	"	"							"	
Benzo (k) fluoranthe	ene	"	ND		13.3	"	"							"	
Chrysene		"	ND		13.3	"	"							"	
Dibenzo (a,h) anthra	icene	"	ND		13.3	"	"								
Fluoranthene		"	ND		13.3	"	"							"	
Fluorene		"	ND		13.3	"								"	
ndeno (1,2,3-cd) py	rene	"	ND		13.3	"								"	
Naphthalene		"	ND		13.3	"								"	
Phenanthrene		"	ND		13.3	"								"	
Pyrene		"	ND		13.3	"	"							"	
Surrogate(s):	Fluorene-d10		Recovery:	100%	I	imits: 24-125	% "							05/05/09 23:15	
	Pyrene-d10			83.6%		41-14	1% "							"	
	Benzo (a) pyrene-d12			89.4%		38-14.	3% "							"	
LCS (9050065	S-BS1)								Ext	racted:	05/04/09 16	6:35			
Acenaphthene	, 251)	EPA 8270m	165		13.4	ug/kg wet	1x		166	99.2%	(33-139)			05/05/09 23:46	
Benzo (a) pyrene		"	154		13.4	"	"		"	92.4%	(45-149)				
Pyrene		"	131		13.4	"			,,	78.7%	(39-138)			"	
Surrogate(s):	Fluorene-d10		Recovery:	108%	1	imits: 24-125	70/. "							05/05/09 23:46	
Surroguie(s).	Pyrene-d10		Recovery.	83.3%	L	41-14								"	
	Benzo (a) pyrene-d12			96.4%		38-14.								"	
M-4 C	(00500(5 M61)				OC Sauma	o. DCE0021	01		Evet	ua ata di	05/04/00 16	.25			
	(9050065-MS1)	EDA 9270	217			e: PSE0031-		ND			05/04/09 16			05/06/00 10:01	
Acenaphthene		EPA 8270m	217		357	ug/kg dry "	20x	ND	222	97.7%	(33-139)	-		05/06/09 19:01	
Benzo (a) pyrene		,,	262		357		,,	91.5	,,	77.0%	(45-149)			,,	
Pyrene			264		357			134		58.7%	(39-138)				
Surrogate(s):	Fluorene-d10		Recovery:	102%	I	imits: 24-125								05/06/09 19:01	
	Pyrene-d10			90.8%		41-14								"	
	Benzo (a) pyrene-d12			96.4%		38-14.	3% "							"	

TestAmerica Portland

Amended Report



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

Portland Harbor Project Name:

6543 N. Burlington Ave. Portland, OR 97203

Project Manager: Jennifer Shackelford

36238

Report Created: 05/19/09 09:00

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

Project Number:

QC Batch: 9050065 Soil Prepara	ation Method: EPA 35	50
--------------------------------	----------------------	----

Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike D	QC Source	QC Source: PSE0031-01 Extracted: 05/04/09 16:35													
Acenaphthene		EPA 8270m	202		357	ug/kg dry	20x	ND	222	91.3%	(33-139)	6.78%	(60)	05/06/09 19:33	
Benzo (a) pyrene		"	228		357	"	"	91.5	"	61.6%	(45-149)	14.0%	ó "	"	
Pyrene		"	269		357	"	"	134	"	60.9%	(39-138)	1.84%	, "	"	
Surrogate(s):	Fluorene-d10		Recovery:	94.5%	Li	mits: 24-125%	ó "							05/06/09 19:33	
	Pyrene-d10			82.1%		41-1419	% "							"	
	Benzo (a) pyrene-d12			91.3%		38-1439	% "							"	

TestAmerica Portland

Amended Report



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PORTLAND, OR

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Amended Report

City of Portland Water Pollution Laboratory

Project Name: Portland Harbor

6543 N. Burlington Ave. Portland, OR 97203

Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 05/19/09 09:00

Phthalates per EPA 8270-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batch: 9050065	Soil Pre	paration N	Iethod: EPA	3550										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits) Analyzed	Notes
Blank (9050065-BLK1)								Ext	racted:	05/04/09 16	:35			
Dimethyl phthalate	EPA 8270m	ND		26.6	ug/kg wet	1x							05/06/09 10:48	
Diethyl phthalate	"	ND		26.6	"	"							"	
Di-n-butyl phthalate	"	ND		26.6	"	"							"	
Butyl benzyl phthalate	"	ND		26.6	"	"							"	
Bis(2-ethylhexyl)phthalate	"	ND		26.6	"	"							"	
Di-n-octyl phthalate	"	ND		26.6	"	"							"	
Surrogate(s): 2-Fluorobiphenyl		Recovery:	90.2%	L	imits: 10-1509	6 "							05/06/09 10:48	
p-Terphenyl-d14			102%		10-150	% "							"	
LCS (9050065-BS1)								Ext	racted:	05/04/09 16	:35			
Dimethyl phthalate	EPA 8270m	121		26.7	ug/kg wet	1x		133	91.2%	(20-150)			05/06/09 11:24	
Diethyl phthalate	"	123		26.7	"	"		"	92.5%	"			"	
Di-n-butyl phthalate	"	142		26.7	"	"		"	106%	"			"	
Butyl benzyl phthalate	"	154		26.7	"	"		"	115%	"			"	
Bis(2-ethylhexyl)phthalate	"	159		26.7	"	"		"	119%	"			"	
Di-n-octyl phthalate	"	158		26.7	"	"		"	119%	"			"	
Surrogate(s): 2-Fluorobiphenyl		Recovery:	97.9%	L	imits: 10-1509	6 "							05/06/09 11:24	
p-Terphenyl-d14		·	103%		10-150	% "							"	
Matrix Spike (9050065-MS1)				QC Source	e: PSE0031-0	1		Ext	racted:	05/04/09 16	:35			
Dimethyl phthalate	EPA 8270m	164		713	ug/kg dry	20x	ND	177	92.5%	(10-150)			05/06/09 13:06	
Diethyl phthalate	"	175		713	"	"	ND	"	98.5%	"			"	
Di-n-butyl phthalate	"	218		713	"	"	ND	"	123%	"			"	
Butyl benzyl phthalate	"	271		713	"	"	ND	"	153%	"			"	M7
Bis(2-ethylhexyl)phthalate	"	1300		713	"	"	2080	"	-440%	"			"	MHA
Di-n-octyl phthalate	"	381		713	"	"	ND	"	215%	"			"	M7
Surrogate(s): 2-Fluorobiphenyl		Recovery:	98.0%	L	imits: 10-1509	6 "							05/06/09 13:06	Z
p-Terphenyl-d14		-	108%		10-150	% "							"	Z
Matrix Spike Dup (9050065-M	SD1)			QC Source	e: PSE0031-0	1		Ext	racted:	05/04/09 16	:35			
Dimethyl phthalate	EPA 8270m	163		713	ug/kg dry	20x	ND	177	92.2%	(10-150)	0.379%	% (50)	05/06/09 13:43	
Diethyl phthalate	"	174		713	"	,,	ND	"	98.1%	"	0.4279		"	
Di-n-butyl phthalate	"	250		713	,,		ND	"	141%	"	13.7%		"	
Butyl benzyl phthalate	"	339		713	,,		ND	"	191%	"	22.1%		"	M7
Bis(2-ethylhexyl)phthalate	"	1010		713	"		2080	"	-603%		25.1%		"	MHA
Di-n-octyl phthalate	"	342		713	"		ND	"	193%	"	10.8%		"	M7
Surrogate(s): 2-Fluorobiphenyl p-Terphenyl-d14		Recovery:	89.6% 104%		imits: 10-1509								05/06/09 13:43	Z

TestAmerica Portland

Amended Report



Portland Harbor

83.1

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

0.839% (20)

05/07/09 07:30

Amended Report

City of Portland Water Pollution Laboratory Project Name:

NCA SOP

83.8

6543 N. Burlington Ave. 36238 Report Created: Project Number: Portland, OR 97203 Project Manager: Jennifer Shackelford 05/19/09 09:00

0.0100 % by Weight

	*** DEF	AULT GEN			** - Lal a Portland	orato	ry Quali	y Control Results	
QC Batch: 9050203	Soil Pro	paration Met	hod: Dry	Weight					
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % (Limits) % (Limits) Analyzed Amt REC	Notes
Duplicate (9050203-DUP1)				QC Source:	PSE0020-63	3		Extracted: 05/07/09 07:30	

TestAmerica Portland

% Solids

Amended Report



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Amended Report

City of Portland Water Pollution Laboratory

Project Name:

Project Number:

Portland Harbor

6543 N. Burlington Ave. Portland, OR 97203

Total Organic Carbon - Duplicates

Project Manager: Jennifer Shackelford

36238

Report Created: 05/19/09 09:00

05/13/09 15:06

Organic Carbon, Total (TOC) - Laboratory Quality Control Results TestAmerica Connecticut QC Batch: 27145 **Soil Preparation Method:** NA Spike % (Limits) % RPD MDL* Source Analyte Method Result MRL Units Dil (Limits) Analyzed Notes LCS (220-27145-5) QC Source: Extracted: 05/13/09 14:59 Total Organic Carbon - Duplicates 9060 4821 10.4 100 mg/Kg 1x 3530 137% (28-172) 05/13/09 14:59 QC Source: Extracted: 05/13/09 15:06 Blank (220-27145-6)

mg/Kg

100

ND

10.4

TestAmerica Portland

Howard Holmes, Project Manager

Amended Report



Portland Harbor

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory Project Name:

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford05/19/09 09:00

Notes and Definitions

Report Specific Notes:

M7 - The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).

MHA - Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).

RL1 - Reporting limit raised due to sample matrix effects.

RL3 - Reporting limit raised due to high concentrations of non-target analytes.

The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

<u>Laboratory Reporting Conventions:</u>

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA _ Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported

on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting - Reporting limits (MDLs and M

- Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature

Limits

Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy.
 Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.
 Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

Amended Report

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory

Howard Holmes, Project Manager

TestAmerica

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11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 11922 E. First Ave, Spokane, WA 99206-5302

11922 E. First Ave, Spokane, WA 99206-5302 9405 SW Nimbus Ave Beaverron, OR 97008-7145 2000 W International Aliport Rd Sie A10, Anchorage, AK 99502 1119

425-420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 503-906-9710 907-563-9200 FAX 964-9210

TA WO ID Turnaround Requests less than standard may incur Rush Charge. V Work Order #: PSE 003 DATE: **5/**/ TURNAROUND REQUEST Petroleum Hydrocarbon Analyses TIME LOCATION/ COMMENTS in Business Days MATRIX # OF (W, S, O) CONT. OTHER Q 7 6 4 7 7 (4) HEM: Charles Lytle CHAIN OF CUSTODY REPORT RECEIVED BY: RECEIVED BY: REQUESTED ANALYSES PRESERVATIVE P.O. NUMBER: 36と38 FIRM. CIPS OF POTHEMON TIME 1 X Jennifer Shackelford TIM-HIS OLY & 0950 0842 (03° 1052 021 1329 PROJECT NAME: PAKARA HW DEY
PROJECT NUMBER: ININ SAMP 1438 1438 SAMPLING DATE/TIME 4/29/09 City if Pertima *F0095560 FO095556 F0095588 F0095559 F00915557 FO 095553 Fo 095554 F0095555 CLIENT SAMPLE IDENTIFICATION ADDITIONAL REMARKS RELEASED BY: PRINT NAME: ADDRESS PRINT NAME:

TestAmerica Portland

Sample Receiving Checklist

Woi	k Orc	er#: P5	E003	<u> </u>	ate/Time_	Received:	5/1/0	9 6	3/405	
Clie	nt Na	me and Pro	ject:	Cit	1 of 1	orto	ynd			
122.5					YORH	and t	tano	DC_		
		plete This Solorine Check		es N	lo T	Quaran	ntined:	Yes	No	
Quot	e #:					~				
Spec	ıal İnst	ructions:								
Time	Zone:									
	OT/ES		T/CST]MDT/M	4ST □P	DT/PST	[]ОТН	ER		
		g Checks:					Temp	eratur	e out of R	ange:
	oler #(s): <u>/</u> es: <i>_[,[,</i>							nough or No) Ice
i Citi		gi #1 Digi #2	! IR Gun					Ice M W/in	4 Hrs of col	lection
			Ø.(□P	lastic 🔀	Glass)			_Other		
N.A	Yes	No							Initials: \mathcal{F}	挺
Z		1. If E	SI client, we	re temp b	olanks receiv	ed? If no, d	ocument o	on NOD.	,	
\Rightarrow		☐ 2. Coo	ler Seals inta	act? (N/A	if hand del	ivered) if no	, documer	nt on NO	D.	
\	X	☐ 3. Cha	in of Custod	y present	? If no, doc	ument on N	OD.			
	(☐ 4. Bott	les received	intact? I	f no, docum	ent on NOD).			
	(A)		ple is not mu	ultiphasic	? If no, doc	cument on N	IOD.			
	A)	6. Prop	er Containe	r and pres	servatives us	sed? If no, o	document	on NOD		
		☐ 7. pH o	of all sample	s checked	d and meet r	equirements	s? If no, d	ocument	on NOD.	
		8. Cyan	nide samples	checked	for sulfides	and meet re	equiremen	ts? If no	, notify PM.	
abla		☐ 9. HF I	Dilution requ	iired?						
		☐ 10. Suf	ficient volur	ne provid	ded for all ar	nalysis? If r	no, docum	ent on N	OD and cons	sult
	A		ore proceedi I chain of cu		ee with sam	nles receive	d? If no	documer	it on NOD	
$\overline{\triangle}$			re VOA/Oil					documen	it on NOD.	
			re VOA vial					te □Asc	corbic Acid	
			samples req						orone riena	
\square			es to #14, w					docume	ent on NOD	
			dissolved/fi							
			ufficient vol							
		no, doci	ument on NC analyses wi	DD and co	ontact PM b	efore procee	eding.	or man	in duplicate	5: II
			s Standard T							
			eipt date(s) <				e(s)? If no	o, notify	PM.	

TestAmerica Portland Sample Receiving Checklist

Work Order #: PSE0031

Log	in Ch	ecks: Initials: BU
N.A	Yes	No
Þ		 21. Sufficient volume provided for all analysis? If no, document on NOD & contact PM 22. Sufficient volume provided for client requested MS/MSD or matrix duplicates? If no, document on NOD and contact PM.
	Þ	23. Did the chain of custody include "received by" and "relinquished by" signatures, dates and times?
	Ø	24. Were special log in instructions read and followed?
	\bigcirc	25. Were tests logged checked against the COC?
M M		26. Were rush notices printed and delivered?
X		27. Were short hold notices printed and delivered?
	B	28. Were subcontract COCs printed?
\bigotimes		29. Was HF dilution logged?
Lab	eling	nd Storage Checks: Initials:
N/A	Yes	No
Ď		30. Were the subcontracted samples/containers put in Sx fridge?
		31. Were sample bottles and COC double checked for dissolved/filtered metals?
	\square	32. Did the sample ID, Date, and Time from label match what was logged?
		33. Were Foreign sample stickers affixed to each container and containers stored in
		foreign fridge?
Д		34. Were HF stickers affixed to each container, and containers stored in Sx fridge?
K		35. Was an NOD for created for noted discrepancies and placed in folder?
Docui torm (nent ai	problems or discrepancies and the actions taken to resolve them on a Notice of Discrepancy

October 6, 2009: Inline Solids Grab Sampling



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.gsiwatersolutions.com

Laboratory Data QA/QC Review Upland Source Control Investigation Outfall Basin 44

To: File

From: Erin Carroll, GSI

Date: January 6, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during a source control investigation sampling event conducted by the City of Portland (City) in the winter and spring 2008/2009. One inline solids sample (sample number FO09777) was collected in Outfall Basin 44 on October 6, 2009 and submitted for analyses. A field duplicate (sample identification number FO09778) and field decontamination blank (sample identification number FO09779) also were submitted for analysis.

The laboratory analyses for these source control program samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratory. The following laboratories conducted the analyses listed:

- BES WPCL
 - o Total Solids SM 2540 G
 - o Polychlorinated Biphenyl (PCB) Aroclors EPA 8082
 - o Total Organic Carbon EPA 9060 MOD
- Pace Analytical Services (Pace)
 - PCB Congeners EPA 1668A

The WPCL summary report and the subcontracted laboratory's data report are attached for all analyses associated with these source control program samples. The WPCL summary report comments that all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review is based on the available laboratory documentation. The QA/QC review of the analytical data consisted of reviewing the following for each laboratory report, if available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Internal standard recoveries within laboratory control limits
- Matrix spike/matrix spike duplicate results within laboratory control limits
- Laboratory control/duplicate laboratory control sample recoveries within laboratory control limits

The results of the QA/QC review of the subcontracted laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures appear to have been adequate indicating that sample integrity was maintained throughout the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the recommended method-specific holding times.

Method Blanks

Method blanks were processed during the subcontracted laboratory analysis of PCB congeners. PCB congener 31 was detected in the method blank. PCB congener 31 also was detected in the primary and duplicate samples but at concentrations greater than 10 times the detection in the associated method blank; therefore, the results are not qualified.

Internal Standard Recoveries

Internal standard recoveries were processed during the laboratory analysis of PCB congeners. The labeled internal standard recoveries were within the target ranges specified in the method with some exceptions. These exceptions are flagged "R" in the subcontracted laboratory report. Of these, the internal standard recoveries for PCB congener 1 in the duplicate field sample and multiple PCB congeners in the method blank(s), LCS/DLSC, and MS/MSD samples were outside laboratory control limits. The laboratory automatically corrected for variations in recovery and accurate values were obtained.

Matrix Spike/Matrix Spike Duplicate

Matrix spike/matrix spike duplicate (MS/MSD) were processed during the laboratory analysis of PCB congeners. With the exception of PCB congener 1, the MS/MSD recoveries were within laboratory control limits. The MS/MSD recoveries for PCB congener 1 had a recovery outside of the laboratory control limits and may have been impacted by the high levels of native PCB congeners in the samples used for the spike. These exceptions are flagged "P" in the subcontracted laboratory report.

Laboratory Control Samples/Duplicate Laboratory Control Samples

Laboratory control samples/duplicate laboratory control samples (LCS/DLCS) were processed during the laboratory analysis of PCB congeners. All laboratory control sample recoveries and relative percent differences were within laboratory control limits.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



Bureau of Environmental Services City of Portland Chain-of-Custody



Date: 10/6/2009

Page: <u>으</u>

Collected By: JXB, ECH, PTB

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					<u> </u>									1		
\$PCBULL \$PCBCNPACEW	MATRIX IS WATER	MATRIX			•				•	G .	1256	10/6/09	FDB .	 	FIELD DECON BLANK	F0095979
Il tests on PUP	A assumed all	in #	(1.5) (1.5) (1.5) (1.5) (1.5)		8				0	C	1318	10/6/09	DUP		DUPLICATE	FO095978
														<u> </u>		
					•				•	Ο,	1318	10/6/09	44_17	ļ	IL-44-AMQ287-1009 N LORING & N CLARK	FO095977
					Total Sol					Sample Type	Sample S Time	Sample S Date	Point S Code	<u> </u>	Location	WPCL Sample I.D.
					dis		·		clors - LL ngeners (All 2							
									09)	·		æ		114	OUTFALL 44	
Field Comments			Metals	eral	General		ics	Organics								
	nalyses	Requested Analyses	Requ							93	SEDIMENT & WATER	Matrix: ser	3			File Number: 1020.001
	-											P	IE SAN	RINLIN	ND HARBOI	Project Name: PORTLAND HARBOR INLINE SAMP

Portland Harbor Inline Samp COC - OF 44 (9-21-09).xls



City of Portland Water Pollution Control Laboratory

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095977

Sample Collected: 10/06/09

13:18

Sample Status: COMPLETE AND

Sample Received: 10/06/09

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Address/Location:

IL-44-AMQ287-1009

N LORING & CLARK STORMCEPTOR 12in LINE

System ID:

AN09581

Report Page: Page 1 of 1

Sample Point Code:

44_17

EID File #:

1020.001

Sample Type:

COMPOSITE

LocCode:

PORTHARI

Sample Matrix:

SEDIMENT

Collected By: JXB/PTB/ECH

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as

Test Parameter	Result	Units	MRL.	Method	Analysis Date
GENERAL	.•				
TOTAL SOLIDS	75.4	% W/W	0.01	SM 2540 G	10/07/09
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PC	B)	,			
Aroclor 1016/1242	<10	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1221	<20	μ g/Kg dry wt	20	EPA 8082	10/07/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1248	<10	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1254	<10	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1260	81	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1268	<10	μg/Kg dry wt	10	EPA 8082	10/07/09
OUTSIDE ANALYSIS					•
TOTAL ORGANIC CARBON	35500	mg/Kg dry wt	100	EPA 9060 MOD	10/15/09
POLYCHLORINATED BIPHENYL CON	GENERS -PACE		÷		
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/22/09

End of Report for Sample ID: FO095977

Report Date: 11/18/09 Validated By:



City of Portland **Water Pollution Control Laboratory**

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656





Sample ID: **FO095978**

Sample Collected: 10/06/09

00:00

Sample Status: COMPLETE AND **VALIDATED**

Sample Received: 10/06/09

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Report Page:

Page 1 of 1

Address/Location:

FIELD DUPLICATE

System ID:

AN09582

Sample Point Code:

DUP

EID File #:

1020.001

Sample Type:

COMPOSITE

LocCode:

PORTHARI

Sample Matrix:

SEDIMENT

Collected By:

JXB/PTB/ECH

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Test raidiffeter	Nesuit	Office	MINE	Wethod	
GENERAL					
TOTAL SOLIDS	77.0	% W/W	0.01	SM 2540 G	10/07/09
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PC	(B)				
Aroclor 1016/1242	<10	μ g/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1221	<20	μg/Kg dry wt	20	EPA 8082	10/07/09
Aroclor 1232	<10	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1248	<10	μ g/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1254	<10	μ g/Kg dry wt	10	EPA 8082	. 10/07/09
Aroclor 1260	46	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1262	<10	μg/Kg dry wt	10	EPA 8082	10/07/09
Aroclor 1268	<10	μ̈g/Kg dry wt	10	EPA 8082	10/07/09
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	24600	mg/Kg dry wt	100	EPA 9060 MOD	10/15/09
POLYCHLORINATED BIPHENYL CON	GENERS -PACE			e e	
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/22/09

End of Report for Sample ID: FO095978

Report Date: 11/18/09

Validated By:



City of Portland Water Pollution Control Laboratory

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO095979 Sample Collected: 10/06/09 12:56 Sample Status: COMPLETE AND

Sample Received: 10/06/09 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 1 of 1

Address/Location: FIELD DECON BLANK

 Sample Point Code:
 FDBLANK
 System ID:
 AN09583

 Sample Type:
 GBAB
 LocCode:
 PORTHARI

Sample Type: GRAB LocCode: PORTHARI
Sample Matrix: DIWTR Collected By: JXB/PTB/ECH

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

					Analysis
Test Parameter	Result	Units	MRL	Method	Date
GENERAL			•	•	
TOTAL SOLIDS	<2	mg/L	2	SM 2540 B	10/07/09
GC ANALYSIS	•		•		
POLYCHLORINATED BIPHENYLS (F	PCB)				
Aroclor 1016/1242	<0.025	μg/L	0.025	EPA 8082	10/12/09
Aroclor 1221	< 0.050	μg/L	0.050	EPA 8082	10/12/09
Aroclor 1232	<0.025	μg/L	0.025	EPA 8082	10/12/09
Aroclor 1248	<0.025	μg/L	0.025	EPA 8082	10/12/09
Aroclor 1254	< 0.025	μg/L	0.025	EPA 8082	10/12/09
Aroclor 1260	< 0.025	μg/L	0.025	EPA 8082	10/12/09
Aroclor 1262	<0.025	μg/L	0.025	EPA 8082	10/12/09
Aroclor 1268	<0.025	μg/L	0.025	EPA 8082	10/12/09
OUTSIDE ANALYSIS					
POLYCHLORINATED BIPHENYL CO	NGENERS -PACE				
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	10/23/09

End of Report for Sample ID: FO095979

Validated By:

Report Date: 11/18/09



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

Amended Report

December 24, 2009

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 10/07/09 12:40. The following list is a summary of the Work Orders contained in this report, generated on 12/24/09 08:58.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	<u>ProjectNumber</u>
PSJ0242	Portland Harbor	36238

TestAmerica Portland

Amended Report



9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave. Project Number: 36238 Report Created:
Portland, OR 97203 Project Manager: Jennifer Shackelford 12/24/09 08:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO 095974	PSJ0242-01	Soil	10/06/09 09:49	10/07/09 12:40
FO 095975	PSJ0242-02	Soil	10/06/09 10:34	10/07/09 12:40
FO 095976	PSJ0242-03	Soil	10/06/09 11:24	10/07/09 12:40
FO 095977	PSJ0242-04	Soil	10/06/09 13:18	10/07/09 12:40
FO 095978	PSJ0242-05	Soil	10/06/09 13:18	10/07/09 12:40
FO 095979	PSJ0242-06	Water	10/06/09 12:56	10/07/09 12:40
FO 095980	PSJ0242-07	Soil	10/06/09 14:36	10/07/09 12:40

TestAmerica Portland

Howard Holmes, Project Manager

Amended Report



9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford12/24/09 08:58

Analytical Case Narrative

TestAmerica - Portland, OR

PSJ0242

Amended Report

2-Methylnaphthalene was added to the 8270 SIM PAH results as requested by Peter Abrams on 12/23/09

TestAmerica Portland

Howard Holmes, Project Manager

Amended Report



9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

6543 N. Burlington Ave. Portland, OR 97203 Project Name: Portland Harbor

Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 12/24/09 08:58

Organic Carbon, Total (TOC)

TestAmerica Connecticut

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSJ0242-01 (FO 095974)			Soil			Sam	pled: 10/06	/09 09:49		
Total Organic Carbon - Duplicates	9060	19000	30.0	100	mg/Kg	1x	32393	10/15/09 21:24	10/15/09 21:24	
PSJ0242-02 (FO 095975)			Soil			Samj	pled: 10/06	/09 10:34		
Total Organic Carbon - Duplicates	9060	75400	30.0	100	mg/Kg	1x	32393	10/15/09 21:38	10/15/09 21:38	
PSJ0242-03 (FO 095976)			Soil			Samj	pled: 10/06	/09 11:24		
Total Organic Carbon - Duplicates	9060	89200	30.0	100	mg/Kg	1x	32393	10/15/09 21:53	10/15/09 21:53	
PSJ0242-04 (FO 095977)			Soil			Samj	pled: 10/06	/09 13:18		
Total Organic Carbon - Duplicates	9060	35500	30.0	100	mg/Kg	1x	32393	10/15/09 22:07	10/15/09 22:07	
PSJ0242-05 (FO 095978)			Soil			Samj	pled: 10/06	/09 13:18		
Total Organic Carbon - Duplicates	9060	24600	30.0	100	mg/Kg	1x	32393	10/15/09 22:37	10/15/09 22:37	
PSJ0242-07 (FO 095980)			Soil			Samj	pled: 10/06	/09 14:36		
Total Organic Carbon - Duplicates	9060	28600	30.0	100	mg/Kg	1x	32393	10/15/09 22:51	10/15/09 22:51	

TestAmerica Portland

Howard Holmes, Project Manager

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THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

Project Name: Portland Harbor

6543 N. Burlington Ave. Portland, OR 97203 Project Number: 36238
Project Manager: Jennifer Shackelford

Report Created: 12/24/09 08:58

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batcl	h: 9100355	Soil Pre	paration M	lethod: EPA	3550										
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (910035	55-BLK1)								Extr	acted:	10/12/09 11	:30			
Benzo (e) pyrene		EPA 8270m	ND		13.3	ug/kg wet	1x							10/12/09 18:35	ID5
2-Methylnaphthalene	e	"	ND		13.3	"	"							"	
Acenaphthene		"	ND		13.3	"	"							"	
Acenaphthylene		"	ND		13.3	"	"							"	
Anthracene		"	ND		13.3	"	"							"	
Benzo (a) anthracene	e	"	ND		13.3	"	"							"	
Benzo (a) pyrene		"	ND		13.3	"	"							"	
Benzo (b) fluoranthe	ne	"	ND		13.3	"	"							"	
Benzo (ghi) perylene		"	ND		13.3	"	"							"	
Benzo (k) fluoranthe	ne	"	ND		13.3	"	"							"	ID4
Chrysene		•	ND		13.3	"	"								
Dibenzo (a,h) anthra	cene	•	ND		13.3	"	"								
Fluoranthene		•	ND		13.3	"	"								
Fluorene		"	ND		13.3	"	"							"	
Indeno (1,2,3-cd) pyr	rene	"	ND		13.3	"	"							"	
Naphthalene		"	ND		13.3	"	"							"	
Phenanthrene		"	ND		13.3	"	"							"	
Pyrene		"	ND		13.3	"	"							"	
Surrogate(s):	Fluorene-d10		Recovery:	83.5%	L	imits: 24-1259	6							10/12/09 18:35	
	Pyrene-d10			96.2%		41-141	%							"	
	Benzo (a) pyrene-d12			88.0%		38-143	%							"	
LCS (9100355	3-BS1)								Extr	acted:	10/12/09 11	:30			
Acenaphthene		EPA 8270m	172		13.2	ug/kg wet	1x		164	105%	(33-139)			10/12/09 19:05	
Benzo (a) pyrene		,,	173		13.2	"	"		"	105%	(45-149)			"	
Pyrene		"	172		13.2	"	"		"	104%	(39-138)			"	
Surrogate(s):	Fluorene-d10		Recovery:	96.6%	L	imits: 24-1259	6							10/12/09 19:05	
	Pyrene-d10			91.8%		41-141	%							"	
	Benzo (a) pyrene-d12			94.0%		38-143	%							"	

TestAmerica Portland

Invested Halman Drainat Managar

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9405 S.W. NIMBUS AVENUE

BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

Portland Harbor Project Name:

6543 N. Burlington Ave. Portland, OR 97203

Project Number: Project Manager: Jennifer Shackelford

36238

Report Created: 12/24/09 08:58

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

TestAmerica Portland

QC Batc	h: 9100355	Soil Pre	paration M	Iethod: EP.	A 3550										
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike	(9100355-MS1)				QC Source	e: PSJ0372-0	3		Extr	acted:	10/12/09 11	:30			
Acenaphthene		EPA 8270m	172		137	ug/kg dry	10x	ND	171	101%	(33-139)			10/12/09 19:34	
Benzo (a) pyrene		"	321		137	"	"	54.0	"	156%	(45-149)			"	M7
Pyrene		"	704		137	"	"	101	"	353%	(39-138)			"	M7
Surrogate(s):	Fluorene-d10		Recovery:	86.2%	L	imits: 24-1259	%							10/12/09 19:34	
	Pyrene-d10			86.2%		41-141	%							"	
	Benzo (a) pyrene-d12			87.8%		38-143	%							"	
Matrix Spike I	Oup (9100355-MSI	D 1)			QC Source	e: PSJ0372-0	3		Extr	acted:	10/12/09 11	:30			
Acenaphthene		EPA 8270m	159		138	ug/kg dry	10x	ND	172	92.4%	(33-139)	7.75%	(60)	10/12/09 20:03	
Benzo (a) pyrene		"	205		138	"	"	54.0	"	87.7%	(45-149)	44.3%	ó "	"	
Pyrene		"	239		138	"	"	101	"	79.9%	(39-138)	98.7%	, "	"	R3
Surrogate(s):	Fluorene-d10		Recovery:	84.0%	L	imits: 24-1259	%							10/12/09 20:03	
	Pyrene-d10			82.6%		41-141	%							"	
	Benzo (a) pyrene-d12			84.9%		38-143	%							"	

TestAmerica Portland

Amended Report



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THE LEADER IN ENVIRONMENTAL TESTING

Amended Report

City of Portland Water Pollution Laboratory

TestAmerico

Project Name: Portland Harbor

6543 N. Burlington Ave. Portland, OR 97203

Project Manager: Jennifer Shackelford

36238

Report Created: 12/24/09 08:58

$Phthalates\ per\ EPA\ 8270-SIM\ -\ Laboratory\ Quality\ Control\ Results$

TestAmerica Portland

Project Number:

QC Batch:	9100711	Soil Pre	paration M	lethod:	EPA 3550										
Analyte		Method	Result	М	DL* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)) Analyzed	Notes
Blank (9100711-	BLK1)								Extr	racted:	10/20/09 16	:00			
Dimethyl phthalate		EPA 8270m	ND		- 26.8	ug/kg wet	1x							10/21/09 20:47	
Diethyl phthalate		"	ND		- 26.8	"	"							"	
Di-n-butyl phthalate		"	ND		- 26.8	"	"							"	
Butyl benzyl phthalate		"	ND		- 26.8	"	"							"	
Bis(2-ethylhexyl)phthala	ate	"	ND		- 26.8	"	"							"	
Di-n-octyl phthalate		"	ND		- 26.8	"	"							"	
=	-Fluorobiphenyl -Terphenyl-d14		Recovery:	110% 101%	1	imits: 10-15 10-15								10/21/09 20:47	
LCS (9100711-B	SS1)								Extr	racted:	10/20/09 16	:00			
Dimethyl phthalate		EPA 8270m	122		- 26.8	ug/kg wet	1x		133	91.5%	(20-150)			10/21/09 21:24	
Diethyl phthalate		"	133		- 26.8	"	"		"	99.6%	"			"	
Di-n-butyl phthalate		"	145		- 26.8	"	"		"	109%	"			"	
Butyl benzyl phthalate		"	149		- 26.8	"	"		"	112%	"			"	
Bis(2-ethylhexyl)phthala	ate	"	148		- 26.8	"	"		"	111%	"			"	
Di-n-octyl phthalate		"	143		- 26.8	"	"		"	107%	"			"	
	-Fluorobiphenyl -Terphenyl-d14		Recovery:	127% 112%	1	imits: 10-15								10/21/09 21:24	
Matrix Spike (91	100711-MS1)				QC Source	e: PSJ0657	-06		Extr	racted:	10/20/09 16	:00			
Dimethyl phthalate		EPA 8270m	152		- 296	ug/kg dry	10x	ND	147	103%	(10-150)			10/22/09 22:21	
Diethyl phthalate		"	155		- 296	"	"	ND	"	106%	"			"	
Di-n-butyl phthalate		"	162		- 296	"	"	ND	"	110%	"			"	
Butyl benzyl phthalate		"	182		- 296	"	"	37.6	"	98.1%	"			"	
Bis(2-ethylhexyl)phthala	ate	"	307		- 296	"	"	95.2	"	144%	"			"	
Di-n-octyl phthalate		"	141		- 296	"	"	ND	"	95.5%	"			"	
	-Fluorobiphenyl -Terphenyl-d14		Recovery:	92.8% 93.2%	1	imits: 10-15								10/22/09 22:21	
Matrix Spike Dur	o (9100711-MS	SD1)			QC Source	e: PSJ0657	-06		Extr	racted:	10/20/09 16	:00			
Dimethyl phthalate		EPA 8270m	149		- 295	ug/kg dry	10x	ND	147	101%	(10-150)	1.92%	6 (50)	10/22/09 22:57	
Diethyl phthalate		"	216		- 295	"	"	ND	"	147%	"	32.4%	6 "	"	
Di-n-butyl phthalate		"	160		- 295	"	"	ND	"	109%	"	0.7249	% "	"	
Butyl benzyl phthalate		"	205		- 295	"	"	37.6	"	114%	"	11.7%		"	
Bis(2-ethylhexyl)phthala	ate	"	1330		- 295	"	"	95.2	"	841%	"	125%	, "	"	M7,
Di-n-octyl phthalate		"	269		- 295	"	"	ND	"	183%	"	62.5%	6 "	"	M7, 1
•	-Fluorobiphenyl -Terphenyl-d14		Recovery:	92.1% 91.1%	1	imits: 10-15								10/22/09 22:57	

TestAmerica Portland

Howard Holmes, Project Manager

Amended Report



77.1

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

0.388% (20)

Amended Report

City of Portland Water Pollution Laboratory

NCA SOP

77.4

6543 N. Burlington Ave. Portland, OR 97203

% Solids

Portland Harbor Project Name:

36238 Project Number: Project Manager: Jennifer Shackelford Report Created: 12/24/09 08:58

10/12/09 07:26

	Percent Dry	Weight (Sol	, .	STM D22 TestAmeric		Labor	atory Q	ality Control Results	
QC Batch: 9100358 Soil Preparation Method: Dry Weight									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % (Limits) % (Limits) Analyzed Amt REC	Notes
Dunlicate (9100358-DUP1)				OC Source:	PSJ0276-02	!		Extracted: 10/12/09 07:26	

0.0100 % by Weight

TestAmerica Portland

Howard Holmes, Project Manager

Amended Report



9405 S.W. NIMBUS AVENUE

BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory

Portland Harbor Project Name: 36238

Project Number:

6543 N. Burlington Ave. Portland, OR 97203

Project Manager: Jennifer Shackelford Report Created: 12/24/09 08:58

Organic Carbon, Total (TOC) - Laboratory Quality Control Results

TestAmerica Connecticut

QC Batch: 32393	Soil Pr	eparation Met	hod: NA										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % Amt REC	(Limits)	% RPD	(Limits) Analyzed	Notes
LCS (220-32393-6)				QC Source:				Extracted:	10/15/09 2	1:10			
Total Organic Carbon - Duplicates	9060	3783	30.0	100	mg/Kg	1x		3530 107%	(28-172)			10/15/09 21:10	
Blank (220-32393-7)				QC Source:				Extracted:	10/15/09 2	1:17			
Total Organic Carbon - Dunlicates	9060	ND	30.0	100	ma/K a	1v						10/15/09 21:17	

TestAmerica Portland

Amended Report



9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

36238 Report Created: 6543 N. Burlington Ave. Project Number: Portland, OR 97203 Project Manager: Jennifer Shackelford 12/24/09 08:58

Notes and Definitions

Report Specific Notes:

ID4 Benzo(j)fluoranthene coelutes with Benzo(k)fluoranthene. The reported result is a summation of the isomers and the concentration is based on the response factor of Benzo(k)fluoranthene.

ID5 Benzo(e)pyrene concentration is based on the response factor of Benzo(a)pyrene, and has not been calibrated independently.

M7 The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).

R2 The RPD exceeded the acceptance limit.

R3 The RPD exceeded the acceptance limit due to sample matrix effects.

RL3 Reporting limit raised due to high concentrations of non-target analytes.

RL7 Sample required dilution due to high concentrations of target analyte.

Z3The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

<u>Laboratory Reporting Conventions:</u>

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries). RPD

MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting -

Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits percent solids, where applicable.

Electronic

Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

Signature

Amended Report

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory

Howard Holmes, Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400. Bothell, WA 98011-8244 11922 E. First Ave. Spokane, WA 99206-5302 9405 SW Nimbus Ave.Beaverton. OR 97008-7145 2000 W International Airport Rd Ste A10. Anchorage. AK 99502-1119

425-420-9200 FAX 420-9210 S09-924 9200 FAX 924-9290 FAX 904-9290 S03-906-9200 FAX 906-9210 S03-907-563-9200 FAX 563-9210

THE LEADER IN ENVIROIMMENTAL TEGLING	CHAIN OF CUSTODY REPORT	Work Order #: \$ ≤ 5 0242
CLIENT CIFY of Portland	INVOICE TO:	TURNAROUND REQUEST
, t	Charles Lutle	in Business Days *
Jennith Unackelt	ţ	Organic & Inorganic Analyses
PHONE:	S (2 PO NUMBER: 36238	roleum Hydrocarbon Analyses
TNAME: POFTIANS	1)	S 4 3 2 1 <1
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SAMPLED BY:		* Turnaround Requests less than standard may incur Rush Charges.
CLIENT SAMPLE SAMPLING CALENTIFICATION DATE/TIME	101 101 101	MATRIX # OF LOCATION/ TA (W, S, O) CONT. COMMENTS WO ID
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" Darford	DATE 16/7/9 RECEIVED BY: TIME 12.10	PIRM: TO TIME: 7/10
ADDITIONAL REMARKS:		TEMP. PAGE OF
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TAL-1000(0408)

TestAmerica Portland Sample Receiving Checklist

	COrde t Nan		PSTO24Z Dat d Project: OF P	e/Time Received	land	19 1240 Harbor				
Time I	Zone: T/EST		□CDT/CST □MDT/MS	T PDT/PST	□АК	□ OTHER				
Coo	acking oler #(s erature Dig	s): es:	ecks: Digi #2 IR Gan Digi #2 IR Gan Plastic G	lass)	Temp	Not enough or No IceIce MeltedW/in 4 Hrs of collectionOther:				
N/A	Yes	No			•	Initials				
V			I. If ESI client, were temp bla							
\mathbf{M}		. [2. Cooler Seals intact? (N/A			ent on NOD.				
			3. Chain of Custody present?							
		Ц	4. Bottles received intact? If							
		 5. Sample is not multiphasic? If no, document on NOD. 6. Proper Container and preservatives used? If no, document on NOD. 								
		7. pH of all samples checked and meet requirements? If no, document on NOD.								
		8. Cyanide samples checked for sulfides and meet requirements? If no, notify PM.								
				or sumdestand meet	. requirem	onto: 11 no, notify 1 ivi				
			 HF Dilution required? Sufficient volume provid 	ed for all analysis? I	fno docu	ment on NOD and consult				
		لــا	PM before proceeding.							
		,	11. Did chain of custody agre			o, document on NOD.				
1	9		12. Is the "Sampled by" section							
			13. Were VOA/Oil Syringe s							
			14. Were VOA vials preserve							
. /		0	15. Did samples require prese							
			16. If yes to #14, was the res							
			17. Are dissolved/field filtered							
₩ •			 Is sufficient volume proving, document on NOD and colling. Are analyses with short has been sufficient for the colling. 	ntact PM before pro	ceeding.	ISD or matrix duplicates? If				
			20. Was Standard Turn Arou							
			21. Receipt date(s) < 48 hour	s past the collection	date(s)? If	no, notify PM.				

TestAmerica Portland Sample Receiving Checklist

Work Order #: PSTO242

Logi	in Ch	ecks	Initials:_\frac{\beta_S}{}_
N/A	Yes	No	
	\angle		22. Sufficient volume provided for all analysis? If no, document on NOD & contact PM.
Ø			23. Sufficient volume provided for client requested MS/MSD or matrix duplicates? If
,			no, document on NOD and contact PM.
	Ø		24. Did the chain of custody include "received by" and "relinquished by" signatures,
			dates and times?
\square			25. Were special log in instructions read and followed?
,	\square		26. Were tests logged checked against the COC?
\square			27. Were rush notices printed and delivered?
			28. Were short hold notices printed and delivered?
			29. Were subcontract COCs printed?
Ø			30. Was HF dilution logged?
Lab	eling	and	Storage Checks: Initials:
N/A	Yes	No	
数	X 7		31. Were the subcontracted samples/containers put in Sx fridge?
4Z(32. Were sample bottles and COC double checked for dissolved/filtered metals?
	X		33. Did the sample ID, Date, and Time from label match what was logged?
A			34. Were Foreign sample stickers affixed to each container and containers stored in
			foreign fridge?
, A			35. Were HF stickers affixed to each container, and containers stored in Sx fridge?
Ť.			36. Was an NOD for created for noted discrepancies and placed in folder?
	ment a		oblems or discrepancies and the actions taken to resolve them on a Notice of Discrepancy



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700

Fax: 612.607.6444

Report Prepared for:

Howard Holmes Test America-Portland 9405 SW Nimbus Avenue Beaverton OR 97008

> REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10114354

Sample Receipt Date: 10/09/2009

Client Project #: PSJ0242

Client Sub PO #: N/A

State Cert #: MN200001-005

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed by:

November 06, 2009

Scott Unze, Project Manager

(612) 607-6383 (612) 607-6444 (fax)

scott.unze@pacelabs.com



Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

November 6, 2009



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414 Phone: 612.607.1700 Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on six samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 25-75 parts-per-trillion and were adjusted for the amount of the sample extracted.

The isotopically-labeled PCB internal standards in the sample extracts were recovered at 15-100%. With 12 exceptions, all of the labeled internal standard recoveries obtained for this project were within the target ranges specified in the method. Since the quantification of the native PCB congeners was based on internal standard or isotope dilution methods, the data were automatically corrected for variation in recovery and accurate values were obtained. In some cases, interfering substances impacted the measurement of the internal standards or native PCB congeners. These values are flagged "I" in the sample results tables to indicate that incorrect isotope ratios were obtained. Two of the samples (F0095975 and F0095976) contained compounds which impacted the chromatography, necessitating additional cleanup steps for those extracts. After the cleanup steps, the extracts still required dilutions of 10 fold and 50 fold to obtain peak areas for all of the PCB congeners. The congeners which were obtained from the 50 fold dilution are flagged "N2" in the results tables.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the blanks, with the exception of a low level of congener #31 in the solid blank, to be free of PCB congeners at the reporting limits. This indicates that the sample preparation steps did not significantly impact the measurement of the native congeners in the field samples. The blank corresponding to the two extra cleanup samples was processed through the extra cleanup procedure along with the samples. Upon reanalysis, it was found to contain low levels of PCB congeners 1,2, and 3 in addition to congener 31. All of those congeners were detected in the samples at levels more than 10 times higher than the levels in the blank, indicating that the background levels did not significantly affect the sample measurements in this case either.

Laboratory spike samples were also prepared with the sample batches using solid or water reference matrices that had been fortified with native standards. The results show that the spiked native compounds in the water lab spikes were recovered at 92-115% with relative percent differences of 0-8.4%. The spiked native compounds in the solid lab spike were recovered at 97-112%. This indicates a high level of accuracy for these analyses. Matrix spikes were also prepared with the sample batch using aliquots of one of the samples fortified with native standards. Results for some congeners in the matrix spikes appear to have been impacted by the high levels of native PCB congeners in the sample used for the spikes.

REPORT OF LABORATORY ANALYSIS

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Tel: 612-607-1700 Fax: 612- 607-6444

Minnesota Laboratory Certifications

Certificate #	Authority	Certificate #
40770	Montana	92
MN00064	Nebraska	
AZ0014	Nevada	MN00064_2000
88-0680	New Jersey (NE	MN002
01155CA	New Mexico	MN00064
MN00064	New York (NEL	11647
PH-0256	North Carolina	27700
WD-15J	North Dakota	R-036
8TMS-Q	Ohio	4150
E87605	Ohio VAP	CL101
959	Oklahoma	D9922
08-004r	Oregon (ELAP)	MN200001-005
SLD	Oregon (OREL	MN200001-005
MN00064	Pennsylvania	68-00563
200012	Saipan	MP0003
	South Carolina	74003001
C-MN-01	Tennesee	2818
368	Tennessee	02818
E-10167	Texas	T104704192-08
90062	Utah (NELAP)	PAM
LA0900016	Virginia	00251
2007029	Washington	C755
322	West Virginia	9952C
9909	Wisconsin	999407970
027-053-137	Wyoming	8TMS-Q
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	40770 MN00064 AZ0014 88-0680 01155CA MN00064 PH-0256 WD-15J 8TMS-Q E87605 959 08-004r SLD MN00064 200012 C-MN-01 368 E-10167 90062 LA0900016 2007029 322 9909 027-053-137	40770 Montana MN00064 Nebraska AZ0014 Nevada 88-0680 New Jersey (NE 01155CA New Mexico MN00064 New York (NEL PH-0256 North Carolina WD-15J North Dakota 8TMS-Q Ohio E87605 Ohio VAP 959 Oklahoma 08-004r Oregon (ELAP) SLD Oregon (OREL MN00064 Pennsylvania 200012 Saipan South Carolina C-MN-01 Tennessee Tennessee E-10167 Texas 90062 Utah (NELAP) LA0900016 Virginia 2007029 Washington 322 West Virginia 9909 Wisconsin 027-053-137 Wyoming

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

SUBCONTRACT ORDER

TestAmerica Portland PSJ0242

10114354

SENDING LABORATORY:

TestAmerica Portland 9405 SW Nimbus Ave. Beaverton, OR 97008

Phone: (503) 906-9200 Fax: (503) 906-9210

Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone: (612) 607-1700 Fax: (612) 607-6444

Project Location: OR - OREGON
Receipt Temperature: 1 9 °C

			Rece	ipt Temperature:	4,9°C	Ice: (Y) / N	
needs Excel EDD						_	
Analysis	Units	Due	Expires		Comments		
					Coty of 1	Portland I	D
Sample ID: PSJ0242-01	Soil		Sampled	10/06/09 09:49	FO 09	5974	001
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/04/10 09:49		***209 Cong	eners*** to Pace	
Containers Supplied: 4 oz. jar (A)							
Sample ID: PSJ0242-02	Soil		Sampled	10/06/09 10:34	FO 09	5975	WZ
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/04/10 10:34	,	***209 Cong	eners*** to Pace	
Containers Supplied: 4 oz. jar (A)			· · · · · · · · · · · · · · · · · · ·			_	
Sample ID: PSJ0242-03	Soil		Sampled:	10/06/09 11:24	FOO	95976	<u>co</u> 3
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/04/10 11:24		***209 Cong	eners*** to Pace	
Containers Supplied: 4 oz. jar (A)							
Sample ID: PSJ0242-04	Soil		Sampled:	10/06/09 13:18	FUO	95977	004
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/04/10 13:18		***209 Cong	eners*** to Pace	(
Containers Supplied: 4 oz. jar (A)							
Sample ID: PSJ0242-05	Soil		Sampled:	10/06/09 13:18	FUO	95978	<u>U5</u>
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/04/10 13:18		***209 Cong	eners*** to Pace	
Containers Supplied: 4 oz. jar (A)							
Sample ID: PSJ0242-06	Water		Sampled:	10/06/09 12:56	FOC	95979	ccb
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/04/10 12:56		***209 Cong	eners*** to Pace	

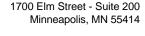
Containers Supplied: 1L Amber - Unpres. (A)

Pace Analytical*

Sample Condition Upon Receipt

Project # 10/14354 Client Name: Courier: D Fed Ex D UPS D USPS D Client D Commercial D Pace Other Tracking #: 4170 7524 4666 Custody Seal on Cooler/Box Present: ☐ yes ☐ no Seals intact: Packing Material: Bubble Wrap None Other Temp Blank: Yes No 80344042 ok 179425 Type of Ice: Wet Blue Samples on ice, cooling process has begun Thermometer Used Biological Tissue is Frozen: Yes No **Cooler Temperature** Comments: Temp should be above freezing to 6°C VOYes DNo DNA 1 Chain of Custody Present: t⊠Yes □No DINA Chain of Custody Filled Out: □N/A 13. MC served Chain of Custody Relinquished: ∐Yes KÎNo □N/A Sampler Name & Signature on COC: ⊠Yes □No **DNA** Samples Arrived within Hold Time: ☐Yes MNo □N/A Short Hold Time Analysis (<72hr): UYes KINO - UNA Rush Turn Around Time Requested: KÎYes □No □N/A Sufficient Volume: ¥Yes □No **□N/A** Correct Containers Used: ☐Yes ⊠No **□N/A** -Pace Containers Used: ÄYes □No □NA 10. Containers Intact: □Yes □No **WANA** Filtered volume received for Dissolved tests 11. XXYes DNo. DNA 12. Sample Labels match COC: at on 150i -Includes date/time/ID/Analysis EONH ☐ H2SO4 NaOH All containers needing acid/base preservation have been □Yes □No ¬ZÎN/A 13. checked. Noncompliance are noted in 13. Samp # All containers needing preservation are found to be in □Yes □No compliance with EPA recommendation. Initial when Lot # of added □Yes □No Exceptions: VOA,Colform, TOC, Oil and Grease, WI-DRO (water completed preservative YZHVA □Yes □No 14. Samples checked for dechlorination: 15. ☐Yes ☐No Headspace in VOA Vials (>6mm): □Yee □No **Ž**PN/A 16. Trip Blank Present: AVAKE ☐Yes ☐No Trip Blank Custody Seals Present Pace Trip Blank Lot # (if purchased): Field Data Required? Y / N Client Notification/ Resolution: Date/Time: Person Contacted: Comments/ Resolution: Date: **Project Manager Review:**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the Reach Charles, Inc. F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414





Tel: 612-607-1700 Fax: 612-607-6444

Reporting Flags

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- Interference present
- J = Estimated value
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- See Discussion

REPORT OF LABORATORY ANALYSIS

Appendix B

Sample Analysis Summary

Solid



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America-Portland

Matrix

Dilution

Client's Sample ID PSJ0242-04;F0095977
Lab Sample ID 10114354004
Filename P91101B_09
Injected By BAL
Total Amount Extracted 14.8 g
% Moisture 29.7
Dry Weight Extracted 10.4 g

10.4 g Dry Weight Extracted Collected 10/06/2009 13:18 **ICAL ID** P91101B02 Received 10/09/2009 10:10 CCal Filename(s) P91101B 01 Extracted 10/22/2009 16:10 Method Blank ID **BLANK-22143** Analyzed 11/02/2009 00:25

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.180	2.83	2.0	0.547	27
13C-4-MoCB	3	12.619	3.55	2.0	0.923	46
13C-2,2'-DiCB	4	12.978	1.58	2.0	0.711	36
13C-4,4'-DiCB	15	21.138	1.59	2.0	1.36	68
13C-2,2',6-TrCB	19	17.435	0.99	2.0	0.854	43
13C-3,4,4'-TrCB	37	29.442	1.03	2.0	1.51	76
13C-2,2',6,6'-TeCB	54	21.461	0.84	2.0	1.05	52
13C-3,4,4',5-TeCB	81	36.770	0.82	2.0	1.62	81
13C-3,3',4,4'-TeCB	77	37.324	0.76	2.0	1.57	78
13C-2,2',4,6,6'-PeCB	104	28.034	1.53	2.0	1.21	61
13C-2,3,3',4,4'-PeCB	105	40.962	1.67	2.0	1.62	81
13C-2,3,4,4',5-PeCB	114	40.308	1.63	2.0	1.53	76
13C-2,3',4,4',5-PeCB	118	39.755	1.66	2.0	1.50	75
13C-2,3',4,4',5'-PeCB	123	39.420	1.52	2.0	1.51	75
13C-3,3',4,4',5-PeCB	126	44.148	1.60	2.0	1.63	81
13C-2,2',4,4',6,6'-HxCB	155	34.322	1.31	2.0	1.28	64
13C-HxCB (156/157)	156/157	47.217	1.26	4.0	3.11	78
13C-2,3',4,4',5,5'-HxĆB	167	46.043	1.26	2.0	1.55	78
13C-3,3',4,4',5,5'-HxCB	169	50.537	1.28	2.0	1.59	79
13C-2,2',3,4',5,6,6'-HpCB	188	40.258	1.02	2.0	1.36	68
13C-2,3,3',4,4',5,5'-HpCB	189	53.134	1.03	2.0	1.62	81
13C-2,2',3,3',5,5',6,6'-OcCB	202	45.741	0.95	2.0	1.34	67
13C-2,3,3',4,4',5,5',6-OcCB	205	56.172	0.90	2.0	1.39	69
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.629	0.77	2.0	1.32	66
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.573	0.81	2.0	1.34	67
13CDeCB	209	61.173	0.70	2.0	1.23	62
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.848	1.09	2.0	1.52	76
13C-2,3,3',5,5'-PeCB	111	37.391	1.54	2.0	1.47	73
13C-2,2',3,3',5,5',6-HpCB	178	43.394	0.99	2.0	1.45	73
Recovery Standards						
13C-2,5-DiCB	9	15.901	1.60	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.994	0.77	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.557	1.63	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.924	1.26	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	55.591	0.94	2.0	NA	NA
. , , , , , ,						

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion X = Outside QC Limits RT = Retention Time I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-04;F0095977 10114354004 P91101B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1				ND		24.0
2				ND		24.0
3				ND		24.0
4		13.002	1.67	81.5		24.0
5				ND		24.0
6		16.489	1.55	33.0		24.0
7				ND		24.0
8		17.088	1.53	146		24.0
9				ND		24.0
10				ND		24.0
11		20.371	1.58	812		144
12	12/13			ND		48.0
13	12/13			ND		48.0
14				ND		24.0
15		21.150	1.53	149		24.0
16		21.078	1.08	119		24.0
17		20.503	1.13	139		24.0
18	18/30	19.963	1.06	274		48.0
19		17.459	1.17	41.6		24.0
20	20/28	24.882	1.02	677		48.0
21	21/33	25.167	0.99	247		48.0
22		25.603	1.10	283		24.0
23				ND		24.0
24				ND		24.0
25		24.161	1.07	41.3		24.0
26	26/29	23.876	1.08	85.7		48.0
27		20.778	1.13	30.0		24.0
28	20/28	24.882	1.02	(677)		48.0
29	26/29	23.876	1.08	(85.7)		48.0
30	18/30	19.963	1.06	(274)		48.0
31		24.530	1.03	458		24.0
32	0.4./0.0	21.746	1.04	118		24.0
33	21/33	25.167	0.99	(247)		48.0
34				ND		24.0
35		29.040	1.11	29.1		24.0
36				ND		24.0
37		29.476	0.99	273		24.0
38				ND		24.0
39	40/44/74			ND		24.0
40	40/41/71	29.292	0.82	515 (515)		144
41	40/41/71	29.292	0.82	(515)		144
42 43	12/72	28.738	0.75	225 ND		48.0 48.0
43	43/73 44/47/65	 20 110	 0.76	ND		48.0
44 45	44/47/65 45/51	28.118	0.76	992 143		144
45 46	4 3/3 I	24.949 25.301	0.84			95.9 48.0
	44/47/65		0.76	54.1		48.0
47 48	CO/14/44	28.118	0.76	(992)		144
40		27.900	0.84	146		48.0

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion X = Outside QC Limits RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-04;F0095977 10114354004 P91101B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.581	0.79	530		95.9
50	50/53	24.177	0.83	110		95.9
51	45/51	24.949	0.84	(143)		95.9
52	45/51	27.011	0.81	1570		48.0
53	50/53	24.177	0.83	(110)		95.9
54	30/33	24.17 <i>1</i>		ND		48.0
5 5				ND ND		48.0
56		33.433	0.76	369		48.0
57			0.76	ND		48.0
57 58				ND ND		48.0
	59/62/75					
59	59/62/75			ND		144
60	04/70/74/70	33.685	0.81	191		48.0
61	61/70/74/76	32.360	0.77	1530		192
62	59/62/75			ND		144
63				ND		48.0
64	44/47/05	29.526	0.81	410		48.0
65	44/47/65	28.118	0.76	(992)		144
66		32.746	0.75	727		48.0
67				ND		48.0
68				ND		48.0
69	49/69	27.581	0.79	(530)		95.9
70	61/70/74/76	32.360	0.77	(1530)		192
71	40/41/71	29.292	0.82	(515)		144
72				ND		48.0
73	43/73			ND		48.0
74	61/70/74/76	32.360	0.77	(1530)		192
75	59/62/75			NĎ		144
76	61/70/74/76	32.360	0.77	(1530)		192
77		37.357	0.77	170		48.0
78				ND		48.0
79				ND		48.0
80				ND		48.0
81				ND		48.0
82		36.971	1.59	546		48.0
83		35.043	1.55	247		48.0
84		32.545	1.64	1230		48.0
85	85/116/117	36.452	1.77	697		144
86	86/87/97/108/119/125	35.781	1.57	3020		288
87	86/87/97/108/119/125	35.781	1.57	(3020)		288
88	88/91	32.327	1.53	593		95.9
89				ND		48.0
90	90/101/113	34.574	1.58	4880		144
91	88/91	32.327	1.53	(593)		95.9
92		33.970	1.56	847		48.0
93	93/98/100/102			ND		192
94				ND		48.0
95		31.388	1.59	4340		48.0
96				ND		48.0

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated

* = See Discussion
X = Outside QC Limits

RT = Retention Time

I = Interference ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSJ0242-04;F0095977
Lab Sample ID 10114354004
Filename P91101B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.781	1.57	(3020)		288
98	93/98/100/102			NĎ		192
99		35.194	1.56	1580		48.0
100	93/98/100/102			ND		192
101	90/101/113	34.574	1.58	(4880)		144
102	93/98/100/102			ND		192
103	00,00,100,100			ND		48.0
104				ND		48.0
105		40.979	1.59	1450		48.0
106				ND		48.0
107	107/124	39.084	1.61	166		95.9
108	86/87/97/108/119/125	35.781	1.57	(3020)		288
109	00/07/07/100/110/120	39.319	1.52	249		48.0
110	110/115	36.636	1.57	6130		95.9
111	110/110			ND		48.0
112				ND		48.0
113	90/101/113	34.574	1.58	(4880)		144
114	00/101/110	40.325	1.66	69.1		48.0
115	110/115	36.636	1.57	(6130)		95.9
116	85/116/117	36.452	1.77	(697)		144
117	85/116/117	36.452	1.77	(697)		144
118	00/110/117	39.789	1.54	3820		48.0
119	86/87/97/108/119/125	35.781	1.57	(3020)		288
120	00/01/01/100/110/120			ND		48.0
121				ND		48.0
122		40.124	1.54	63.1		48.0
123		39.453	1.52	55.3		48.0
124	107/124	39.084	1.61	(166)		95.9
125	86/87/97/108/119/125	35.781	1.57	(3020)		288
126	00/01/01/100/110/120			ND		48.0
127				ND		48.0
128	128/166	44.232	1.29	1350		95.9
129	129/138/163	42.958	1.27	11600		144
130	120/100/100	42.287	1.26	534		48.0
131		39.386	1.25	114		48.0
132		39.839	1.27	3700		48.0
133		40.392	1.22	121		48.0
134	134/143	38.766	1.33	429		95.9
135	135/151	37.592	1.28	6060		95.9
136	100/101	35.043	1.27	1720		48.0
137		42.505	1.22	288		48.0
138	129/138/163	42.958	1.27	(11600)		144
139	139/140	39.185	1.25	125		95.9
140	139/140	39.185	1.25	(125)		95.9
141	. 55, 1 10	41.885	1.29	2930		48.0
142				ND		48.0
143	134/143	38.766	1.33	(429)		95.9
144	- · · · · ·	38.196	1.21	715		48.0

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

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R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

Results reported on a dry weight basis

NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

ng's = Nanograms

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-04;F0095977 10114354004 P91101B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145				ND		48.0
146		41.063	1.24	1460		48.0
147	147/149	38.565	1.27	11400		95.9
148				ND		48.0
149	147/149	38.565	1.27	(11400)		95.9
150				` NĎ		48.0
151	135/151	37.592	1.28	(6060)		95.9
152				` NĎ		48.0
153	153/168	41.700	1.27	11700		95.9
154		37.877	1.35	61.2		48.0
155				ND		48.0
156	156/157	47.200	1.26	921		95.9
157	156/157	47.200	1.26	(921)		95.9
158		43.377	1.26	ì03Ó		48.0
159		45.205	1.18	302		48.0
160				ND		48.0
161				ND		48.0
162		45.641	1.25	192		48.0
163	129/138/163	42.958	1.27	(11600)		144
164		42.639	1.26	` 816		48.0
165				ND		48.0
166	128/166	44.232	1.29	(1350)		95.9
167		46.060	1.24	361		48.0
168	153/168	41.700	1.27	(11700)		95.9
169				ND		48.0
170		49.900	1.06	4960		48.0
171	171/173	46.278	1.16	1470		95.9
172		47.972	1.06	1020		48.0
173	171/173	46.278	1.16	(1470)		95.9
174		45.188	1.06	8250		48.0
175		44.064	1.11	301		48.0
176		41.532	1.04	984		48.0
177		45.641	1.07	3890		48.0
178		43.410	1.05	1710		48.0
179		40.610	1.05	3890		48.0
180	180/193	48.625	1.05	16300		95.9
181				ND		48.0
182				ND		48.0
183	183/185	44.970	1.05	5330		95.9
184				ND		48.0
185	183/185	44.970	1.05	(5330)		95.9
186				` NĎ		48.0
187		44.333	1.06	11400		48.0
188				ND		48.0
189		53.177	1.18	156		48.0
190		50.453	1.12	1170		48.0
191		48.994	1.06	203		48.0
192				ND		48.0

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses

Results reported on a dry weight basis

NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

ng's = Nanograms

ND = Not Detected



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-04;F0095977 10114354004 P91101B_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.625	1.05	(16300)		95.9
194		55.612	0.91	` 570Ó		71.9
195		52.853	0.90	2140		71.9
196		51.292	0.90	3100		71.9
197	197/200	47.720	0.94	1200		144
198	198/199	50.621	0.91	8200		144
199	198/199	50.621	0.91	(8200)		144
200	197/200	47.720	0.94	(1200)		144
201		46.714	0.90	` 96Ó		71.9
202		45.758	0.96	1520		71.9
203		51.510	0.91	4570		71.9
204				ND		71.9
205		56.216	0.93	272		71.9
206		58.629	0.79	2300		71.9
207		53.608	0.79	313		71.9
208		52.616	0.83	486		71.9
209		61.194	0.71	129		71.9

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EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

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R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-04;F0095977 10114354004 P91101B_09

Congener Group	Concentration ng/Kg	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	1220	
Total Trichloro Biphenyls	2820	
Total Tetrachloro Biphenyls	7680	
Total Pentachloro Biphenyls	30000	
Total Hexachloro Biphenyls	57900	
Total Heptachloro Biphenyls	61000	
Total Octachloro Biphenyls	27700	
Total Nonachloro Biphenyls	3100	
Decachloro Biphenyls	129	
Total PCBs	192000	

ND = Not Detected
Results reported on a dry weight basis

Solid

10/06/2009 13:18

10/09/2009 10:10



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America-Portland

Matrix

Client's Sample ID PSJ0242-05;F0095978
Lab Sample ID 10114354005
Filename P91101B_10
Injected By BAL
Total Amount Extracted 14.7 g

% Moisture 27.2 Dilution

Dry Weight Extracted 10.7 g Collected

ICAL ID P91101B02 Received

 CCal Filename(s)
 P91101B_01
 Extracted
 10/22/2009 16:10

 Method Blank ID
 BLANK-22143
 Analyzed
 11/02/2009 01:30

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.193	3.03	2.0	0.327	16 R
13C-4-MoCB	3	12.631	2.70	2.0	0.702	35
13C-2,2'-DiCB	4	12.979	1.67	2.0	0.527	26
13C-4,4'-DiCB	15	21.126	1.62	2.0	1.41	71
13C-2,2',6-TrCB	19	17.448	1.20	2.0	0.879	44
13C-3,4,4'-TrCB	37	29.461	1.16	2.0	1.53	77
13C-2,2',6,6'-TeCB	54	21.462	0.76	2.0	1.02	<u>51</u>
13C-3,4,4',5-TeCB	<u>81</u>	36.772	0.82	2.0	1.49	74
13C-3,3',4,4'-TeCB	77	37.342	0.82	2.0	1.51	76
13C-2,2',4,6,6'-PeCB	104	28.052	1.72	2.0	1.15	58
13C-2,3,3',4,4'-PeCB	105	40.982	1.61	2.0	1.41	70 70
13C-2,3,4,4,5-PeCB	114 118	40.294 39.757	1.54 1.53	2.0 2.0	1.43 1.43	72 72
13C-2,3',4,4',5-PeCB	123	39.757 39.439	1.53 1.58	2.0	1.43 1.42	72 71
13C-2,3',4,4',5'-PeCB 13C-3,3',4,4',5-PeCB	126	44.151	1.57	2.0	1.54	77
13C-2,2',4,4',6,6'-HxCB	155	34.324	1.23	2.0	1.47	73
13C-E,2,4,4,0,0-11XCB	156/157	47.203	1.28	4.0	2.98	73 74
13C-2,3',4,4',5,5'-HxCB	167	46.046	1.33	2.0	1.51	7 4 76
13C-3,3',4,4',5,5'-HxCB	169	50.557	1.25	2.0	1.55	78 78
13C-2,2',3,4',5,6,6'-HpCB	188	40.260	1.04	2.0	1.46	73
13C-2,3,3',4,4',5,5'-HpCB	189	53.180	1.01	2.0	1.63	81
13C-2,2',3,3',5,5',6,6'-OcCB	202	45.744	0.88	2.0	1.45	72
13C-2,3,3',4,4',5,5',6-OcCB	205	56.240	0.86	2.0	1.34	67
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.654	0.84	2.0	1.33	67
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.598	0.77	2.0	1.35	67
13CDeCB	209	61.219	0.68	2.0	1.27	64
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.849	1.06	2.0	1.54	77
13C-2,3,3',5,5'-PeCB	111	37.410	1.52	2.0	1.46	73
13C-2,2',3,3',5,5',6-HpCB	178	43.413	0.99	2.0	1.50	75
Recovery Standards						
13C-2,5-DiCB	9	15.914	1.65	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.979	0.79	2.0	NA NA	NA NA
13C-2,2',4,5,5'-PeCB	101	34.559	1.64	2.0	NA NA	NA NA
13C-2,2',3,4,4',5'-HxCB	138	42.943	1.28	2.0	NA NA	NA NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	55.594	0.91	2.0	NA NA	NA NA
100 2,2,0,0,7,7,0,0 0000	104	30.004	0.01	2.0	1 1/ 1	1 1/ 1

Conc = Concentration

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B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-05;F0095978 10114354005 P91101B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1				ND		23.4
2				ND		23.4
3		12.655	3.19	24.5		23.4
4		13.015	1.46	55.6		23.4
4 5				ND		23.4
6		16.525	1.44	24.8		23.4
6 7				ND		23.4
8		17.077	1.44	112		23.4
9				ND		23.4
10				ND		23.4
11		20.396	1.54	723		140
12	12/13	20.000		ND		46.8
13	12/13			ND		46.8
14	12/10			ND		23.4
15		21.162	1.43	120		23.4
16		21.079	1.06	79.0		23.4
17		20.515	1.08	97.3		23.4
18	18/30	19.964	1.15	195		46.8
19	10/30	17.484	1.06	30.1		23.4
20	20/28	24.900	1.00	554		46.8
21	21/33	25.168	1.07	187		46.8
22	21/33	25.621	1.07	222		23.4
23		25.021		ND		23.4
24				ND		23.4
25		24.179	1.10	35.0		23.4
26	26/29	23.893	1.06	70.4		46.8
27	20/23			ND		23.4
28	20/28	24.900	1.00	(554)		46.8
29	26/29	23.893	1.06	(70.4)		46.8
30	18/30	19.964	1.15	(195)		46.8
31	10/30	24.547	1.01	382		23.4
32		21.764	1.04	95.6		23.4
33	21/33	25.168	1.07	(187)		46.8
34	21/00	20.100		ND		23.4
35				ND		23.4
36				ND		23.4
37		29.494	0.98	229		23.4
38		20.101		ND		23.4
39				ND		23.4
40	40/41/71	29.293	0.77	450		140
41	40/41/71	29.293	0.77	(450)		140
42		28.723	0.80	207		46.8
43	43/73			ND		46.8
44	44/47/65	28.136	0.81	894		140
45	45/51	24.933	0.72	115		93.6
46				ND		46.8
47	44/47/65	28.136	0.81	(894)		140
48		27.901	0.83	121		46.8

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EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

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ND = Not Detected
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* = See Discussion
X = Outside QC Limits
RT = Retention Time
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ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-05;F0095978 10114354005 P91101B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.566	0.80	500		93.6
50	50/53	24.162	0.86	97.4		93.6
51	45/51	24.933	0.72	(115)		93.6
52		27.029	0.80	Ì52Ó		46.8
53	50/53	24.162	0.86	(97.4)		93.6
54				` NĎ		46.8
55				ND		46.8
56		33.469	0.79	335		46.8
57				ND		46.8
58				ND		46.8
59	59/62/75			ND		140
60	30,32,13	33.687	0.78	175		46.8
61	61/70/74/76	32.362	0.79	1500		187
62	59/62/75			ND		140
63	00/02/70			ND		46.8
64		29.545	0.78	374		46.8
65	44/47/65	28.136	0.81	(894)		140
66	44/41/00	32.748	0.77	700		46.8
67				ND		46.8
68				ND		46.8
69	49/69	27.566	0.80	(500)		93.6
70	61/70/74/76	32.362	0.79	(1500)		187
71	40/41/71	29.293	0.77	(450)		140
71	40/41/71	29.293	0.77 	(430) ND		46.8
73	43/73			ND ND		46.8
73 74	61/70/74/76	32.362	0.79	(1500)		187
74 75	59/62/75	32.302	0.79	(1500) ND		140
75 76	61/70/74/76	32.362	0.79	(1500)		187
70 77	01/70/74/70	37.376	0.79	141		46.8
7 <i>1</i> 78		37.370 	0.77	ND		46.8
76 79				64.6		46.8
79 80		35.800 	0.76 	ND		46.8
80 81				ND ND		
82		36.957		495		46.8 46.8
			1.61 1.53			
83		35.062	1.53	279		46.8
84	05/446/447	32.563	1.60	1150		46.8
85	85/116/117	36.470	1.59	640		140
86	86/87/97/108/119/125	35.800	1.60	2950		281
87	86/87/97/108/119/125	35.800	1.60	(2950)		281
88	88/91	32.328	1.58	581		93.6
89	00/404/440		4.50	ND		46.8
90	90/101/113	34.592	1.59	4990		140
91	88/91	32.328	1.58	(581)		93.6
92	00/00/400/400	33.972	1.59	846		46.8
93	93/98/100/102			ND		187
94				ND		46.8
95		31.389	1.62	4230		46.8
96				ND		46.8

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits Nn = Value obtained from additional analyses

Results reported on a dry weight basis

NA = Not Applicable NC = Not Calculated * = See Discussion X = Outside QC Limits RT = Retention Time

ND = Not Detected

I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PSJ0242-05;F0095978
Lab Sample ID 10114354005
Filename P91101B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.800	1.60	(2950)		281
98	93/98/100/102			NĎ		187
99		35.196	1.59	1540		46.8
100	93/98/100/102			ND		187
101	90/101/113	34.592	1.59	(4990)		140
102	93/98/100/102			` NĎ		187
103				ND		46.8
104				ND		46.8
105		40.998	1.59	1340		46.8
106				ND		46.8
107	107/124	39.087	1.52	142		93.6
108	86/87/97/108/119/125	35.800	1.60	(2950)		281
109		39.338	1.45	` 22 8		46.8
110	110/115	36.638	1.59	5760		93.6
111				ND		46.8
112				ND		46.8
113	90/101/113	34.592	1.59	(4990)		140
114		40.344	1.57	55.7		46.8
115	110/115	36.638	1.59	(5760)		93.6
116	85/116/117	36.470	1.59	(640)		140
117	85/116/117	36.470	1.59	(640)		140
118		39.808	1.57	3210		46.8
119	86/87/97/108/119/125	35.800	1.60	(2950)		281
120				` NĎ		46.8
121				ND		46.8
122		40.143	1.44	49.0		46.8
123				ND		46.8
124	107/124	39.087	1.52	(142)		93.6
125	86/87/97/108/119/125	35.800	1.60	(2950)		281
126				ND		46.8
127				ND		46.8
128	128/166	44.251	1.27	1240		93.6
129	129/138/163	42.977	1.26	11100		140
130		42.306	1.32	486		46.8
131		39.388	1.26	114		46.8
132		39.858	1.27	3410		46.8
133	404/440	40.411	1.27	124		46.8
134	134/143	38.768	1.27	438		93.6
135	135/151	37.594	1.29	6310		93.6
136		35.045	1.26 1.26	1770 361		46.8
137	120/129/162	42.541 42.977				46.8
138	129/138/163		1.26	(11100)		140
139 140	139/140	39.187 39.187	1.26 1.26	115 (115)		93.6 93.6
	139/140	39.187 41.904	1.26			
141 142		41.904	1.29	2750 ND		46.8 46.8
142	134/143	38.768	1.27	(438)		46.8 93.6
143	134/143	38.198	1.27	735		46.8
		55.155		. 50		. 5.0

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A = Limit of Detection based on signal to noise

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Nn = Value obtained from additional analyses

Results reported on a dry weight basis

NA = Not Applicable NC = Not Calculated * = See Discussion

ND = Not Detected

X = Outside QC Limits RT = Retention Time I = Interference

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-05;F0095978 10114354005 P91101B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145				ND		46.8
146		41.082	1.28	1430		46.8
147	147/149	38.567	1.27	11200		93.6
148	,			ND		46.8
149	147/149	38.567	1.27	(11200)		93.6
150	,			ND		46.8
151	135/151	37.594	1.29	(6310)		93.6
152				ND		46.8
153	153/168	41.719	1.25	11400		93.6
154	100/100	37.879	1.15	65.2		46.8
155				ND		46.8
156	156/157	47.236	1.22	816		93.6
157	156/157	47.236	1.22	(816)		93.6
158	100/107	43.379	1.28	963		46.8
159		45.207	1.16	269		46.8
160				ND		46.8
161				ND		46.8
162		45.660	1.22	175		46.8
163	129/138/163	42.977	1.26	(11100)		140
164	123/130/103	42.658	1.29	711		46.8
165		40.629	1.17	53.6		46.8
166	128/166	44.251	1.27	(1240)		93.6
167	120/100	46.079	1.29	312		46.8
168	153/168	41.719	1.25	(11400)		93.6
169	133/100	41.719	1.25	(11400) ND		46.8
170		49.919	1.07	4410		46.8
171	171/173	46.297	1.04	1370		93.6
172	17 1/173	47.974	1.03	951		46.8
173	171/173	46.297	1.03	(1370)		93.6
173	17 1/173	45.207	1.04	7780		46.8
175		44.067	1.13	296		46.8
176		41.535	1.07	968		46.8
177		45.660	1.04	3590		46.8
178		43.430	1.07	1700		46.8
179		40.629	1.07	3870		46.8
180	180/193	48.645	1.04	15100		93.6
181	100/193	40.043	1.04	ND		46.8
182				ND		46.8
183	183/185	44.989	0.99	4960		93.6
184	103/103		0.99	ND		46.8
185	183/185	44.989	0.99	(4960)		93.6
186	103/103	44.303	0.99	(4900) ND		46.8
187		44.352	1.06	11300		46.8
188			1.00	ND		46.8
189		53.180	0.94	133		46.8
190		50.473	1.08	1070		46.8
190		48.997	1.10	183		46.8
191		40.997	1.10	ND		46.8
102				שאו		+0.0

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Results reported on a dry weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion X = Outside QC Limits RT = Retention Time I = Interference

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-05;F0095978 10114354005 P91101B_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.645	1.04	(15100)		93.6
194		55.637	0.89	. 548Ó		70.2
195		52.878	0.89	2010		70.2
196		51.311	0.91	3090		70.2
197	197/200	47.739	0.90	1170		140
198	198/199	50.641	0.91	8080		140
199	198/199	50.641	0.91	(8080)		140
200	197/200	47.739	0.90	(1170)		140
201		46.717	0.89	[•] 929		70.2
202		45.777	0.90	1380		70.2
203		51.529	0.91	4520		70.2
204				ND		70.2
205		56.240	0.88	264		70.2
206		58.698	0.78	2300		70.2
207		53.632	0.79	327		70.2
208		52.619	0.81	477		70.2
209		61.263	0.74	123		70.2

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Nn = Value obtained from additional analyses

Results reported on a dry weight basis

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-05;F0095978 10114354005 P91101B_10

Congener Group	Concentration ng/Kg	
Total Monochloro Biphenyls	24.5	
Total Dichloro Biphenyls	1040	
Total Trichloro Biphenyls	2180	
Total Tetrachloro Biphenyls	7190	
Total Pentachloro Biphenyls	28500	
Total Hexachloro Biphenyls	56300	
Total Heptachloro Biphenyls	57700	
Total Octachloro Biphenyls	26900	
Total Nonachloro Biphenyls	3100	
Decachloro Biphenyls	123	
Total PCBs	183000	

ND = Not Detected
Results reported on a dry weight basis



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America-Portland

Client's Sample ID PSJ0242-06:F0095979 Lab Sample ID 10114354006 Filename P91027A_10

Injected By **SMT** 951 mL Total Amount Extracted

Water Matrix % Moisture NA Dilution NA Dry Weight Extracted NA Collected 10/06/2009 12:56

ICAL ID P91027A02 Received 10/09/2009 10:10 CCal Filename(s) P91027A 01 Extracted 10/23/2009 08:00 Method Blank ID BLANK-22134 Analyzed 10/27/2009 18:37

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.229	2.95	2.0	0.609	30
13C-4-MoCB	3	12.655	2.96	2.0	0.798	40
13C-2,2'-DiCB	4	13.002	1.74	2.0	0.683	34
13C-4,4'-DiCB	15	21.125	1.57	2.0	1.13	57
13C-2,2',6-TrCB	19	17.447	1.07	2.0	0.931	47
13C-3,4,4'-TrCB	37	29.443	1.09	2.0	1.70	85
13C-2,2',6,6'-TeCB	54	21.477	0.81	2.0	1.08	54
13C-3,4,4',5-TeCB	81	36.721	0.79	2.0	1.73	87
13C-3,3',4,4'-TeCB	77	37.308	0.78	2.0	1.75	87
13C-2,2',4,6,6'-PeCB	104	28.034	1.68	2.0	1.31	66
13C-2,3,3',4,4'-PeCB	105	40.914	1.64	2.0	1.71	85
13C-2,3,4,4',5-PeCB	114	40.226	1.65	2.0	1.76	88
13C-2,3',4,4',5-PeCB	118	39.706	1.64	2.0	1.77	88
13C-2,3',4,4',5'-PeCB	123	39.371	1.61	2.0	1.70	85
13C-3,3',4,4',5-PeCB	126	44.066	1.57	2.0	1.76	88
13C-2,2',4,4',6,6'-HxCB	155	34.256	1.34	2.0	1.57	79
13C-HxCB (156/157)	156/157	47.119	1.30	4.0	3.59	90
13C-2,3',4,4',5,5'-HxCB	167	45.945	1.28	2.0	1.80	90
13C-3,3',4,4',5,5'-HxCB	169	50.422	1.32	2.0	1.78	89
13C-2,2',3,4',5,6,6'-HpCB	188	40.226	1.05	2.0	1.72	86
13C-2,3,3',4,4',5,5'-HpCB	189	53.007	1.06	2.0	1.83	92
13C-2,2',3,3',5,5',6,6'-OcCB	202	45.660	0.94	2.0	1.72	86
13C-2,3,3',4,4',5,5',6-OcCB	205	56.046	0.90	2.0	1.63	81
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.439	0.79	2.0	1.67	83
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.489 60.982	0.82	2.0	1.64	82
13CDeCB	209	60.962	0.70	2.0	1.60	80
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.848	1.04	2.0	1.59	80
13C-2,3,3',5,5'-PeCB	111	37.341	1.65	2.0	1.66	83
13C-2,2 ['] ,3,3 ['] ,5,5 ['] ,6-HpCB	178	43.328	1.00	2.0	1.63	82
Recovery Standards						
13C-2,5-DiCB	9	15.914	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.961	0.80	2.0	ŇA	NA
13C-2,2',4,5,5'-PeCB	101	34.507	1.66	2.0	ŇA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.876	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	55.421	0.91	2.0	ŇA	NA
	. • .	·	0.01	=.5		

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Nn = Value obtained from additional analyses

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion X = Outside QC Limits RT = Retention Time

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-06;F0095979 10114354006 P91027A_10

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
1				ND		0.263
2				ND		0.263
3				ND		0.263
4				ND		0.263
5				ND		0.263
6				ND ND		0.263
7				ND ND		0.263
8				ND ND		0.263
9						0.263
				ND		
10				ND		0.263
11	40/40			ND		1.58
12	12/13			ND		0.526
13	12/13			ND		0.526
14				ND		0.263
15				ND		0.263
16				ND		0.263
17				ND		0.263
18	18/30			ND		0.526
19				ND		0.263
20	20/28			ND		0.526
21	21/33			ND		0.526
22				ND		0.263
23				ND		0.263
24				ND		0.263
25				ND		0.263
26	26/29			ND		0.526
27				ND		0.263
28	20/28			ND		0.526
29	26/29			ND		0.526
30	18/30			ND		0.526
31	10/00			ND		0.263
32				ND		0.263
33	21/33			ND		0.526
34	21/00			ND		0.263
35				ND		0.263
36				ND ND		0.263
36 37				ND ND		0.263
37						0.263
38				ND		0.263
39	40/44/74			ND		0.263
40	40/41/71			ND		1.58
41	40/41/71			ND		1.58
42	40/70			ND		0.526
43	43/73			ND		0.526
44	44/47/65			ND		1.58
45	45/51			ND		1.05
46				ND		0.526
47	44/47/65			ND		1.58
48				ND		0.526

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-06;F0095979 10114354006 P91027A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69			ND		1.05
50	50/53			ND		1.05
51	45/51			ND		1.05
52	10,01			ND		0.526
53	50/53			ND		1.05
54	00,00			ND		0.526
55				ND		0.526
56				ND		0.526
57				ND		0.526
58				ND		0.526
59	59/62/75			ND		1.58
60	39/02/13			ND		0.526
61	61/70/74/76			ND		2.10
62	59/62/75			ND		1.58
63	39/02/13			ND		0.526
64				ND ND		0.526
65	44/47/65			ND		1.58
66	44/47/03			ND ND		0.526
67				ND ND		0.526
68				ND ND		0.526
60	49/69					
69 70				ND ND		1.05
	61/70/74/76			ND ND		2.10
71	40/41/71			ND ND		1.58
72	42/72			ND ND		0.526
73	43/73			ND		0.526
74 75	61/70/74/76			ND		2.10
75	59/62/75			ND		1.58
76	61/70/74/76			ND		2.10
77				ND		0.526
78				ND		0.526
79				ND		0.526
80				ND		0.526
81				ND		0.526
82				ND		0.526
83				ND		0.526
84				ND		0.526
85	85/116/117			ND		1.58
86	86/87/97/108/119/125			ND		3.15
87	86/87/97/108/119/125			ND		3.15
88	88/91			ND		1.05
89				ND		0.526
90	90/101/113			ND		1.58
91	88/91			ND		1.05
92				ND		0.526
93	93/98/100/102			ND		2.10
94				ND		0.526
95				ND		0.526
96				ND		0.526

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-06;F0095979 10114354006 P91027A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125			ND		3.15
98	93/98/100/102			ND		2.10
99				ND		0.526
100	93/98/100/102			ND		2.10
101	90/101/113			ND		1.58
102	93/98/100/102			ND		2.10
103				ND		0.526
104				ND		0.526
105				ND		0.526
106				ND		0.526
107	107/124			ND		1.05
108	86/87/97/108/119/125			ND		3.15
109				ND		0.526
110	110/115			ND		1.05
111				ND		0.526
112				ND		0.526
113	90/101/113			ND		1.58
114				ND		0.526
115	110/115			ND		1.05
116	85/116/117			ND		1.58
117	85/116/117			ND		1.58
118				ND		0.526
119	86/87/97/108/119/125			ND		3.15
120				ND		0.526
121				ND		0.526
122				ND		0.526
123				ND		0.526
124	107/124			ND		1.05
125	86/87/97/108/119/125			ND		3.15
126				ND		0.526
127				ND		0.526
128	128/166			ND		1.05
129	129/138/163			ND		1.58
130				ND		0.526
131				ND		0.526
132				ND		0.526
133				ND		0.526
134	134/143			ND		1.05
135	135/151			ND		1.05
136				ND		0.526
137				ND		0.526
138	129/138/163			ND		1.58
139	139/140			ND		1.05
140	139/140			ND		1.05
141				ND		0.526
142				ND		0.526
143	134/143			ND		1.05
144				ND		0.526

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

ng's = Nanograms

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-06;F0095979 10114354006 P91027A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145				ND		0.526
146				ND		0.526
147	147/149			ND		1.05
148				ND		0.526
149	147/149			ND		1.05
150				ND		0.526
151	135/151			ND		1.05
152				ND		0.526
153	153/168			ND		1.05
154				ND		0.526
155				ND		0.526
156	156/157			ND		1.05
157	156/157			ND		1.05
158				ND		0.526
159				ND		0.526
160				ND		0.526
161				ND		0.526
162				ND		0.526
163	129/138/163			ND		1.58
164				ND		0.526
165				ND		0.526
166	128/166			ND		1.05
167				ND		0.526
168	153/168			ND		1.05
169				ND		0.526
170				ND		0.526
171	171/173			ND		1.05
172				ND		0.526
173	171/173			ND		1.05
174				ND		0.526
175				ND		0.526
176				ND		0.526
177				ND		0.526
178				ND		0.526
179				ND		0.526
180	180/193			ND		1.05
181				ND		0.526
182				ND		0.526
183	183/185			ND		1.05
184				ND		0.526
185	183/185			ND		1.05
186				ND		0.526
187				ND		0.526
188				ND		0.526
189				ND		0.526
190				ND		0.526
191				ND		0.526
192				ND		0.526

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

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NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-06;F0095979 10114354006 P91027A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193			ND		1.05
194				ND		0.788
195				ND		0.788
196				ND		0.788
197	197/200			ND		1.58
198	198/199			ND		1.58
199	198/199			ND		1.58
200	197/200			ND		1.58
201				ND		0.788
202				ND		0.788
203				ND		0.788
204				ND		0.788
205				ND		0.788
206				ND		0.788
207				ND		0.788
208				ND		0.788
209				ND		0.788

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms



Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID Lab Sample ID Filename PSJ0242-06;F0095979 10114354006 P91027A_10

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected

Water

Matrix



Tel: 612-607-1700 Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID BLANK-22134
Filename P91026A_08
Injected By CVS
Total Amount Extracted 961 mL

Total Amount Extracted 961 mL Extracted 10/23/2009 08:00 ICAL ID P91026A02 Analyzed 10/26/2009 22:40

CCal Filename(s) P91026A_01 Dilution NA

CCal Filename(s)	P91026A_	01		Dilution	NA	
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes 13C-2-MoCB 13C-4-MoCB 13C-4,4'-DiCB 13C-2,2',6-TrCB 13C-2,2',6,6'-TeCB 13C-3,4,4'-TrCB 13C-3,4,4',5-TeCB 13C-3,3',4,4'-TeCB 13C-2,2',4,6,6'-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,2',4,4',6,6'-HxCB 13C-2,2',4,4',5,5'-HxCB 13C-2,3',4,4',5,5'-HxCB 13C-2,3',4,4',5,5'-HxCB 13C-2,3',4,4',5,5'-HxCB 13C-2,3',3,4,4',5,5'-HpCB 13C-2,2',3,3',4,4',5,5'-HpCB 13C-2,2',3,3',4,4',5,5'-G-OcCB 13C-2,2',3,3',4,4',5,5',6-OcCB 13C-2,2',3,3',4,4',5,5',6-NoCB 13C-2,2',3,3',4,4',5,5',6-NoCB 13C-2,2',3,3',4,4',5,5',6,6'-NoCB 13C-2,2',3,3',4,4',5,5',6,6'-NoCB	1 3 4 15 19 37 54 81 77 104 105 114 118 123 126 155 156/157 167 169 188 189 202 205 206 208 209	9.181 12.609 12.968 21.081 17.390 29.397 21.431 36.658 37.262 27.988 40.850 40.196 39.660 39.308 44.020 34.226 47.072 45.882 50.376 40.163 52.951 45.613 55.947 58.340 52.434 60.884	2.21 1.68 1.49 1.56 1.10 1.06 0.80 0.76 0.78 1.59 1.61 1.65 1.55 1.66 1.34 1.28 1.30 1.31 1.08 1.01 0.88 0.92 0.80 0.82 0.70	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	0.0396 0.0879 0.0921 0.553 0.290 1.33 0.517 1.67 0.995 1.71 1.72 1.75 1.78 1.26 3.50 1.71 1.74 1.49 1.82 1.49 1.65 1.61 1.56	2 IR 5 IR 5 R 28 14 R 67 26 84 83 50 85 86 88 89 63 88 88 87 75 91 75 82 81 78 75
Cleanup Standards 13C-2,4,4'-TrCB 13C-2,3,3',5,5'-PeCB 13C-2,2',3,3',5,5',6-HpCB	28 111 178	24.802 37.278 43.282	1.08 1.59 1.04	2.0 2.0 2.0	1.13 1.55 1.57	56 77 79
Recovery Standards 13C-2,5-DiCB 13C-2,2',5,5'-TeCB 13C-2,2',4,5,5'-PeCB 13C-2,2',3,4,4',5'-HxCB 13C-2,2',3,3',4,4',5,5'-OcCB	9 52 101 138 194	15.880 26.915 34.461 42.829 55.365	1.62 0.86 1.62 1.34 0.93	2.0 2.0 2.0 2.0 2.0	NA NA NA NA	NA NA NA NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

X = Outside QC Limits

RT = Retention Time I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22134 P91026A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		9.241	2.53 I		0.261	0.260
2				ND		0.260
2 3 4 5 6 7				ND		0.260
4				ND		0.260
5				ND		0.260
6				ND		0.260
7				ND		0.260
8				ND		0.260
9				ND		0.260
10				ND		0.260
11				ND		1.56
12	12/13			ND		0.520
13	12/13			ND		0.520
14				ND		0.260
15				ND		0.260
16				ND		0.260
17				ND		0.260
18	18/30			ND		0.520
19				ND		0.260
20	20/28			ND		0.520
21	21/33			ND		0.520
22				ND		0.260
23				ND		0.260
24				ND		0.260
25				ND		0.260
26	26/29			ND		0.520
27				ND		0.260
28	20/28			ND		0.520
29	26/29			ND		0.520
30	18/30			ND		0.520
31				ND		0.260
32				ND		0.260
33	21/33			ND		0.520
34				ND		0.260
35				ND		0.260
36				ND		0.260
37				ND		0.260
38				ND		0.260
39				ND		0.260
40	40/41/71			ND		1.56
41	40/41/71			ND		1.56
42				ND		0.520
43	43/73			ND		0.520
44	44/47/65			ND		1.56
45	45/51			ND		1.04

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion

* = See DiscussionX = Outside QC LimitsRT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22134 P91026A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46				ND		0.520
47	44/47/65			ND		1.56
48				ND		0.520
49	49/69			ND		1.04
50	50/53			ND		1.04
51	45/51			ND		1.04
52	.5/5 :			ND		0.520
53	50/53			ND		1.04
54	33/33			ND		0.520
55				ND		0.520
56				ND		0.520
57				ND		0.520
58				ND		0.520
59	59/62/75			ND		1.56
60	00/02/10			ND		0.520
61	61/70/74/76			ND		2.08
62	59/62/75			ND		1.56
63	00/02/10			ND		0.520
64				ND		0.520
65	44/47/65			ND		1.56
66	44/4//05			ND		0.520
67				ND		0.520
68				ND		0.520
69	49/69			ND		1.04
70	61/70/74/76			ND		2.08
70 71	40/41/71			ND		1.56
72	40/41/71			ND		0.520
73	43/73			ND		0.520
73 74	61/70/74/76			ND		2.08
7 4 75	59/62/75			ND ND		1.56
76	61/70/74/76			ND ND		2.08
77	01/10/14/10			ND		0.520
78				ND		0.520
76 79				ND ND		0.520
80				ND ND		0.520
81				ND ND		0.520
82				ND ND		0.520
83				ND ND		0.520
84				ND ND		0.520
85	85/116/117			ND ND		1.56
86	86/87/97/108/119/125			ND ND		3.12
86 87				ND ND		
87 88	86/87/97/108/119/125 88/91					3.12 1.04
	00/9 I			ND		
89	00/101/112			ND ND		0.520
90	90/101/113			ND		1.56

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

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ng/L = Nanograms per liter

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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22134 P91026A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
		111	Natio		iig/L	
91	88/91			ND		1.04
92				ND		0.520
93	93/98/100/102			ND		2.08
94				ND		0.520
95				ND		0.520
96				ND		0.520
97	86/87/97/108/119/125			ND		3.12
98	93/98/100/102			ND		2.08
99				ND		0.520
100	93/98/100/102			ND		2.08
101	90/101/113			ND		1.56
102	93/98/100/102			ND		2.08
103				ND		0.520
104				ND		0.520
105				ND		0.520
106				ND		0.520
107	107/124			ND		1.04
108	86/87/97/108/119/125			ND		3.12
109				ND		0.520
110	110/115			ND		1.04
111				ND		0.520
112				ND		0.520
113	90/101/113			ND		1.56
114	00/101/110			ND		0.520
115	110/115			ND		1.04
116	85/116/117			ND		1.56
117	85/116/117			ND		1.56
118	03/110/11/			ND ND		0.520
119	86/87/97/108/119/125			ND ND		3.12
120	00/07/97/100/119/129			ND ND		0.520
121				ND ND		0.520
122				ND ND		0.520
123				ND ND		0.520
123	107/124			ND ND		1.04
125	86/87/97/108/119/125			ND ND		3.12
	00/07/97/100/119/123			ND ND		0.520
126 127						
	400/400			ND		0.520
128	128/166			ND		1.04
129	129/138/163			ND		1.56
130				ND		0.520
131				ND		0.520
132				ND		0.520
133	10.1/1.10			ND		0.520
134	134/143			ND		1.04
135	135/151			ND		1.04

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

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B = Less than 10 times higher than method blank level

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ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion

* = See Discussion X = Outside QC Limits RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22134 P91026A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136				ND		0.520
137				ND ND		0.520
138	129/138/163			ND		1.56
139	139/140			ND ND		1.04
140	139/140			ND ND		1.04
141	133/140			ND ND		0.520
142				ND		0.520
143	134/143			ND ND		1.04
144	104/140			ND		0.520
145				ND		0.520
146				ND		0.520
147	147/149			ND		1.04
148	1477140			ND		0.520
149	147/149			ND		1.04
150	1477140			ND		0.520
151	135/151			ND		1.04
152	100/101			ND		0.520
153	153/168			ND		1.04
154	100/100			ND		0.520
155				ND		0.520
156	156/157			ND		1.04
157	156/157			ND		1.04
158	100/107			ND		0.520
159				ND		0.520
160				ND		0.520
161				ND		0.520
162				ND		0.520
163	129/138/163			ND		1.56
164	120/100/100			ND		0.520
165				ND		0.520
166	128/166			ND		1.04
167	. = 0, . 0 0			ND		0.520
168	153/168			ND		1.04
169				ND		0.520
170				ND		0.520
171	171/173			ND		1.04
172				ND		0.520
173	171/173			ND		1.04
174	·, · · · ·			ND		0.520
175				ND		0.520
176				ND		0.520
177				ND		0.520
178				ND		0.520
179				ND		0.520
180	180/193			ND		1.04

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected NA = Not Applicable NC = Not Calculated

* = See Discussion

X = Outside QC Limits

RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22134 P91026A_08

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/L	ng/L	ng/L
181				ND		0.520
182				ND		0.520
183	183/185			ND		1.04
184				ND		0.520
185	183/185			ND		1.04
186				ND		0.520
187				ND		0.520
188				ND		0.520
189				ND		0.520
190				ND		0.520
191				ND		0.520
192				ND		0.520
193	180/193			ND		1.04
194				ND		0.780
195				ND		0.780
196				ND		0.780
197	197/200			ND		1.56
198	198/199			ND		1.56
199	198/199			ND		1.56
200	197/200			ND		1.56
201				ND		0.780
202				ND		0.780
203				ND		0.780
204				ND		0.780
205				ND		0.780
206				ND		0.780
207				ND		0.780
208				ND		0.780
209				ND		0.780

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

X = Outside QC Limits

RT = Retention Time

I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename

BLANK-22134 P91026A_08

Congener Group	Concentration ng/L	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	ND	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	ND	

ND = Not Detected



Method 1668A Polychlorobiphenyl **Blank Analysis Results**

Lab Sample ID BLANK-22143 Filename P91101A 05 Injected By BAL **Total Amount Extracted** 10.2 g **ICAL ID**

P91101A02 CCal Filename(s) P91101A 01

Matrix Extracted Analyzed Dilution

Solid-extracleanup 10/22/2009 16:10 11/01/2009 07:58

CCai Filename(s)	P91101A_	UΊ		Dilution	5	
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.157	3.34	2.0	0.819	41
13C-4-MoCB	3 4	12.571	3.20	2.0	1.02	51
13C-2,2'-DiCB	4	12.919	1.61	2.0	0.884	44
13C-4,4'-DiCB	15	21.066	1.68	2.0	1.37	69
13C-2,2',6-TrCB	19	17.376	1.05	2.0	1.17	59
13C-3,4,4'-TrCB	37	29.360	1.04	2.0	1.52	76
13C-2,2',6,6'-TeCB	54	21.378	0.82	2.0	1.20	60
13C-3,4,4',5-TeCB	81	36.637	0.79	2.0	1.66	83
13C-3,3',4,4'-TeCB	77 104	37.224 27.951	0.78 1.56	2.0 2.0	1.63 1.19	82 60
13C-2,2',4,6,6'-PeCB 13C-2,3,3',4,4'-PeCB	104	40.813	1.55	2.0	1.19	83
13C-2,3,4,4',5-PeCB	114	40.159	1.61	2.0	1.67	83
13C-2,3',4,4',5-PeCB	118	39.622	1.58	2.0	1.67	83
13C-2,3',4,4',5'-PeCB	123	39.287	1.62	2.0	1.62	81
13C-3,3',4,4',5-PeCB	126	43.982	1.56	2.0	1.69	84
13C-2,2',4,4',6,6'-HxCB	155	34.189	1.25	2.0	1.26	63
13C-HxCB (156/157)	156/157	47.017	1.28	4.0	3.24	81
13C-2,3',4,4',5,5'-HxĆB	167	45.860	1.27	2.0	1.64	82
13C-3,3',4,4',5,5'-HxCB	169	50.337	1.30	2.0	1.70	85
13C-2,2',3,4',5,6,6'-HpCB	188	40.142	1.05	2.0	1.38	69
13C-2,3,3',4,4',5,5'-HpCB	189	52.919	1.04	2.0	1.68	84
13C-2,2',3,3',5,5',6,6'-OcCB	202	45.592	0.91	2.0	1.45	72
13C-2,3,3',4,4',5,5',6-OcCB	205	55.894	0.93	2.0	1.64	82
13C-2,2',3,3',4,4',5,5',6-NoCB		58.308 52.380	0.80 0.76	2.0 2.0	1.67 1.60	83 80
13C-2,2',3,3',4,5,5',6,6'-NoCB 13CDeCB	208	60.829	0.76	2.0	1.54	77
13C-DeCB	209	00.029	0.71	2.0	1.54	7.7
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.765	1.03	2.0	1.54	77
13C-2,3,3',5,5'-PeCB	111	37.258	1.55	2.0	1.67	83
13C-2,2',3,3',5,5',6-HpCB	178	43.244	1.07	2.0	1.65	82
Recovery Standards						
13C-2,5-DiCB	9	15.842	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.895	0.83	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.424	1.63	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.791	1.33	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	55.312	0.93	2.0	NA	NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

Results reported on a dry weight basis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion X = Outside QC Limits

RT = Retention Time

I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91101A_05

	0 1 4		5 41	Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/Kg	ng/Kg	ng/Kg
1				ND		24.6
2				ND		24.6
3				ND		24.6
4				ND		24.6
5				ND		24.6
5 6				ND		24.6
7				ND		24.6
8				ND		24.6
9				ND		24.6
10				ND		24.6
11				ND		148
12	12/13			ND		49.3
13	12/13			ND		49.3
14				ND		24.6
15				ND		24.6
16				ND		24.6
17				ND		24.6
18	18/30			ND		49.3
19				ND		24.6
20	20/28			ND		49.3
21	21/33			ND		49.3
22				ND		24.6
23				ND		24.6
24				ND		24.6
25				ND		24.6
26	26/29			ND		49.3
27				ND		24.6
28	20/28			ND		49.3
29	26/29			ND		49.3
30	18/30			ND		49.3
31		24.447	0.89	30.7		24.6
32	0.1.100			ND		24.6
33	21/33			ND		49.3
34				ND		24.6
35				ND		24.6
36				ND		24.6
37				ND		24.6
38				ND		24.6
39	40/44/74			ND		24.6
40	40/41/71			ND		148
41	40/41/71			ND		148
42	40/70			ND		49.3
43	43/73			ND		98.5
44	44/47/65			ND		148
45	45/51			ND		98.5

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a dry weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91101A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46				ND		49.3
47	44/47/65			ND		148
48				ND		49.3
49	49/69			ND		98.5
50	50/53			ND		98.5
51	45/51			ND		98.5
52	16/61			ND		49.3
53	50/53			ND		98.5
54	00/00			ND		49.3
55				ND		49.3
56				ND		49.3
57				ND		49.3
58				ND		49.3
59	59/62/75			ND		148
60	00/02/10			ND		49.3
61	61/70/74/76			ND		197
62	59/62/75			ND		148
63	03/02/10			ND		49.3
64				ND		49.3
65	44/47/65			ND ND		148
66	44/4//05			ND ND		49.3
67				ND		49.3
68				ND ND		49.3
69	49/69			ND ND		98.5
70	61/70/74/76			ND		197
70 71	40/41/71			ND ND		148
72	40/41/71			ND ND		49.3
73	43/73			ND ND		98.5
73 74	61/70/74/76			ND ND		197
75 75	59/62/75			ND ND		148
76 76	61/70/74/76			ND ND		197
77 77	01/10/14/10			ND ND		49.3
78				ND ND		49.3
78 79				ND		49.3
80				ND ND		49.3 49.3
81				ND ND		49.3 49.3
82				ND ND		49.3 49.3
83				ND ND		49.3 49.3
84				ND ND		49.3 49.3
85	85/116/117			ND ND		49.3 148
86	86/87/97/108/119/125			ND ND		296
86 87	86/87/97/108/119/125			ND ND		296 296
	88/91					
88	00/9 I			ND		98.5
89	00/101/112			ND		49.3
90	90/101/113			ND		148

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a dry weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91101A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
91	88/91			ND		98.5
92				ND		49.3
93	93/98/100/102			ND		197
94				ND		49.3
95				ND		49.3
96				ND		49.3
97	86/87/97/108/119/125			ND		296
98	93/98/100/102			ND		197
99	33,33,133,132			ND		49.3
100	93/98/100/102			ND		197
101	90/101/113			ND		148
102	93/98/100/102			ND		197
103	30/30/100/102			ND		49.3
104				ND		49.3
105				ND		49.3
106				ND ND		49.3
107	107/124			ND ND		98.5
107	86/87/97/108/119/125			ND ND		296
108	00/07/97/100/119/125			ND ND		49.3
1109	110/115			ND ND		49.5 98.5
110	110/115			ND ND		
						49.3
112	00/404/440			ND		49.3
113	90/101/113			ND		148
114	440/445			ND		49.3
115	110/115			ND		98.5
116	85/116/117			ND		148
117	85/116/117			ND		148
118	00/07/07/400/440/407			ND		49.3
119	86/87/97/108/119/125			ND		296
120				ND		49.3
121				ND		49.3
122				ND		49.3
123				ND		49.3
124	107/124			ND		98.5
125	86/87/97/108/119/125			ND		296
126				ND		49.3
127				ND		49.3
128	128/166			ND		98.5
129	129/138/163			ND		148
130				ND		49.3
131				ND		49.3
132				ND		49.3
133				ND		49.3
134	134/143			ND		98.5
135	135/151			ND		98.5

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

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R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a dry weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
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I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91101A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
	OC CIGHOTIS		ratio		119/119	
136				ND		49.3
137				ND		49.3
138	129/138/163			ND		148
139	139/140			ND		98.5
140	139/140			ND		98.5
141				ND		49.3
142				ND		49.3
143	134/143			ND		98.5
144				ND		49.3
145				ND		49.3
146				ND		49.3
147	147/149			ND		98.5
148				ND		49.3
149	147/149			ND		98.5
150				ND		49.3
151	135/151			ND		98.5
152				ND		49.3
153	153/168			ND		98.5
154	100/100			ND		49.3
155				ND		49.3
156	156/157			ND		98.5
157	156/157			ND		98.5
158	100/107			ND		49.3
159				ND		49.3
160				ND		49.3
161				ND ND		49.3
162				ND ND		49.3
163	129/138/163			ND ND		148
164	129/130/103			ND ND		49.3
165				ND ND		49.3 49.3
166	128/166			ND ND		49.3 98.5
100	120/100					90.5
167	450/400			ND		49.3
168	153/168			ND		98.5
169				ND		49.3
170	474/470			ND		49.3
171	171/173			ND		98.5
172	4-4/4-0			ND		49.3
173	171/173			ND		98.5
174				ND		49.3
175				ND		49.3
176				ND		49.3
177				ND		49.3
178				ND		49.3
179				ND		49.3
180	180/193			ND		98.5

Conc = Concentration

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EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

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R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a dry weight basis

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NC = Not Calculated
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Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91101A_05

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/Kg	ng/Kg	ng/Kg
181				ND		49.3
182				ND		49.3
183	183/185			ND		98.5
184				ND		49.3
185	183/185			ND		98.5
186				ND		49.3
187				ND		49.3
188				ND		49.3
189				ND		49.3
190				ND		49.3
191				ND		49.3
192				ND		49.3
193	180/193			ND		98.5
194				ND		73.9
195				ND		73.9
196				ND		73.9
197	197/200			ND		148
198	198/199			ND		148
199	198/199			ND		148
200	197/200			ND		148
201				ND		73.9
202				ND		73.9
203				ND		73.9
204				ND		73.9
205				ND		73.9
206				ND		73.9
207				ND		73.9
208				ND		73.9
209				ND		73.9

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a dry weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename

BLANK-22143 P91101A_05

Congener Group	Concentration ng/Kg	
- Congenier Croup	9.1.9	
Total Monochloro Biphenyls	ND	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	30.7	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	30.7	

ND = Not Detected
Results reported on a dry weight basis



Method 1668A Polychlorobiphenyl **Blank Analysis Results**

Lab Sample ID BLANK-22143 Filename P91105A 09 Injected By SMT Total Amount Extracted 10.2 g ICAL ID P91105B02

Matrix Extracted Analyzed

Solid-extracleanup 10/22/2009 16:10 11/05/2009 16:08

CCal Filename(s)	P91105B_	01		Dilution	NA	
PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes 13C-2-MoCB 13C-4-MoCB 13C-4-MoCB 13C-2,2'-DiCB 13C-2,2',6-TrCB 13C-2,2',6-TrCB 13C-3,4,4'-TrCB 13C-3,3',4,4'-TeCB 13C-3,3',4,4'-TeCB 13C-2,2',4,6,6'-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,3',4,4',5-PeCB 13C-2,2',4,4',5-PeCB 13C-2,2',4,4',5-PeCB 13C-2,2',4,4',5-PeCB 13C-2,2',4,4',5,5'-HxCB 13C-2,2',3,4,4',5,5'-HxCB 13C-2,2',3,4',5,5'-HxCB 13C-2,2',3,4',5,5'-HxCB 13C-2,2',3,3',4,4',5,5'-HpCB 13C-2,3,3',4,4',5,5'-HpCB 13C-2,3,3',4,4',5,5',6-OcCB 13C-2,3,3',4,4',5,5',6-OcCB 13C-2,2',3,3',4,4',5,5',6-NoCB 13C-2,2',3,3',4,4',5,5',6-NoCB 13C-2,2',3,3',4,4',5,5',6-NoCB 13C-2,2',3,3',4,4',5,5',6-NoCB	1 3 4 15 19 37 54 81 77 104 105 114 118 123 126 155 156/157 167 169 188 189 202 205 206 208 209	9.432 12.739 13.086 21.125 17.459 29.375 21.443 36.653 37.240 27.966 40.845 40.174 39.638 39.302 43.998 34.204 47.049 45.876 50.370 40.157 52.940 45.590 55.958 58.328 52.401 60.872	2.69 3.02 1.64 1.58 1.13 1.07 0.80 0.78 0.80 1.69 1.70 1.63 1.57 1.55 1.69 1.30 1.28 1.27 1.27 1.07 1.08 0.93 0.93 0.79 0.82 0.73	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	0.245 0.737 0.464 1.60 0.848 1.82 1.12 1.97 2.09 1.99 1.93 1.92 1.85 2.06 1.10 4.01 1.96 2.05 1.21 1.86 1.33 1.60 1.39 1.45 1.23	12 R 37 23 R 80 42 91 56 98 104 55 100 97 96 93 103 55 100 98 102 61 93 67 80 69 72 62
Cleanup Standards 13C-2,4,4'-TrCB 13C-2,3,3',5,5'-PeCB 13C-2,2',3,3',5,5',6-HpCB	28 111 178	24.797 37.273 43.260	1.02 1.63 1.05	2.0 2.0 2.0	1.80 1.75 1.50	90 88 75
Recovery Standards 13C-2,5-DiCB 13C-2,2',5,5'-TeCB 13C-2,2',4,5,5'-PeCB 13C-2,2',3,4,4',5'-HxCB 13C-2,2',3,3',4,4',5,5'-OcCB	9 52 101 138 194	15.949 26.910 34.439 42.807 55.333	1.61 0.79 1.62 1.29 0.91	2.0 2.0 2.0 2.0 2.0	NA NA NA NA	NA NA NA NA NA

Conc = Concentration

EML =Method Specified Reporting Limit (1668A) EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

Nn = Value obtained from additional analyses

Results reported on a total weight basis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

X = Outside QC Limits

RT = Retention Time I = Interference

ng's = Nanograms



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91105A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.432	3.04	49.9		24.6
2		12.499	3.10	54.7		24.6
2 3		12.751	2.87	34.5		24.6
4			2.07	ND		24.6
5				ND		24.6
5 6 7				ND		24.6
7				ND		24.6
8				ND		24.6
9				ND		24.6
10				ND		24.6
11				ND		148
12	12/13			ND		49.3
13	12/13			ND		49.3
14	12/13			ND		24.6
15				ND		24.6
16				ND		24.6
17				ND		24.6
18	18/30			ND ND		49.3
19	10/30			ND ND		24.6
20	20/28			ND ND		49.3
20 21	21/33			ND ND		49.3 49.3
22	21/33			ND ND		24.6
23				ND ND		24.6
23 24				ND ND		24.6
24 25				ND ND		24.6 24.6
26 26	26/29			ND ND		49.3
20 27	20/29			ND ND		24.6
27 28	20/28			ND ND		49.3
29	26/29			ND ND		49.3
30	18/30	04.470		ND		49.3
31 32		24.479	0.98	35.1 ND		24.6
32	04/00					24.6
33	21/33			ND ND		49.3
34				ND		24.6
35				ND		24.6
36				ND		24.6
37				ND ND		24.6
38				ND ND		24.6
39	40/44/74			ND		24.6
40	40/41/71			ND		148
41	40/41/71			ND		148
42	40/70			ND		49.3
43	43/73			ND		98.5
44	44/47/65			ND		148
45	45/51			ND		98.5

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91105A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46				ND		49.3
47	44/47/65			ND		148
48	,, 66			ND		49.3
49	49/69			ND		98.5
50	50/53			ND		98.5
51	45/51			ND		98.5
52				ND		49.3
53	50/53			ND		98.5
54				ND		49.3
55				ND		49.3
56				ND		49.3
57				ND		49.3
58				ND		49.3
59	59/62/75			ND		148
60				ND		49.3
61	61/70/74/76			ND		197
62	59/62/75			ND		148
63				ND		49.3
64				ND		49.3
65	44/47/65			ND		148
66				ND		49.3
67				ND		49.3
68				ND		49.3
69	49/69			ND		98.5
70	61/70/74/76			ND		197
71	40/41/71			ND		148
72				ND		49.3
73	43/73			ND		98.5
74	61/70/74/76			ND		197
75	59/62/75			ND		148
76	61/70/74/76			ND		197
77				ND		49.3
78				ND		49.3
79				ND		49.3
80				ND		49.3
81				ND		49.3
82				ND		49.3
83				ND		49.3
84	0=///0//			ND		49.3
85	85/116/117			ND		148
86	86/87/97/108/119/125			ND		296
87	86/87/97/108/119/125			ND		296
88	88/91			ND		98.5
89				ND		49.3
90	90/101/113			ND		148

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91105A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
IUFAC	Co-elutions	N I	Natio	ng/Ng	ilg/Kg	ng/kg
91	88/91			ND		98.5
92				ND		49.3
93	93/98/100/102			ND		197
94				ND		49.3
95				ND		49.3
96				ND		49.3
97	86/87/97/108/119/125			ND		296
98	93/98/100/102			ND		197
99				ND		49.3
100	93/98/100/102			ND		197
101	90/101/113			ND		148
102	93/98/100/102			ND		197
103				ND		49.3
104				ND		49.3
105				ND		49.3
106				ND		49.3
107	107/124			ND		98.5
108	86/87/97/108/119/125			ND		296
109				ND		49.3
110	110/115			ND		98.5
111				ND		49.3
112				ND		49.3
113	90/101/113			ND		148
114				ND		49.3
115	110/115			ND		98.5
116	85/116/117			ND		148
117	85/116/117			ND		148
118				ND		49.3
119	86/87/97/108/119/125			ND		296
120				ND		49.3
121				ND		49.3
122				ND		49.3
123				ND		49.3
124	107/124			ND		98.5
125	86/87/97/108/119/125			ND		296
126				ND		49.3
127				ND		49.3
128	128/166			ND		98.5
129	129/138/163			ND		148
130	-			ND		49.3
131				ND		49.3
132				ND		49.3
133				ND		49.3
134	134/143			ND		98.5
135	135/151			ND		98.5
				· ·		

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91105A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
	OO CIGUIOTIS		ratio		119/119	
136				ND		49.3
137				ND		49.3
138	129/138/163			ND		148
139	139/140			ND		98.5
140	139/140			ND		98.5
141				ND		49.3
142				ND		49.3
143	134/143			ND		98.5
144				ND		49.3
145				ND		49.3
146				ND		49.3
147	147/149			ND		98.5
148				ND		49.3
149	147/149			ND		98.5
150				ND		49.3
151	135/151			ND		98.5
152				ND		49.3
153	153/168			ND		98.5
154	100/100			ND		49.3
155				ND		49.3
156	156/157			ND		98.5
157	156/157			ND		98.5
158	100/107			ND		49.3
159				ND		49.3
160				ND		49.3
161				ND ND		49.3
162				ND ND		49.3
163	129/138/163			ND ND		148
164	129/130/103			ND ND		49.3
165				ND ND		49.3 49.3
166	128/166			ND ND		49.3 98.5
100	120/100					90.5
167	450/400			ND		49.3
168	153/168			ND		98.5
169				ND		49.3
170	474/470			ND		49.3
171	171/173			ND		98.5
172	4-4/4-0			ND		49.3
173	171/173			ND		98.5
174				ND		49.3
175				ND		49.3
176				ND		49.3
177				ND		49.3
178				ND		49.3
179				ND		49.3
180	180/193			ND		98.5

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID Filename

BLANK-22143 P91105A_09

				Concentration	EMPC	EML
IUPAC	Co-elutions	RT	Ratio	ng/Kg	ng/Kg	ng/Kg
181				ND		49.3
182				ND		49.3
183	183/185			ND		98.5
184				ND		49.3
185	183/185			ND		98.5
186				ND		49.3
187				ND		49.3
188				ND		49.3
189				ND		49.3
190				ND		49.3
191				ND		49.3
192				ND		49.3
193	180/193			ND		98.5
194				ND		73.9
195				ND		73.9
196				ND		73.9
197	197/200			ND		148
198	198/199			ND		148
199	198/199			ND		148
200	197/200			ND		148
201				ND		73.9
202				ND		73.9
203				ND		73.9
204				ND		73.9
205				ND		73.9
206				ND		73.9
207				ND		73.9
208				ND		73.9
209				ND		73.9

Conc = Concentration

EML =Method Specified Reporting Limit (1668A)

EMPC = Estimated Maximum Possible Concentration

A = Limit of Detection based on signal to noise

B = Less than 10 times higher than method blank level

R = Recovery outside of Method 1668A control limits

ng/L = Nanograms per liter

Results reported on a total weight basis

ND = Not Detected NA = Not Applicable NC = Not Calculated * = See Discussion X = Outside QC Limits RT = Retention Time I = Interference



Method 1668A Polychlorobiphenyl Blank Analysis Results

Client Sample ID Lab Sample ID Filename

BLANK-22143 P91105A_09

Congener Group	Concentration ng/Kg	
Congener Croup	nanta	
Total Monochloro Biphenyls	139	
Total Dichloro Biphenyls	ND	
Total Trichloro Biphenyls	35.1	
Total Tetrachloro Biphenyls	ND	
Total Pentachloro Biphenyls	ND	
Total Hexachloro Biphenyls	ND	
Total Heptachloro Biphenyls	ND	
Total Octachloro Biphenyls	ND	
Total Nonachloro Biphenyls	ND	
Decachloro Biphenyls	ND	
Total PCBs	174	

ND = Not Detected
Results reported on a total weight basis



Method 1668A Polychlorobiphenyls **Laboratory Control Spike Analysis Results**

Lab Sample ID Filename

Total Amount Extracted

ICAL ID CCal Filename(s)

Method Blank ID

LCS-22135 P91026A_11

948 mL P91026A02 P91026A_01 BLANK-22134 Matrix Water Dilution NA

Extracted 10/23/2009 08:00 Analyzed 10/27/2009 01:56

Injected By **CVS**

	1	Native Analy	tes	Lal	beled Analyt	es	
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recove	ery
1	1.0	1.08	108	2.0	0.404	20	 R
3	1.0	1.01	101	2.0	0.515	26	R
4	1.0	1.06	106	2.0	0.423	21	R
15	1.0	1.15	115	2.0	0.853	43	
19	1.0	0.984	98	2.0	0.578	29	R
37	1.0	1.04	104	2.0	1.51	75	
54	1.0	0.995	100	2.0	0.750	37	
81	1.0	0.996	100	2.0	1.69	84	
77	1.0	0.995	99	2.0	1.67	84	
104	1.0	0.921	92	2.0	1.13	57	
105	1.0	1.09	109	2.0	1.75	88	
114	1.0	1.00	100	2.0	1.82	91	
118	1.0	1.03	103	2.0	1.82	91	
123	1.0	0.979	98	2.0	1.82	91	
126	1.0	1.00	100	2.0	1.92	96	
155	1.0	1.03	103	2.0	1.32	66	
156/157	2.0	2.05	102	4.0	3.67	92	
167	1.0	1.02	102	2.0	1.81	91	
169	1.0	1.02	102	2.0	1.84	92	
188	1.0	1.05	105	2.0	1.54	77	
189	1.0	1.04	104	2.0	1.85	93	
202	1.0	1.03	103	2.0	1.62	81	
205	1.0	1.00	100	2.0	1.74	87	
206	1.0	1.00	100	2.0	1.72	86	
208	1.0	0.997	100	2.0	1.61	81	
209	1.0	0.985	99	2.0	1.62	81	

R = Recovery outside of method 1668A control limits

Nn = Result obtained from alternate analysis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion ng = Nanograms

I = Interference



Method 1668A Polychlorobiphenyls **Laboratory Control Spike Analysis Results**

Lab Sample ID LCS-22144 Filename P91101A_03 **Total Amount Extracted** 10.4 g ICAL ID P91101A02 CCal Filename(s)

P91101A_01 Method Blank ID BLANK-22143 Matrix Solid-extracleanup Dilution

Extracted 10/22/2009 16:10 Analyzed 11/01/2009 05:48

Injected By BAL

	N	Native Analyt	tes	Lal	beled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.07	107	2.0	0.653	33
3	1.0	1.10	110	2.0	0.948	47
4	1.0	1.07	107	2.0	0.865	43
15	1.0	1.07	107	2.0	1.47	74
19	1.0	1.01	101	2.0	1.17	58
37	1.0	1.08	108	2.0	1.63	81
54	1.0	0.996	100	2.0	1.22	61
81	1.0	0.971	97	2.0	1.79	90
77	1.0	1.01	101	2.0	1.74	87
104	1.0	0.979	98	2.0	1.27	64
105	1.0	1.06	106	2.0	1.80	90
114	1.0	1.02	102	2.0	1.74	87
118	1.0	1.12	112	2.0	1.76	88
123	1.0	1.03	103	2.0	1.75	88
126	1.0	0.995	99	2.0	1.86	93
155	1.0	1.02	102	2.0	1.38	69
156/157	2.0	1.95	97	4.0	3.73	93
167	1.0	1.02	102	2.0	1.79	90
169	1.0	0.990	99	2.0	1.89	94
188	1.0	1.03	103	2.0	1.41	70
189	1.0	1.03	103	2.0	1.76	88
202	1.0	0.995	99	2.0	1.52	76
205	1.0	1.04	104	2.0	1.73	86
206	1.0	0.996	100	2.0	1.71	86
208	1.0	1.01	101	2.0	1.61	80
209	1.0	1.03	103	2.0	1.61	81

R = Recovery outside of method 1668A control limits

Nn = Result obtained from alternate analysis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

ng = Nanograms I = Interference



Method 1668A Polychlorobiphenyls **Laboratory Control Spike Analysis Results**

Lab Sample ID LCS-22144 Filename P91105A_07 **Total Amount Extracted** 10.4 g ICAL ID P91105A02 CCal Filename(s) Method Blank ID

P91105A_01 BLANK-22143 Matrix Solid-extracleanup Dilution NA

Extracted 10/22/2009 16:10 Analyzed 11/05/2009 13:57

Injected By SMT

	1	Native Analy	tes	Lal	beled Analyt	es	
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recove	ery
1	1.0	1.35	135	2.0	0.221	11	 R
3	1.0	1.28	128	2.0	0.641	32	
4	1.0	1.20	120	2.0	0.425	21	R
15	1.0	1.08	108	2.0	1.89	95	
19	1.0	1.04	104	2.0	0.886	44	
37	1.0	1.06	106	2.0	1.99	99	
54	1.0	1.04	104	2.0	1.06	53	
81	1.0	0.978	98	2.0	2.07	104	
77	1.0	1.04	104	2.0	2.14	107	
104	1.0	1.01	101	2.0	1.13	56	
105	1.0	0.989	99	2.0	1.99	99	
114	1.0	0.974	97	2.0	1.99	99	
118	1.0	1.06	106	2.0	1.93	97	
123	1.0	0.941	94	2.0	1.95	97	
126	1.0	0.931	93	2.0	2.06	103	
155	1.0	1.01	101	2.0	1.23	61	
156/157	2.0	2.01	101	4.0	4.23	106	
167	1.0	0.973	97	2.0	2.12	106	
169	1.0	1.01	101	2.0	2.10	105	
188	1.0	1.06	106	2.0	1.39	69	
189	1.0	1.00	100	2.0	2.01	101	
202	1.0	1.09	109	2.0	1.43	72	
205	1.0	1.07	107	2.0	1.71	86	
206	1.0	1.03	103	2.0	1.49	74	
208	1.0	1.04	104	2.0	1.51	76	
209	1.0	1.09	109	2.0	1.28	64	

R = Recovery outside of method 1668A control limits

Nn = Result obtained from alternate analysis

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion

ng = Nanograms I = Interference



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Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID Filename

Total Amount Extracted

ICAL ID CCal Filena

CCal Filename(s) Method Blank ID LCSD-22136 P91026A_12 949 mL

P91026A02 P91026A_01 BLANK-22134 Matrix Water Dilution NA

Extracted 10/23/2009 08:00 Analyzed 10/27/2009 03:01

Injected By CVS

	1	Native Analy	tes	Lal	beled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.02	102	2.0	0.571	 29 F
3	1.0	1.05	105	2.0	0.741	37
4	1.0	1.06	106	2.0	0.629	31
15	1.0	1.08	108	2.0	1.24	62
19	1.0	0.968	97	2.0	0.871	44
37	1.0	1.04	104	2.0	1.82	91
54	1.0	0.997	100	2.0	1.13	56
81	1.0	0.997	100	2.0	1.89	95
77	1.0	1.01	101	2.0	1.88	94
104	1.0	0.970	97	2.0	1.38	69
105	1.0	1.07	107	2.0	1.82	91
114	1.0	1.02	102	2.0	1.91	95
118	1.0	1.12	112	2.0	1.88	94
123	1.0	1.01	101	2.0	1.92	96
126	1.0	1.00	100	2.0	1.92	96
155	1.0	0.993	99	2.0	1.55	78
156/157	2.0	2.13	106	4.0	3.71	93
167	1.0	1.06	106	2.0	1.84	92
169	1.0	1.00	100	2.0	1.83	92
188	1.0	1.05	105	2.0	1.70	85
189	1.0	1.07	107	2.0	1.88	94
202	1.0	1.01	101	2.0	1.71	85
205	1.0	1.04	104	2.0	1.73	87
206	1.0	0.999	100	2.0	1.68	84
208	1.0	1.01	101	2.0	1.63	82
209	1.0	0.956	96	2.0	1.69	84

R = Recovery outside of method 1668A control limits

Nn = Result obtained from alternate analysis

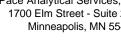
ND = Not Detected

NA = Not Applicable

NC = Not Calculated

^{* =} See Discussion

ng = Nanograms I = Interference





Method 1668A Spike Recovery Relative Percent Difference (RPD) Results

Client Test America-Portland

Spike 1 ID LCS-22135 Spike 2 ID LCSD-22136 Spike 1 Filename Spike 2 Filename P91026A_11 P91026A_12

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD	
2-MoCB	1	108	102	5.7	
4-MoCB	3	101	105	3.9	
2,2'-DiCB	4	106	106	0.0	
4,4'-DiCB	15	115	108	6.3	
2,2',6-TrCB	19	98	97	1.0	
3,4,4'-TrCB	37	104	104	0.0	
2,2',6,6'-TeCB	54	100	100	0.0	
3,3',4,4'-TeCB	77	99	101	2.0	
3,4,4',5-TeCB	81	100	100	0.0	
2,2',4,6,6'-PeCB	104	92	97	5.3	
2,3,3',4,4'-PeCB	105	109	107	1.9	
2,3,4,4',5-PeCB	114	100	102	2.0	
2,3',4,4',5-PeCB	118	103	112	8.4	
2,3',4,4',5'-PeCB	123	98	101	3.0	
3,3',4,4',5-PeCB	126	100	100	0.0	
2,2',4,4',6,6'-HxCB	155	103	99	4.0	
(156/157)	156/157	102	106	3.8	
2,3',4,4',5,5'-HxCB	167	102	106	3.8	
3,3',4,4',5,5'-HxCB	169	102	100	2.0	
2,2',3,4',5,6,6'-HpCB	188	105	105	0.0	
2,3,3',4,4',5,5'-HpCB	189	104	107	2.8	
2,2',3,3',5,5',6,6'-OcCB	202	103	101	2.0	
2,3,3',4,4',5,5',6-OcCB	205	100	104	3.9	
2,2',3,3',4,4',5,5',6-NoCB	206	100	100	0.0	
2,2',3,3',4,5,5',6,6'-NoCB	208	100	101	1.0	
Decachlorobiphenyl	209	99	96	3.1	

%REC = Percent Recovered

RPD = The difference between the two values divided by the mean value



Method 1668A Polychlorobiphenyls Matrix Spike Analysis Results

Client - Test America-Portland

Lab Sample ID Filename

Total Amount Extracted

ICAL ID

CCal Filename(s)
Method Blank ID

10114354001-MS P91102A_03

16.4 g

P91102A02 P91102A_01 BLANK-22143 Matrix Solid Dilution 5

Extracted 10/22/2009 16:10 Analyzed 11/02/2009 06:55

Injected By BAL

	N	Native Analy	tes	Lal	beled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	5.74	574	2.0	0.177	12 F
3	1.0	10.1	1015	2.0	0.704	35
4	1.0	17.9	1788	2.0	0.532	27
15	1.0	26.8	2684	2.0	1.48	74
19	1.0	21.8	2178	2.0	0.943	47
37	1.0	34.4	3440	2.0	1.53	77
54	1.0	1.61	161	2.0	1.09	54
81	1.0	1.48	148	2.0	1.68	84
77	1.0	15.2	1525	2.0	1.64	82
104	1.0	1.05	105	2.0	1.26	63
105	1.0	60.8	6082	2.0	1.56	78
114	1.0	4.85	485	2.0	1.56	78
118	1.0	132	13193	2.0	1.54	77
123	1.0	3.75	375	2.0	1.54	77
126	1.0	1.31	131	2.0	1.62	81
155	1.0	1.03	103	2.0	1.32	66
156/157	2.0	19.2	961	4.0	2.86	71
167	1.0	6.56	656	2.0	1.44	72
169	1.0	1.27	127	2.0	1.47	74
188	1.0	1.06	106	2.0	1.50	75
189	1.0	2.30	230	2.0	1.58	79
202	1.0	4.04	404	2.0	1.50	75
205	1.0	1.79	179	2.0	1.39	70
206	1.0	6.31	631	2.0	1.47	73
208	1.0	2.27	227	2.0	1.48	74
209	1.0	2.66	266	2.0	1.30	65

R = Recovery outside of method

1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

* = See Discussion ng = Nanograms



Method 1668A Polychlorobiphenyls Matrix Spike Analysis Results

Client - Test America-Portland

Lab Sample ID Filename

Total Amount Extracted

ICAL ID

CCal Filename(s) Method Blank ID 10114354001-MSD

P91102A_04 16.8 g

P91102A02 P91102A_01 BLANK-22143 Matrix Solid Dilution 5

Extracted 10/22/2009 16:10 Analyzed 11/02/2009 08:00

Injected By BAL

	N	Native Analy	tes	Lal	beled Analyt	es
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	3.30	330	2.0	0.243	14 F
3	1.0	3.17	317	2.0	0.801	40
4	1.0	21.1	2106	2.0	0.597	30
15	1.0	27.9	2792	2.0	1.35	68
19	1.0	23.4	2336	2.0	0.970	48
37	1.0	33.9	3392	2.0	1.54	77
54	1.0	1.65	165	2.0	1.10	55
81	1.0	1.39	139	2.0	1.63	82
77	1.0	14.8	1476	2.0	1.63	82
104	1.0	1.08	108	2.0	1.19	60
105	1.0	56.9	5686	2.0	1.52	76
114	1.0	4.75	475	2.0	1.45	73
118	1.0	118	11805	2.0	1.53	76
123	1.0	2.88	288	2.0	1.54	77
126	1.0	1.06	106	2.0	1.58	79
155	1.0	1.03	103	2.0	1.29	64
156/157	2.0	17.9	893	4.0	2.81	70
167	1.0	6.16	616	2.0	1.43	72
169	1.0	1.19	119	2.0	1.42	71
188	1.0	1.04	104	2.0	1.53	76
189	1.0	2.36	236	2.0	1.60	80
202	1.0	4.43	443	2.0	1.44	72
205	1.0	1.85	185	2.0	1.33	67
206	1.0	17.9	1792	2.0	1.44	72
208	1.0	7.30	730	2.0	1.37	68
209	1.0	17.4	1738	2.0	1.33	67

R = Recovery outside of method

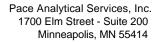
1668A control limits

ND = Not Detected

NA = Not Applicable

NC = Not Calculated
* = See Discussion

ng = Nanograms



Pace Analytical™

Tel: 612-607-1700 Fax: 612- 607-6444

Method PCB1668-209 Spike Sample Results

Client - Test America-Portland Client Sample ID PSJ0242-01;F0095974 **Dry Weights** Sample Filename Lab Sample ID P91101B 11 Sample Amount 10.9 g 10114354001 MS Filename MS ID P91102A_03 MS Amount 10114354001-MS 11.0 g MSD ID MSD Amount P91102A_04 11.2 g 10114354001-MSD MSD Filename

	Sample Conc.	MS/MSD Qs	MS Qm	MSD Qm		Backgrou	nd Subtracted	
Analyte	ng/Kg	(ng)	(ng)	(ng)	RPD	MS % Rec.	MSD % Rec.	RPD
2-MoCB	190.000	1.00	5.74	3.30	53.8	365	117	102.6
4-MoCB	154.000	1.00	10.15	3.17	104.8	845	144	141.8
2,2'-DiCB	1730.000	1.00	17.88	21.06	16.4	0	162	200.0
4,4'-DiCB	2150.000	1.00	26.84	27.92	3.9	315	375	17.5
2,2',6-TrCB	1970.000	1.00	21.78	23.36	7.0	13	127	163.2
3,4,4'-TrCB	2540.000	1.00	34.40	33.92	1.4	642	539	17.6
2,2',6,6'-TeCB	56.500	1.00	1.61	1.65	2.1	99	101	2.2
3,3',4,4'-TeCB	1100.000	1.00	15.25	14.76	3.3	313	239	26.5
3,4,4',5-TeCB	0.000	1.00	1.48	1.39	6.2	111	102	9.1
2,2',4,6,6'-PeCB	0.000	1.00	1.05	1.08	2.8	105	108	2.8
2,3,3',4,4'-PeCB	4360.000	1.00	60.82	56.86	6.7	1288	795	47.3
2,3,4,4',5-PeCB	276.000	1.00	4.85	4.75	2.1	181	165	9.3
2,3',4,4',5-PeCB	9360.000	1.00	131.93	118.05	11.1	2891	1297	76.1
2,3',4,4',5'-PeCB	207.000	1.00	3.75	2.88	26.3	147	56	90.4
3,3',4,4',5-PeCB	0.000	1.00	1.31	1.06	21.4	111	85	26.4
2,2',4,4',6,6'-HxCB	0.000	1.00	1.03	1.03	0.3	103	103	0.3
(156/157)	1170.000	2.00	19.21	17.85	7.3	315	234	29.5
2,3',4,4',5,5'-HxCB	380.000	1.00	6.56	6.16	6.3	238	189	22.8
3,3',4,4',5,5'-HxCB	0.000	1.00	1.27	1.19	6.5	112	103	7.7
2,2',3,4',5,6,6'-HpCB	0.000	1.00	1.06	1.04	2.5	106	104	2.5
2,3,3',4,4',5,5'-HpCB	95.900	1.00	2.30	2.36	2.8	124	128	3.5
2,2',3,3',5,5',6,6'-OcCB	223.000	1.00	4.04	4.43	9.2	158	192	19.4
2,3,3',4,4',5,5',6-OcCB	0.000	1.00	1.79	1.85	3.4	117	121	4.1
2,2',3,3',4,4',5,5',6-NoCB		1.00	6.31	17.92	95.8	176	1327	153.2
2,2',3,3',4,5,5',6,6'-NoCB		1.00	2.27	7.30	105.1	107	608	140.0
Decachlorobiphenyl	132.000	1.00	2.66	17.38	146.8	121	1589	171.7

Definitions

MS = Matrix Spike Qm = Quantity Measured MSD = Matrix Spike Duplicate Qs = Quantity Spiked

% Rec. = Percent Recovery

RPD = Relative Percent Difference NA = Not Applicable

January 28, 2010: Inline Solids Grab Sampling



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.gsiwatersolutions.com

Laboratory Data QA/QC Review Inline Solids Investigation City Outfall Basin 44

To: File

From: Andrew Davidson, GSI Water Solutions, Inc.

Date: March 1, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from source control investigation sampling and analyses conducted by the City of Portland (City) in January 2010. Six catch basin solids samples including one duplicate sample were collected in Outfall Basin 44 on January 28, 2010 and submitted for analyses.

The laboratory analyses for these solids samples were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and the subcontracted laboratory. The following laboratories conducted the analyses listed below:

- BES WPCL
 - o Total solids (TSS) SM 2540G
 - o Polychlorinated Biphenyls (PCB) Aroclors EPA 8082
- Test America (TA)
 - o Total Organic Carbon EPA 9060 MOD

The WPCL summary report and the subcontracted laboratory's data report are attached for all analyses associated with these source control program samples. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation provided by the subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within accuracy control limits
- Internal standard recoveries within accuracy control limits
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within control limits
- Laboratory control and duplicate laboratory control (LC/DLC) sample recoveries within control limits

The results from the QA/QC review of the available information in the laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained through the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the acceptable holding times for all analyses.

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analysis of TOC. No analytes were detected in the method blank.

Matrix Spike/Matrix Spike Duplicates

MS/MSD samples were processed during the TOC analysis. All MS/MSD recoveries were within acceptance limits.

Laboratory Control Sample

An LC sample was process during the TOC analysis. The LC sample recovery was within acceptance limits.

Other

The WPCL reports that method reporting limits for the PCB Aroclor analysis are raised due to the low percent solids in the sample.

Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services



Date:

Page:

Collected By: WDS, SOW

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6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO105157 Sample Collected: 01/28/10 10:55 Sample Status: COMPLETE AND

Sample Received: 01/28/10 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 1 of 1

Address/Location: IL-44-APG312-0110

Sample Type:COMPOSITELocCode:PORTHARISample Matrix:SEDIMENTCollected By:MJS/JJM/CJK

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Method reporting limits are raised for PCB analysis due to the low percent solids in the sample.

GENERAL TOTAL SOLIDS 56.3 % W/W 0.01 SM 2540 G 01/28/ GC ANALYSIS POLYCHLORINATED BIPHENYLS (PCB) Aroclor 1016/1242 <20 μg/Kg dry wt 20 EPA 8082 02/02/2 Aroclor 1221 <40 μg/Kg dry wt 40 EPA 8082 02/02/2 Aroclor 1232 <20 μg/Kg dry wt 20 EPA 8082 02/02/2 Aroclor 1248 <20 μg/Kg dry wt 20 EPA 8082 02/02/2 Aroclor 1254 <20 μg/Kg dry wt 20 EPA 8082 02/02/2 Aroclor 1260 35 μg/Kg dry wt 20 EPA 8082 02/02/2 Aroclor 1262 <20 μg/Kg dry wt 20 EPA 8082 02/02/2 Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/2 OUTSIDE ANALYSIS <20 μg/Kg dry wt 20 EPA 8082 02/02/2						Analysis
TOTAL SOLIDS 56.3 % W/W 0.01 SM 2540 G 01/28/ GC ANALYSIS POLYCHLORINATED BIPHENYLS (PCB) Aroclor 1016/1242 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1221 <40 μg/Kg dry wt 40 EPA 8082 02/02/ Aroclor 1232 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1248 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1254 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1260 35 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1262 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02/	Test Parameter	Result	Units	MRL	Method	Date
GC ANALYSIS POLYCHLORINATED BIPHENYLS (PCB) Aroclor 1016/1242 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1221 <40 μg/Kg dry wt 40 EPA 8082 02/02μ Aroclor 1232 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1248 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1254 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1260 35 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1262 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1263 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1264 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1265 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02μ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 02/02μ	GENERAL				•	
POLYCHLORINATED BIPHENYLS (PCB) Aroclor 1016/1242 <20 μg/Kg dry wt	TOTAL SOLIDS	56.3	% W/W	0.01	SM 2540 G	01/28/10
Aroclor 1016/1242 <20 μg/Kg dry wt 20 EPA 8082 $02/02$ μ Aroclor 1221 <40 μg/Kg dry wt 40 EPA 8082 $02/02$ μ Aroclor 1232 <20 μg/Kg dry wt 20 EPA 8082 $02/02$ μ Aroclor 1248 <20 μg/Kg dry wt 20 EPA 8082 $02/02$ μ Aroclor 1254 <20 μg/Kg dry wt 20 EPA 8082 $02/02$ μ Aroclor 1260 35 μg/Kg dry wt 20 EPA 8082 $02/02$ μ Aroclor 1262 <20 μg/Kg dry wt 20 EPA 8082 $02/02$ μ Aroclor 1268 <20 μg/Kg dry wt 20 EPA 8082 $02/02$ μ OUTSIDE ANALYSIS	GC ANALYSIS				•	
Aroclor 1221	POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1232 <20 μg/Kg dry wt	Aroclor 1016/1242	<20	μ g/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1248 <20 μg/Kg dry wt	Aroclor 1221	<40	μg/Kg dry wt	40	EPA 8082	02/02/10
Aroclor 1254	Aroclor 1232	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1260 35 μ g/Kg dry wt 20 EPA 8082 02/02 μ g/Kg dry w	Aroclor 1248	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1262	Aroclor 1254	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1268	Aroclor 1260	35	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1268 <20 $\mu g/Kg$ dry wt 20 EPA 8082 02/02/0UTSIDE ANALYSIS	Aroclor 1262	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
	Aroclor 1268	<20		20	EPA 8082	02/02/10
TOTAL ORGANIC CARBON 86400 mg/Kg dry wt 100 EPA 9060 MOD 02/11/	OUTSIDE ANALYSIS					
	TOTAL ORGANIC CARBON	86400	mg/Kg dry wt	100	EPA 9060 MOD	02/11/10

End of Report for Sample ID: FO105157

Validated By:

Report Date: 02/18/10



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LABORATORY ANALYSIS REPORT

Sample ID: FO105158 Sample Collected: 01/28/10 11:40 Sample Status: COMPLETE AND

Sample Received: 01/28/10 VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page: Page 1 of 1

Address/Location: IL-44-APG314-0110

N LEWIS NE OF RR TRACKS &NW OF MH ABC261 System ID: AO01044

Sample Point Code:44_19EID File #: 1020.001Sample Type:COMPOSITELocCode: PORTHARI

Sample Matrix: SEDIMENT Collected By: MJS/JJM/CJK

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Method reporting limits are raised for PCB analysis due to the low percent solids in the sample.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	39.3	% W/W	0.01	SM 2540 G	01/28/10
GC ANALYSIS		e de la companya de l			
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1221	<60	μg/Kg dry wt	60	EPA 8082	02/02/10
Aroclor 1232	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1248	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1254	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1260	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1262	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1268	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	104000	mg/Kg dry wt	100	EPA 9060 MOD	02/11/10

End of Report for Sample ID: FO105158

Validated By:

Report Date: 02/18/10



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LABORATORY ANALYSIS REPORT

Sample ID: FO105159

Sample Collected: 01/28/10 Sample Received: 01/28/10 11:46

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Report Page:

Page 1 of 1

Address/Location:

IL-44-APG315-0110 N LEWIS NE OF RR TRACKS &SE OF MH ABC261

System ID:

AO01045

Sample Point Code:

44_20

EID File #:

1020.001

Sample Type:

COMPOSITE

LocCode:

PORTHARI

Sample Matrix:

SEDIMENT

Collected By: MJS/JJM/CJK

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Method reporting limits are raised for PCB analysis due to the low percent solids in the sample.

Test Parameter	Result	Units	MRL	Method	Analysis Date
rest ratameter	Nesun	Onics		Mouroa	
GENERAL	•				
TOTAL SOLIDS	28.7	% W/W	0.01	SM 2540 G	01/28/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					-
Aroclor 1016/1242	<30	μ g/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1221	<60	μg/Kg dry wt	60	EPA 8082	02/02/10
Aroclor 1232	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1248	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1254	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1260	<30	μg/Kg dry wt	30	EPA 8082	. 02/02/10
Aroclor 1262	<30	μg/Kg dry wt	⊲30	EPA 8082	02/02/10
Aroclor 1268	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
OUTSIDE ANALYSIS				·	
TOTAL ORGANIC CARBON	141000	mg/Kg dry wt	100	EPA 9060 MOD	02/11/10

End of Report for Sample ID: FO105159

Report Date: 02/18/10

Validated By:



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LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample ID: FO105160 12:15 Sample Collected: 01/28/10

VALIDATED Sample Received: 01/28/10

Page 1 of 1 Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page:

Address/Location: IL-44-APG313-0110

2317 N CLARK AVE SE OF MH ABC259 System ID: AO01046 EID File #: 1020.001 Sample Point Code: 44 21

PORTHARI LocCode: Sample Type: COMPOSITE

Sample Matrix: **SEDIMENT** Collected By: MJS/JJM/CJK

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Method reporting limits are raised for PCB analysis due to the low percent solids in the sample.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	36.2	% W/W	0.01	SM 2540 G	01/28/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PC	(B)				
Aroclor 1016/1242	´ <30	μ g/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1221	<60	μ g/Kg dry wt	60	EPA 8082	02/02/10
Aroclor 1232	<30	μ g/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1248	<30	μ g/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1254	<30	μg/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1260	<30	μ g/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1262	<30	μ g/Kg dry wt	30	EPA 8082	02/02/10
Aroclor 1268	<30	μ g/Kg dry wt	30	EPA 8082	02/02/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	148000	mg/Kg dry wt	100	EPA 9060 MOD	02/11/10

End of Report for Sample ID: FO105160

Report Date: 02/18/10

Validated By:



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LABORATORY ANALYSIS REPORT

Sample Status: COMPLETE AND Sample Collected: 01/28/10 12:50 Sample ID: FO105161

VALIDATED Sample Received: 01/28/10

Page 1 of 1 Proj./Company Name: PORTLAND HARBOR INLINE SAMP Report Page:

Address/Location: IL-44-APG305-0110

N HARDING NE OF RR TRKS &SE OF MH ABC335 AO01047 System ID: 1020.001 Sample Point Code: EID File #:

PORTHARI LocCode: Sample Type: COMPOSITE

Sample Matrix: SEDIMENT Collected By: MJS/JJM/CJK

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Method reporting limits are raised for PCB analysis due to the low percent solids in the sample. Aroclor 1260 is reported as an estimate because the pattern is present but the calculated concentration is below the MRL.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	54.0	% W/W	0.01	SM 2540 G	01/28/10
GC ANALYSIS	•	•	•		
POLYCHLORINATED BIPHENYLS (PCB)				•	
Aroclor 1016/1242	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1221	<40	μ g/Kg dry wt	40	EPA 8082	02/02/10
Aroclor 1232	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1248	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1254	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1260	EST 15	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1262	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1268	<20	μ g/Kg dry wt	20	EPA 8082	02/02/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	77300	mg/Kg dry wt	100	EPA 9060 MOD	02/11/10

End of Report for Sample ID: FO105161

44 22

Validated By:

Report Date: 02/18/10



6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO105162

Sample Collected: 01/28/10

00:00

Sample Status: COMPLETE AND

Sample Received: 01/28/10

VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Report Page:

Page 1 of 1

Address/Location:

FIELD DUPLICATE

System ID:

AO01048

Sample Point Code:

DUP

EID File #:

1020.001

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

LocCode:

PORTHARI Collected By: MJS/JJM/CJK

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: Method reporting limits are raised for PCB analysis due to the low percent solids in the sample.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	54.6	% W/W	0.01	SM 2540 G	01/28/10
GC ANALYSIS			•		
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1221	<40	μg/Kg dry wt	40	EPA 8082	02/02/10
Aroclor 1232	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1248	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1254	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1260	41	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1262	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
Aroclor 1268	<20	μg/Kg dry wt	20	EPA 8082	02/02/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	83400	mg/Kg dry wt	100	EPA 9060 MOD	02/11/10

End of Report for Sample ID: FO105162

Validated By:

Report Date: 02/18/10



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132

ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

February 15, 2010

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 01/28/10 17:30. The following list is a summary of the Work Orders contained in this report, generated on 02/15/10 08:29.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	<u>ProjectNumber</u>	
PTA0743	Portland Harbor	36238	

TestAmerica Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.

Project Number: 36238

Report Created:

Portland, OR 97203

Project Manager: Jennifer Shackelford

02/15/10 08:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO 105157	PTA0743-01	Soil	01/28/10 10:55	01/28/10 17:30
FO 105158	PTA0743-02	Soil	01/28/10 11:40	01/28/10 17:30
FO 105159	PTA0743-03	Soil	01/28/10 11:46	01/28/10 17:30
FO 105160	PTA0743-04	Soil	01/28/10 12:15	01/28/10 17:30
FO 105161	PTA0743-05	Soil	01/28/10 12:50	01/28/10 17:30
FO 105162	PTA0743-06	Soil	01/28/10 00:00	01/28/10 17:30

TestAmerica Portland

Howard Holmes, Project Manager

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PORTLAND, OR

Portland Harbor

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

Report Created:



City of Portland Water Pollution Laboratory Project Name:

6543 N. Burlington Ave. Project Number: 36238

Portland, OR 97203 Project Manager: Jennifer Shackelford 02/15/10 08:29

Organic Carbon, Total (TOC)

TestAmerica Connecticut

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTA0743-01 (FO 105157)			Soil			Samj	pled: 01/28	/10 10:55		
Total Organic Carbon - Duplicates	9060	86400	30.0	100	mg/Kg	1x	35907	02/11/10 16:00	02/11/10 16:00	
PTA0743-02 (FO 105158)			Soil			Samj	pled: 01/28	/10 11:40		
Total Organic Carbon - Duplicates	9060	104000	30.0	100	mg/Kg	1x	35907	02/11/10 16:13	02/11/10 16:13	
PTA0743-03 (FO 105159)			Soil			Samj	pled: 01/28	/10 11:46		
Total Organic Carbon - Duplicates	9060	141000	30.0	100	mg/Kg	1x	35907	02/11/10 16:27	02/11/10 16:27	
PTA0743-04 (FO 105160)			Soil			Samj	pled: 01/28	/10 12:15		
Total Organic Carbon - Duplicates	9060	148000	30.0	100	mg/Kg	1x	35907	02/11/10 16:56	02/11/10 16:56	
PTA0743-05 (FO 105161)			Soil			Samj	pled: 01/28	/10 12:50		
Total Organic Carbon - Duplicates	9060	77300	30.0	100	mg/Kg	1x	35907	02/11/10 17:25	02/11/10 17:25	
PTA0743-06 (FO 105162)			Soil			Samj	pled: 01/28	/10 00:00		
Total Organic Carbon - Duplicates	9060	83400	30.0	100	mg/Kg	1x	35907	02/11/10 17:39	02/11/10 17:39	

TestAmerica Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



9405 S.W. NIMBUS AVENUE

BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210



City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 02/15/10 08:29

	Oı	rganic Carbo	n, Total (TOC) - 1	Laborato	ory Qua	ality Con	trol Re	sults					
			Te	stAmerica	Connectio	ut	•							
QC Batch: 35907	Soil Pro	eparation Metl	nod: NA											
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)) Analyzed	Notes
Matrix Spike Dup (114174D)				QC Source:	PTA0743-	04		Extr	acted:	02/11/10 17	:18			
Total Organic Carbon - Duplicates	9060	322100	30.0	100	mg/Kg	1x	148000	166000	104%	(75-125)	2%	(20)	02/11/10 17:18	
Matrix Spike (114174S)				QC Source:	PTA0743-	04		Extr	acted:	02/11/10 17	':10			
Total Organic Carbon - Duplicates	9060	316600	30.0	100	mg/Kg	1x	148000	171000	99%	(75-125)			02/11/10 17:10	
LCS (220-35907-6)				QC Source:				Extr	acted:	02/11/10 15	5:23			
Total Organic Carbon - Duplicates	9060	4210	30.0	100	mg/Kg	1x		3530	119%	(28-172)			02/11/10 15:23	
Blank (220-35907-7)				QC Source:				Extr	acted:	02/11/10 15	5:30			
Total Organic Carbon - Duplicates	9060	ND	30.0	100	mg/Kg	1x				-			02/11/10 15:30	

TestAmerica Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



Portland Harbor

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City of Portland Water Pollution Laboratory

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 02/15/10 08:29

Project Name:

Notes and Definitions

Report Specific Notes:

None

Laboratory Reporting Conventions:

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA Not Reported / Not Available

dry Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the

dilution found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits

percent solids, where applicable.

Electronic Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Signature

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 11922 E. First Ave, Spokane, WA 99206-5302 9405 SW Nimbus Ave, Beaverton, OR 97008-7145

509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210 425-420-9200 FAX 420-9210

CHAIN OF CUSTODY REPORT

Work Order #: PTAO 743	TURNAROUND REQUEST in Business Days *	Organic & Inorganic Analyses	STD. Petroleum Hydrocarbon Analyses	5 4 3 2 1 <1	SID. OTHER Concider	$\exists_{i_{\overline{s}}}^{\infty}$	MATRIX # OF LOCATION/ TA (W, S, O) CONT. COMMENTS WO ID	5					→			80/11	An Horse THE THE STATE	Sight Col FIRM: THE TIME: 1730	TEMP:
CHAIN OF CUSTODY REPORT	INVOICE TO: (1) +/P		PO. NUMBER: 36238	PRESERVATIVE	REQUESTED ANALYSES											(DATE: 1/28/10 RECEIVED BY: // // PALLY NAME: // // // // // // // // // // // // //	DATE: 01/28/10 RECEIVED BY: 4 LEMPHY TIME: 1720	111
	CLENT: City of Perstand	ADDRESS: Jehnifor Shacke/book	PHONE: FAX: (r name:	PROJECT NUMBER:	SAMPLED BY:	CLIENT SAMPLE SAMPLING DATE/TIME	X 2001 01/82/1 45/201 CF.	10 10 5158 1 1140	1 1 1 1 bs 15 01 03 5	1 50 10 5160 / 1215	50 10 516 / (150 /	\$ 50 10 5162 4 /	7	α.	10	RELEASED BY: MALONAZINE JOHN FIRM. Cipy of Portion	RELEASED THE MAN HONNING FIRM: THE	ADDITIONAL REMARKS:

TAL-1000(0408)

TestAmerica Portland Sample Receiving Checklist

Work Order #: PTA0743 Date/Time Received: 1/28/10 1730 Client Name and Project: City of Vortland Fortland Horbor
Time Zone:
Unpacking Checks: Cooler #(s): Temperature out of Range Not enough or No Ice Ice Melted Digi #1 Digi #2 IR Gun W/in 4 Hrs of collection Other:
N/A Yes No Initials: 5 1. If ESI client, were temp blanks received? If no, document on NOD. 2. Cooler Seals intact? (N/A if hand delivered) if no, document on NOD. 3. Chain of Custody present? If no, document on NOD. 4. Bottles received intact? If no, document on NOD. 5. Sample is not multiphasic? If no, document on NOD. 6. Proper Container and preservatives used? If no, document on NOD. 7. pH of all samples checked and meet requirements? If no, document on NOD. 8. Cyanide samples checked for sulfides and meet requirements? If no, notify PM. 9. HF Dilution required? 10. Sufficient volume provided for all analysis? If no, document on NOD and consult PM before proceeding. 11. Did chain of custody agree with samples received? If no, document on NOD.
☐ ☐ 12. Is the "Sampled by" section of the COC completed? ☐ ☐ 13. Were VOA/Oil Syringe samples without headspace? ☐ ☐ 14. Were VOA vials preserved? ☐ HCl ☐ Sodium Thiosulfate ☐ Ascorbic Acid ☐ ☐ 15. Did samples require preservation with sodium thiosulfate? ☐ ☐ 16. If yes to #14, was the residual chlorine test negative? If no, document on NOD. ☐ ☐ 17. Are dissolved/field filtered metals bottles sediment-free? If no, document on NOD. ☐ ☐ 18. Is sufficient volume provided for client requested MS/MSD or matrix duplicates? If no, document on NOD and contact PM before proceeding. ☐ ☐ 19. Are analyses with short holding times received in hold? ☐ ☐ 20. Was Standard Turn Around (TAT) requested? ☐ ☐ 11. Receipt date(s) < 48 hours past the collection date(s)? If no, notify PM.

TestAmerica Portland Sample Receiving Checklist

Work Order #: PTAO743 Initials: Login Checks: N/A Yes No 22. Sufficient volume provided for all analysis? If no, document on NOD & contact PM. \square 23. Sufficient volume provided for client requested MS/MSD or matrix duplicates? If no, document on NOD and contact PM. 24. Did the chain of custody include "received by" and "relinquished by" signatures, dates and times? 25. Were special log in instructions read and followed? 26. Were tests logged checked against the COC? 27. Were rush notices printed and delivered? 28. Were short hold notices printed and delivered? 29. Were subcontract COCs printed? 30. Was HF dilution logged? Labeling and Storage Checks: N/A Yes No 31. Were the subcontracted samples/containers put in Sx fridge? ☐ 32. Were sample bottles and COC double checked for dissolved/filtered metals? \mathbb{Z} П 33. Did the sample ID, Date, and Time from label match what was logged? 34. Were Foreign sample stickers affixed to each container and containers stored in foreign fridge? 35. Were HF stickers affixed to each container, and containers stored in Sx fridge?

☐ ☐ 36. Was an NOD for created for noted discrepancies and placed in folder?

Document any problems or discrepancies and the actions taken to resolve them on a Notice of Discrepancy

form (NOD).

April 28, 2010: Inline Solids Grab Sampling



55 SW Yamhill Street, Suite 400 Portland, OR 97204 P: 503.239.8799 F: 503.239.8940 info@gsiwatersolutions.com www.gsiwatersolutions.com

Laboratory Data QA/QC Review Inline Solids Investigation City Outfall Basin 44

To: File

From: Andrew Davidson, GSI Water Solutions, Inc.

Date: June 30, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from source control investigation sampling and analyses conducted by the City of Portland (City) in April 2010. One inline solids grab sample (FO105485) was collected in Outfall Basin 44 on April 28, 2010 and submitted for analyses.

The laboratory analyses for this solids sample were completed by the City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) and subcontracted laboratories. The following laboratories conducted the analyses listed below:

- BES WPCL
 - o Total solids (TSS) SM 2540G
- Test America (TA)
 - o Total Organic Carbon EPA 9060 MOD
- Columbia Analytical Services (CAS)
 - o Organochlorine Pesticides EPA 8081A

The WPCL summary report and the subcontracted laboratories' data reports are attached for all analyses associated with this source control program sample. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation provided by each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within accuracy control limits
- Internal standard recoveries within accuracy control limits
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within control limits
- Laboratory control and duplicate laboratory control (LC/DLC) sample recoveries within control limits

The results from the QA/QC review of the available information in the laboratory reports are presented below.

Chain-of-Custody

The chain-of-custody forms showed continuous custody of the samples. The chain-of-custody procedures were adequate and sample integrity was maintained through the sample collection and delivery process.

Analysis Holding Times

The samples were extracted and analyzed within the recommended method-specific holding times for all analyses.

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analyses of TOC and organochlorine pesticides. No analytes were detected in the method blanks.

Surrogate Recoveries

Surrogate recoveries were completed during the analyses of organochlorine pesticides. Surrogate recoveries were within the method-specified control limits for the field sample and all QA/QC analyses.

Matrix Spike/Matrix Spike Duplicates

MS/MSD samples were processed during the laboratory analysis of pesticides. All spiked analyte recoveries were within method-specified control limits in the MS and MSD samples. However, relative percent differences (RPD) between the MS and MSD samples were outside of control criteria for all spiked analytes except toxaphene.

Laboratory Control/Duplicate Laboratory Control Samples

LC samples were processed during the laboratory analysis of TOC and pesticides. A DLC sample was processed during the pesticide analysis. All laboratory control sample recoveries and relative percent differences were within laboratory control limits.

Other

For 4,4'-DDT, results from the primary and verification gas chromatography columns exceeded the confirmation comparison criteria of 40% difference during pesticide analysis. CAS reports that the higher of the two values was reported when no evidence of matrix interference was observed. WPCL has flagged this result as an estimate in its summary report. Detection limits were elevated for several analytes during the pesticide analysis due to the presence of non-target background components. These analytes are qualified in the subcontracted report with an "I" flag to indicate that matrix interference prevented adequate resolution of the target compound.

Water Pollution Control Laboratory 6543 N. Burlington Ave.
Portland, Oregon 97203-4552 (503) 823-5696



City of Portland Chain-of-Custody Bureau of Environmental Services



Page: Date:

Collected By: JKB, MAN, PTB

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City of Portland Water Pollution Control Laboratory

6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656



LABORATORY ANALYSIS REPORT

Sample ID: FO105485

Sample Collected: 04/28/10 Sample Received: 04/28/10

11:41

Sample Status: COMPLETE AND

VALIDATED

Proj./Company Name:

PORTLAND HARBOR INLINE SAMP

Report Page:

Page 1 of 1

Address/Location:

IL-44-ABC343-0410

N LORING & RANDOLPH

System ID:

AO03968

Sample Point Code:

44_23

EID File #:

1020.001

Sample Type: Sample Matrix: COMPOSITE **SEDIMENT**

LocCode: Collected By: JXB/MAW/PTB

PORTHARI

Comments:

QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%.

T4 D	Result	Units	MRL	Method	Analysis Date
Test Parameter	Result	Units	IVITE	Wethou	
GENERAL				01107100	0.4/0.0/4.0
TOTAL SOLIDS	55.5	% W/W	0.01	SM 2540 G	04/29/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	36700	mg/Kg dry wt	100	EPA 9060 MOD	05/06/10
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<0.99	μg/Kg dry wt	0.99	EPA 8081A	05/03/10
4,4'-DDE	1.2	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
4,4'-DDT	EST 8.0	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Aldrin	<0.85	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Alpha-BHC	<0.85	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Alpha-Chlordane	16	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Beta-BHC	<0.86	μ g/Kg dry wt	0.86	EPA 8081A	05/03/10
Delta-BHC	<0.85	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Dieldrin	<0.85	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Endosulfan I	<0.85	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Endosulfan II	<0.85	μ g/Kg dry wt	0.85	EPA 8081A	05/03/10
Endosulfan Sulfate	<0.85	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Endrin	<0.85	μ g/Kg dry wt	0.85	EPA 8081A	05/03/10
Endrin Aldehyde	<0.85	μ g/Kg dry wt	0.85	EPA 8081A	05/03/10
Endrin Ketone	<0.85	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Gamma-BHC(Lindane)	<0.85	μ g/Kg dry wt	0.85	EPA 8081A	05/03/10
Gamma-Chlordane	18	μ g/Kg dry wt	0.85	EPA 8081A	05/03/10
Heptachlor	<2.7	µg/Kg dry wt	2.7	EPA 8081A	05/03/10
Heptachlor Epoxide	<0.85	μ g/Kg dry wt	0.85	EPA 8081A	05/03/10
Methoxychlor	<0.85	μg/Kg dry wt	0.85	EPA 8081A	05/03/10
Toxaphene	<96	μg/Kg dry wt	96	EPA 8081A	05/03/10

End of Report for Sample ID: FO105485

Report Date: 06/23/10 Validated By:



May 14, 2010

Analytical Report for Service Request No: K1004228

Jennifer Shackelford Portland, City of 1120 SW Fifth Avenue # 1000 Portland, OR 97204

RE: Portland Harbor Inline Samp.

Dear Jennifer:

Enclosed are the results of the sample submitted to our laboratory on April 29, 2010. For your reference, these analyses have been assigned our service request number K1004228.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela Project Chemist

PD/ln

CC:

Peter Abrams, City of Portland, Portland, OR

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value that was detected outside the quantitation range.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value that was detected outside the quantitation range.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value that was detected outside the quantitation range.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

 DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-







Client:

City of Portland

Project:

Portland Harbor Inline Samp.

Sample Matrix: Sediment

Service Request No.:

K1004228

Date Received:

04/29/10

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

One sediment sample was received for analysis at Columbia Analytical Services on 04/29/10. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A

Sample Confirmation Notes:

The confirmation comparison criteria of 40% difference for 4,4'-DDT was exceeded in this sample. The higher of the two values was reported when no evidence of a matrix interference was observed.

Elevated Detection Limits:

The detection limit was elevated for several analytes in this sample. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

No other anomalies associated with the analysis of these samples were observed.

Approved by	Date OSITIO

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inli

Sample Matrix:

Sediment

Total Solids

Prep Method:

Analysis Method:

NONE

Test Notes:

160.3M

Units: PERCENT

Service Request: K1004228

Basis: Wet

Sample Name

Lab Code

Date Collected

Date Received

Date Analyzed

Result

K1004228-001

04/28/2010

05/05/2010

Result

FO105485

04/29/2010

59.0

Notes

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SuperSet Reference: W1004071

Page

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QA/QC Report

Client: Project: Portland, City of Portland Harbor Inli

Sample Matrix:

Sediment

QID QC Report

Service Request: K1004228

Date Collected: 04/28/2010 **Date Received**: 04/29/2010

Date Analyzed: 05/05/2010

Duplicate Sample Summary
Total Solids

Prep Method:

NONE

Analysis Method:

160.3M

Units: PERCENT

Basis: Wet

Test Notes:

Duplicate Relative Sample Percent Sample Result Result Difference Result Average Notes Lab Code Sample Name FO105485 K1004228-001 59.0 59.8 59.4 1

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Page SuperSet Reference: W1004071

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Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inline Samp.

Sample Matrix:

Sediment

Service Request: K1004228

Date Collected: 04/28/2010 **Date Received:** 04/29/2010

Organochlorine Pesticides

Sample Name:

FO105485

Lab Code:

K1004228-001

Extraction Method:

EPA 3541

Analysis Method:

8081A

Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
alpha-BHC	ND U	0.85	0.11	1	05/03/10	05/08/10	KWG1004125	
beta-BHC	ND Ui	0.86	0.86	1	05/03/10	05/08/10	KWG1004125	
gamma-BHC (Lindane)	ND U	0.85	0.080	1	05/03/10	05/08/10	KWG1004125	
delta-BHC	ND Ui	0.85	0.85	1	05/03/10	05/08/10	KWG1004125	
Heptachlor	ND Ui	2.7	2.7	1	05/03/10	05/08/10	KWG1004125	
Aldrin	ND Ui	0.85	0.85	1	05/03/10	05/08/10	KWG1004125	
Heptachlor Epoxide	ND Ui	0.85	0.22	1	05/03/10	05/08/10	KWG1004125	
gamma-Chlordane†	18	0.85	0.090	1	05/03/10	05/08/10	KWG1004125	
Endosulfan I	ND Ui	1.1	1.1	1	05/03/10	05/08/10	KWG1004125	
alpha-Chlordane	16	0.85	0.10	1	05/03/10	05/08/10	KWG1004125	
Dieldrin	ND Ui	0.85	0.85	1	05/03/10	05/08/10	KWG1004125	
4,4'-DDE	1.2	0.85	0.11	1	05/03/10	05/08/10	KWG1004125	
Endrin	ND Ui	0.85	0.13	1	05/03/10	05/08/10	KWG1004125	
Endosulfan II	ND Ui	0.85	0.85	1	05/03/10	05/08/10	KWG1004125	
4,4'-DDD	ND Ui	0.99	0.99	1	05/03/10	05/08/10	KWG1004125	
Endrin Aldehyde	ND Ui	0.85	0.85	1	05/03/10	05/08/10	KWG1004125	
Endosulfan Sulfate	ND Ui	0.85	0.32	1	05/03/10	05/08/10	KWG1004125	
4,4'-DDT	8.0 P	0.85	0.17	1	05/03/10	05/08/10	KWG1004125	
Endrin Ketone	ND Ui	0.85	0.12	1	05/03/10	05/08/10	KWG1004125	
Methoxychlor	ND Ui	0.85	0.85	1	05/03/10	05/08/10	KWG1004125	
Toxaphene	ND Ui	96	96	1	05/03/10	05/08/10	KWG1004125	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Tetrachloro-m-xylene	75	21-112	05/08/10	Acceptable	
Decachlorobiphenyl	93	15-130	05/08/10	Acceptable	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic

Page 1 of 1

SuperSet Reference: RR114376

Analytical Results

Client:

Portland, City of

Project:

Portland Harbor Inline Samp.

Sample Matrix:

Sediment

Service Request: K1004228

Date Collected: NA

Date Received: NA

Organochlorine Pesticides

Sample Name:

Method Blank

Lab Code:

KWG1004125-9

Extraction Method:

EPA 3541

Units: ug/Kg Basis: Dry

Level: Low

Analysis Method:

8081A

Anna Horato BY anno	Dogult	^	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Analyte Name	Result				ractui	***************************************		KWG1004125	Note
alpha-BHC	ND		0.50	0.11	1	05/03/10	05/07/10		
beta-BHC	ND		0.50	0.18	1	05/03/10	05/07/10	KWG1004125	
gamma-BHC (Lindane)	ND	U	0.50	0.080	1	05/03/10	05/07/10	KWG1004125	
delta-BHC	ND	U	0.50	0.074	1	05/03/10	05/07/10	KWG1004125	
Heptachlor	ND	U	0.50	0.12	1	05/03/10	05/07/10	KWG1004125	
Aldrin	ND	U	0.50	0.16	1	05/03/10	05/07/10	KWG1004125	
Heptachlor Epoxide	ND	U	0.50	0.084	1	05/03/10	05/07/10	KWG1004125	
gamma-Chlordane†	ND	U	0.50	0.090	1	05/03/10	05/07/10	KWG1004125	
Endosulfan I	ND	U	0.50	0.063	1	05/03/10	05/07/10	KWG1004125	
alpha-Chlordane	ND	U	0.50	0.10	1	05/03/10	05/07/10	KWG1004125	
Dieldrin	ND	U	0.50	0.14	1	05/03/10	05/07/10	KWG1004125	
4,4'-DDE	ND	U	0.50	0.11	1	05/03/10	05/07/10	KWG1004125	
Endrin	ND	U	0.50	0.094	1	05/03/10	05/07/10	KWG1004125	
Endosulfan II	ND	U	0.50	0.14	1	05/03/10	05/07/10	KWG1004125	
4,4'-DDD	ND	U	0.50	0.11	1	05/03/10	05/07/10	KWG1004125	
Endrin Aldehyde	ND	U	0.50	0.12	1	05/03/10	05/07/10	KWG1004125	
Endosulfan Sulfate	ND	U	0.50	0.11	1	05/03/10	05/07/10	KWG1004125	
4,4'-DDT	ND	U	0.50	0.17	1	05/03/10	05/07/10	KWG1004125	
Endrin Ketone	ND	U	0.50	0.093	1	05/03/10	05/07/10	KWG1004125	
Methoxychlor	ND	U	0.50	0.19	1	05/03/10	05/07/10	KWG1004125	
Toxaphene	ND	U	25	4.8	1	05/03/10	05/07/10	KWG1004125	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	61	21-112	05/07/10	Acceptable Acceptable
Decachlorobiphenyl	72	15-130	05/07/10	

† Analyte Comments

gamma-Chlordane

For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

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Form 1A - Organic

SuperSet Reference:

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RR114376

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Inline Samp.

Sample Matrix:

Sediment

Service Request: K1004228

Surrogate Recovery Summary Organochlorine Pesticides

Extraction Method: EPA 3541

Analysis Method:

8081A

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2
FO105485	K1004228-001	75	93
Method Blank	KWG1004125-9	61	72
Batch QC	K1004237-014	67	66
Batch QC	K1004237-017	66	78
Batch QCMS	KWG1004125-10	67	73
Batch QCDMS	KWG1004125-11	31	35
Batch QCMS	KWG1004125-16	61	73
Batch QCDMS	KWG1004125-17	67	79
Lab Control Sample	KWG1004125-1	65	75
Duplicate Lab Control Sample	KWG1004125-2	76	84

Surrogate Recovery Control Limits (%)

Sur1 =	Tetrachloro-m-xylene	21-112
Sur2 =	Decachlorobiphenyl	15-130

Results flagged with an asterisk (*) indicate values outside control criteria. Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

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SuperSet Reference: RR114376

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Inline Samp.

Sample Matrix:

Sediment

Service Request: K1004228

Date Extracted: 05/03/2010 **Date Analyzed:** 05/08/2010

Matrix Spike/Duplicate Matrix Spike Summary Organochlorine Pesticides

Sample Name:

Batch QC

Lab Code:

K1004237-014

Extraction Method:

EPA 3541

Analysis Method:

8081A

Units: ug/Kg
Basis: Dry

Level: Low

Extraction Lot: KWG1004125

	Sample	KW	Batch QCMS /G1004125-1 Matrix Spike	.0	KW	ntch QCDMS G1004125-1 cate Matrix S	1	%Rec		RPD
Analyte Name	Result	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
alpha-BHC	ND	12.7	11.6	109	5.07	11.7	43	23-133	86 *	40
beta-BHC	ND	12.9	11.6	111	6.13	11.7	52	22-142	71 *	40
gamma-BHC (Lindane)	ND	12.8	11.6	111	5.19	11.7	44	26-135	85 *	40
delta-BHC	ND	13.3	11.6	115	5.26	11.7	45	25-148	87 *	40
Heptachlor	ND	12.3	11.6	106	4.95	11.7	42	21-136	85 *	40
Aldrin	ND	12.1	11.6	104	4.96	11.7	42	22-135	83 *	40
Heptachlor Epoxide	ND	11.0	11.6	95	4.62	11.7	40	25-129	81 *	40
gamma-Chlordane	ND	12.4	11.6	107	5.13	11.7	44	24-133	83 *	40
Endosulfan I	ND	10.6	11.6	92	4.54	11.7	39	15-119	80 *	40
alpha-Chlordane	ND	12.1	11.6	104	5.07	11.7	43	24-132	82 *	40
Dieldrin	ND	12.0	11.6	104	4.97	11.7	43	26-133	83 *	40
4,4'-DDE	ND	12.9	11.6	111	5.22	11.7	45	22-142	85 *	40
Endrin	ND	13.3	11.6	115	5.43	11.7	46	22-145	84 *	40
Endosulfan II	ND	10.9	11.6	94	4.65	11.7	40	13-129	81 *	40
4,4'-DDD	ND	12.1	11.6	104	5.00	11.7	43	19-143	83 *	40
Endrin Aldehyde	ND	10.9	11.6	94	4.64	11.7	40	10-129	80 *	40
Endosulfan Sulfate	ND	11.7	11.6	101	5.06	11.7	43	20-134	79 *	40
4,4'-DDT	ND	12.8	11.6	110	5.20	11.7	45	19-154	84 *	40
Endrin Ketone	ND	11.4	11.6	98	5.07	11.7	43	19-139	77 *	40
Methoxychlor	ND	12.1	11.6	105	5.58	11.7	48	24-151	74 *	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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RR114376

SuperSet Reference:

QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Inline Samp.

Sample Matrix:

Sediment

Service Request: K1004228

Date Extracted: 05/03/2010

Date Analyzed: 05/08/2010

Matrix Spike/Duplicate Matrix Spike Summary **Organochlorine Pesticides**

Sample Name:

Batch QC

Lab Code:

K1004237-017

Extraction Method: Analysis Method:

EPA 3541 8081A

Units: ug/Kg Basis: Dry

Level: Low

Extraction Lot: KWG1004125

Batch QCMS

Batch QCDMS

	Sample		/G1004125-1 Matrix Spike	.6		cate Matrix S		%Rec		RPD
Analyte Name	Result	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Toxaphene	ND	108	114	94	114	114	101	20-155	6	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3A - Organic

RR114376 SuperSet Reference:

Page

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QA/QC Report

Client:

Portland, City of

Project:

Portland Harbor Inline Samp.

Sample Matrix:

Sediment

Service Request: K1004228

Date Extracted: 05/03/2010 Date Analyzed: 05/07/2010 -

05/08/2010

Lab Control Spike/Duplicate Lab Control Spike Summary **Organochlorine Pesticides**

Extraction Method: Analysis Method:

EPA 3541

8081A

Units: ug/Kg

Basis: Dry Level: Low

Extraction Lot: KWG1004125

Lab Control Sample KWG1004125-1

Duplicate Lab Control Sample KWG1004125-2

		Control Spik			Lab Control		%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
alpha-BHC	17.7	20.0	89	19.9	20.0	99	36-139	11	40
beta-BHC	19.3	20.0	96	20.6	20.0	103	38-142	7	40
gamma-BHC (Lindane)	17.9	20.0	90	20.1	20.0	100	40-142	11	40
delta-BHC	18.6	20.0	93	20.3	20.0	102	48-145	9	40
Heptachlor	17.0	20.0	85	18.9	20.0	95	39-135	11	40
Aldrin	17.0	20.0	85	18.9	20.0	95	37-134	11	40
Heptachlor Epoxide	15.8	20.0	79	17.2	20.0	86	45-118	8	40
gamma-Chlordane	17.7	20.0	89	19.2	20.0	96	41-135	8	40
Endosulfan I	15.7	20.0	78	17.0	20.0	85	35-121	8	40
alpha-Chlordane	17.6	20.0	88	19.1	20.0	95	41-134	8	40
Dieldrin	17.8	20.0	89	19.3	20.0	96	46-136	8	40
4,4'-DDE	18.9	20.0	94	20.5	20.0	102	46-141	8	40
Endrin	19.1	20.0	95	20.4	20.0	102	40-152	6	40
Endosulfan II	16.6	20.0	83	18.0	20.0	90	39-128	8	40
4,4'-DDD	18.2	20.0	91	19.7	20.0	98	46-146	8	40
Endrin Aldehyde	16.7	20.0	83	18.3	20.0	91	32-132	9	40
Endosulfan Sulfate	17.4	20.0	87	19.0	20.0	95	43-138	9	40
4,4'-DDT	19.0	20.0	95	20.6	20.0	103	46-151	8	40
Endrin Ketone	18.3	20.0	92	19.8	20.0	99	47-135	8	40
Methoxychlor	19.3	20.0	96	20.4	20.0	102	42-147	5	40
Toxaphene	189	200	94	171	200	85	53-133	10	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Columbia
Analytical
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SR#: 1100 4718 coc# OF. PAGE

PROJECT NUMBER PROJECT NUMBER PROJECT NUMBER COMPANY/ADDRESS C1 TYSTATE/ZIP E-MAIL ADDRESS PHONE #	In the Samp. FACE	S310 Corpsisor SIM Signal Sign
SAMPLE I.D. DATE	TIME LAB I.D. MATRIX VI	PAHS WHOOLOGE THE WORLD STAN OOLOGE THE WORLD STAN OOLOGI THE WORL
F0105485 4128/10	1141 Sed. 1	X
REPORT REQUIREMENTS N. Routine Report: Method	INVOICE INFORMATION P.O. # Bill To:	Circle which metals are to be analyzed: Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg
Blank, Surrogate, as required		Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr TI Sn V Zn Hg *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)
II. Report Dup., MS, MSD as required	TURNAROUND REQUIREMENTS 24 hr. 48 hr.	ISTRUCTIONS/COMMENTS:
III. Data Validation Report (includes all raw data) IV. CLP Deliverable Report	ard (10-15 w e FAX Resu	
; ; ;	Requested Report Date	
Signature Mr. Coate/Time Printed Name Firm	10 110 Signature	RECEIVED BY: H. 20 (1.20) Signature Date/Time Signature Date/Time Signature Date/Time Signature Date/Tim

Columbia Analytical Services, Inc. Cooler Receipt and Preservation Form

PC_//

Client / Project: City	of Portland		Service Red	quest K10_(04228		
Received: 4/29/10	Opened: 4/29/10	<u> </u>	By: 1001	TOTAL PROPERTY CONTRACTOR AND PROPERTY CONTRACTOR CONTR			
1. Samples were received via?	Mail Fed Ex	UPS DH	L PDX ℓ	Courier	Hand Delivered		
2. Samples were received in: (circ	cle) <i>Cooler E</i>	Box Enve	elope Oth	er North	42/	N	Ά
3. Were <u>custody seals</u> on coolers?	Y (NA) Y	N If	yes, how many	and where?)		
If present, were custody seals is	ntact? Y	N	If present, we	re they signed	l and dated?	•	Y N
Cooler Temp Temp °C Blank °C	Thermometer (D	Cooler/COC ID N	3	Тгас	king Number	NA NA	Filed
7. Packing material used. <i>Inser</i>	ts Baggies Bubble I	Wrap Gel Pa	cks Wet Ice	Sleeves O	ther M		
8. Were custody papers properly f	illed out (ink, signed, etc	c.)?				NA (N (P
9. Did all bottles arrive in good co	ondition (unbroken)? In	dicate in the to	able below.			NA C	И
10. Were all sample labels complete	te (i.e analysis, preserva	tion, etc.)?				NA (N &
11. Did all sample labels and tags a	agree with custody paper	rs? <i>Indicate m</i>	ajor discrepand	cies in the tab	le on page 2.		N
12. Were appropriate bottles/conta	iners and volumes receiv	ved for the test	s indicated?			NA 6	D N
13. Were the pH-preserved bottles				Indicate in the	table below	NA)	Y N
14. Were VOA vials received with	out headspace? Indicate	e in the table b	elow.			(NA)	Y N
15. Was C12/Res negative?				•		(NA) Y	7 N
Sample ID on Bottle	Samj	ple ID on COC			Identified by:		
Sample ID		Head- space Broke	pH Reag	Volum ent adde		Initials	Time
				-			
Notes, Discrepancies, & Resolut	ions:						
						· · · · · · · · · · · · · · · · · · ·	
					· · · · · · · · · · · · · · · · · · ·		



PORTLAND, OR 9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132

ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

June 23, 2010

Jennifer Shackelford City of Portland Water Pollution Laboratory 6543 N. Burlington Ave. Portland, OR 97203

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 04/29/10 18:15. The following list is a summary of the Work Orders contained in this report, generated on 06/23/10 11:21.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	<u>ProjectNumber</u>
PTD0901	Portland Harbor	36238

TestAmerica Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford06/23/10 11:21

ANALYTICAL REPORT FOR SAMPLES											
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received							
FO105485	PTD0901-02	Soil	04/28/10 11:41	04/29/10 18:15							

TestAmerica Portland

Onnell W. Amil

Darrell Auvil For Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



PORTLAND, OR

9405 S.W. NIMBUS AVENUE BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory Project Name: Portland Harbor

6543 N. Burlington Ave.Project Number:36238Report Created:Portland, OR 97203Project Manager:Jennifer Shackelford06/23/10 11:21

Organic Carbon, Total (TOC)

TestAmerica Connecticut

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTD0901-02 (FO105485)			Soil			Samp	oled: 04/28/	10 11:41		
Total Organic Carbon - Duplicates	9060	36700	30.0	100	mg/Kg	1x	38079	05/06/10 14:48	05/06/10 14:48	

TestAmerica Portland

and W. Smil

Darrell Auvil For Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



PORTLAND, OR

9405 S.W. NIMBUS AVENUE

BEAVERTON, OR 97008-7132 ph: (503) 906.9200 fax: (503) 906.9210

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica

City of Portland Water Pollution Laboratory **Portland Harbor** Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 06/23/10 11:21

Organic Carbon, Total (TOC) - Laboratory Quality Control Results TestAmerica Connecticut													
QC Batch: 38079	Soil Pro	eparation Met	hod: NA										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % Amt REG		% RPD	(Limits	s) Analyzed	Notes
LCS (220-38079-5)				QC Source	:			Extracted	: 04/29/10 14	4:08			
Total Organic Carbon - Duplicates	9060	5681	30.0	100	mg/Kg	1x		4110 1389	6 (28-172)			04/29/10 14:08	
Blank (220-38079-6)				QC Source	:			Extracted	: 04/29/10 14	4:14			
Total Organic Carbon - Duplicates	9060	ND	30.0	100	mg/Kg	1x						04/29/10 14:14	•

TestAmerica Portland

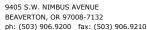
and W. Sail

Darrell Auvil For Howard Holmes, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



Portland Harbor



estAmeri THE LEADER IN ENVIRONMENTAL TESTING

City of Portland Water Pollution Laboratory Project Name:

6543 N. Burlington Ave. Project Number: 36238 Report Created: Portland, OR 97203 Project Manager: Jennifer Shackelford 06/23/10 11:21

Notes and Definitions

Report Specific Notes:

None

Laboratory Reporting Conventions:

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA Not Reported / Not Available

dry Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the

dilution found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits

percent solids, where applicable.

Electronic Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Signature

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Portland

Charle W. Amil

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244

11922 E. First Ave, Spokane, WA 99206-5302

2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

CHAIN OF CUSTODY REPORT

503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210 425-420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 9405 SW Nimbus Ave, Beaverton, OR 97008-7145

TA WO.ID Turnaround Requests less than standard may incur Rush Charges 5 4 3 2 1 <1 TURNAROUND REQUEST DATE: DATE TIME LOCATION/ COMMENTS in Business Days * OTHER | Specify: Work Order #: # OF CONT. U MATRIX (W, S, O) S. C. > harle lyth PRINT NAME: PRINT NAME: REQUESTED ANALYSES PRESERVATIVE P.O. NUMBER: 26,228 DATE: 4 29 10 FIRM. City of Portland 201 A plux Sud to PACE PROJECT NUMBER: Portland Harbor Inline PROJECT NUMBER: Jenniter Shackel for S 610 F SAMPLING DATE/TIME 1 28 10 CLENT: (144 of Portland F0105485 CLIENT SAMPLE IDENTIFICATION 18450107, SAMPLED BY: RELEASED BY: REPORT TO: ADDRESS: PRINT NAME RELEASED BY:

TAL-1000(0408)

TestAmerica Portland

Sample Receiving Checklist

	k Ord nt Nar	er #: PTDO90\ Date/Time Received: 4/29/10 18/5 me and Project: COFP
	Zone: OT/EST	CDT/CST MDT/MST PDT/PST MAK MOTHER
Co	oler #(
N/A	Yes	No Initials:
Z		1. If ESI client, were temp blanks received? If no, document on NOD.
		2. Cooler Seals intact? (N/A if hand delivered) if no, document on NOD.
	1	3. Chain of Custody present? If no, document on NOD.
		4. Bottles received intact? If no, document on NOD.
		5. Sample is not multiphasic? If no, document on NOD.
		6. Proper Container and preservatives used? If no, document on NOD.
		7. pH of all samples checked and meet requirements? If no, document on NOD.
		8. Cyanide samples checked for sulfides and meet requirements? If no, notify PM.
\square		9. HF Dilution required?
		 10. Sufficient volume provided for all analysis? If no, document on NOD and consult PM before proceeding. 11. Did chain of custody agree with samples received? If no, document on NOD.
		11. But chain of clastedy agree with samples received: If no, document on No
M		12. Is the Bampled by section of the coc completed: 13. Were VOA/Oil Syringe samples without headspace?
		14. Were VOA vials preserved? HCl Sodium Thiosulfate Ascorbic Acid
		15. Did samples require preservation with sodium thiosulfate?
	\Box	16. If yes to #15, was the residual chlorine test negative? If no, document on NOD.
		17. Are dissolved/field filtered metals bottles sediment-free? If no, document on NOD.
		18. Is sufficient volume provided for client requested MS/MSD or matrix duplicates? If
		no, document on NOD and contact PM before proceeding. 19. Are analyses with short holding times received in hold?
-		20. Was Standard Turn Around (TAT) requested?
		21. Receipt date(s) < 48 hours past the collection date(s)? If no, notify PM.

TestAmerica Portland Sample Receiving Checklist

Worl	(Ord	er #!	
Logi	n Ch	ecks:	Initials: W
N/A	Yes	No .	
		22. Sufficient volume provided for all analysis? If no, docume.	nt on NOD & contact PM
		23. Sufficient volume provided for client requested MS/MSD and a second se	
7		no, document on NOD and contact PM.	or main auphoaids, in
		24. Did the chain of custody include "received by" and "reling	uished by" signatures.
		dates and times?	and any angliana, but
		25. Were special log in instructions read and followed?	·
		26. Were tests logged checked against the COC?	
Ø		27. Were rush notices printed and delivered?	•
		28. Were short hold notices printed and delivered?	
		29. Were subcontract COCs printed?	
		30. Was HF dilution logged?	·
			1
Lab	•	and Storage Checks:	Initials
N/A	Yes	No	•
		31. Were the subcontracted samples/containers put in Sx fridge	;e? ·
		32. Were sample bottles and COC double checked for dissolve	ed/filtered metals?
		33. Did the sample ID, Date, and Time from label match what	: was logged?
		34. Were Foreign sample stickers affixed to each container an	d containers stored in
		foreign fridge?	
		35. Were HF stickers affixed to each container, and containers	s stored in Sx fridge?
Z		36. Was an NOD for created for noted discrepancies and place	ed in folder?
_	iment NOI	any problems or discrepancies and the actions taken to resolve them on.	on a Notice of Discrepancy

APPENDIX D

Sample Results for Albina PCB Cleanup Confirmation Sampling

1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 • Dan Saltzman, Commissioner • Dean Marriott, Director

Memorandum

Date: 9/21/10

To: Linda Scheffler

From: John O'Donovan, PE

RE: Sample Results for Albina PCB Cleanup Confirmation Sampling, 9ESWW0000042, CSA 1138

Background

The City of Portland's Bureau of Environmental Services (BES) Coordinated Site Analysis (CSA) program was requested to conduct confirmation environmental sampling and analysis for polychlorinated biphenyl (PCB) cleanup at the Albina Substation. The substation is located near the intersection of N River Street and N Lewis Avenue in Portland, Oregon. Sampling was conducted by Bridgewater Group, Inc. to determine if PCBs were present in City right of way areas. This sampling and analysis was conducted to verify results obtained by Bridgewater Group.

Sample Location and Frequency

A total of six collocated samples were obtained adjacent to samples collected by Bridgewater Group. The location of all samples can be found in Appendix A. Samples were collected in excavated areas surrounding the substation.

Sampling and Analysis

CSA personnel donned clean Nitril gloves to collect samples. Fresh gloves were used at each sample location. Soil samples were collected by filling amber glass jars with material. The samples were then capped with new, clean Teflon lined lids, and placed in an iced cooler for transportation. All samples were transported to Wy'East Environmental Sciences, Inc. under proper chain of custody for analysis. Each soil sample was analyzed for PCBs using method EPA 8082.

Results

PCBs were not detected in any sample above the method reporting limit (MRL). The complete analytical results can be found in Appendix B.

Conclusions

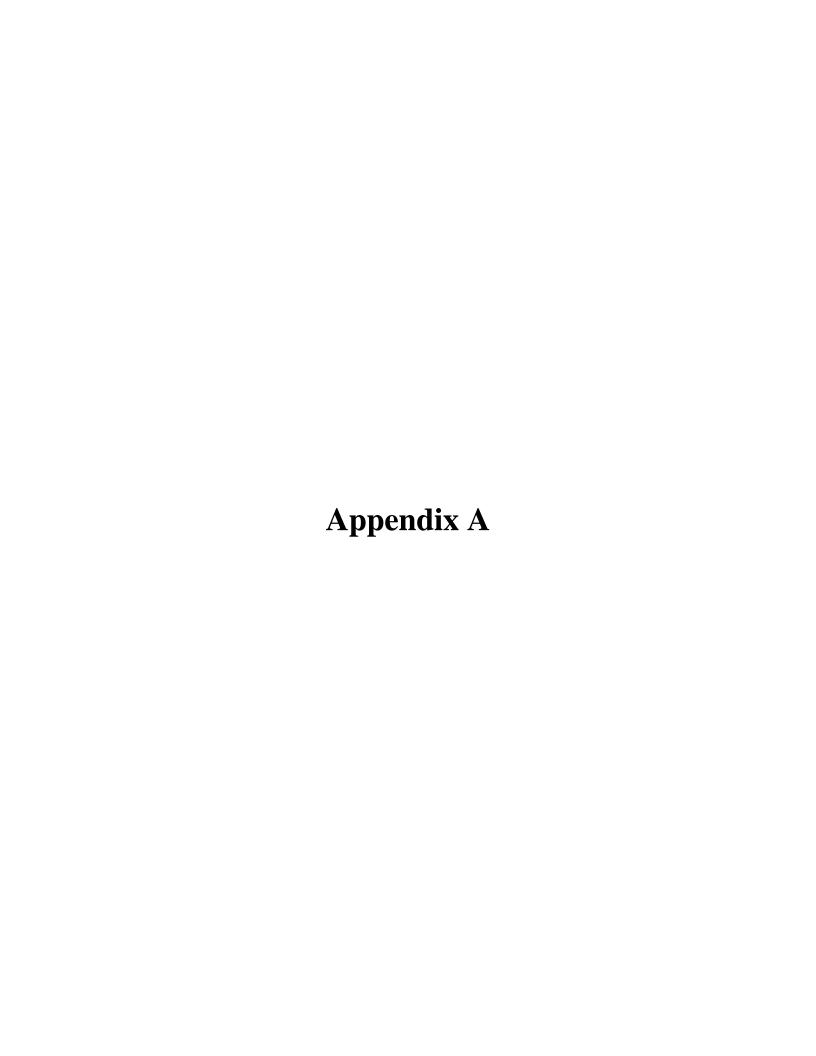
PCBs were not detected in any sample.

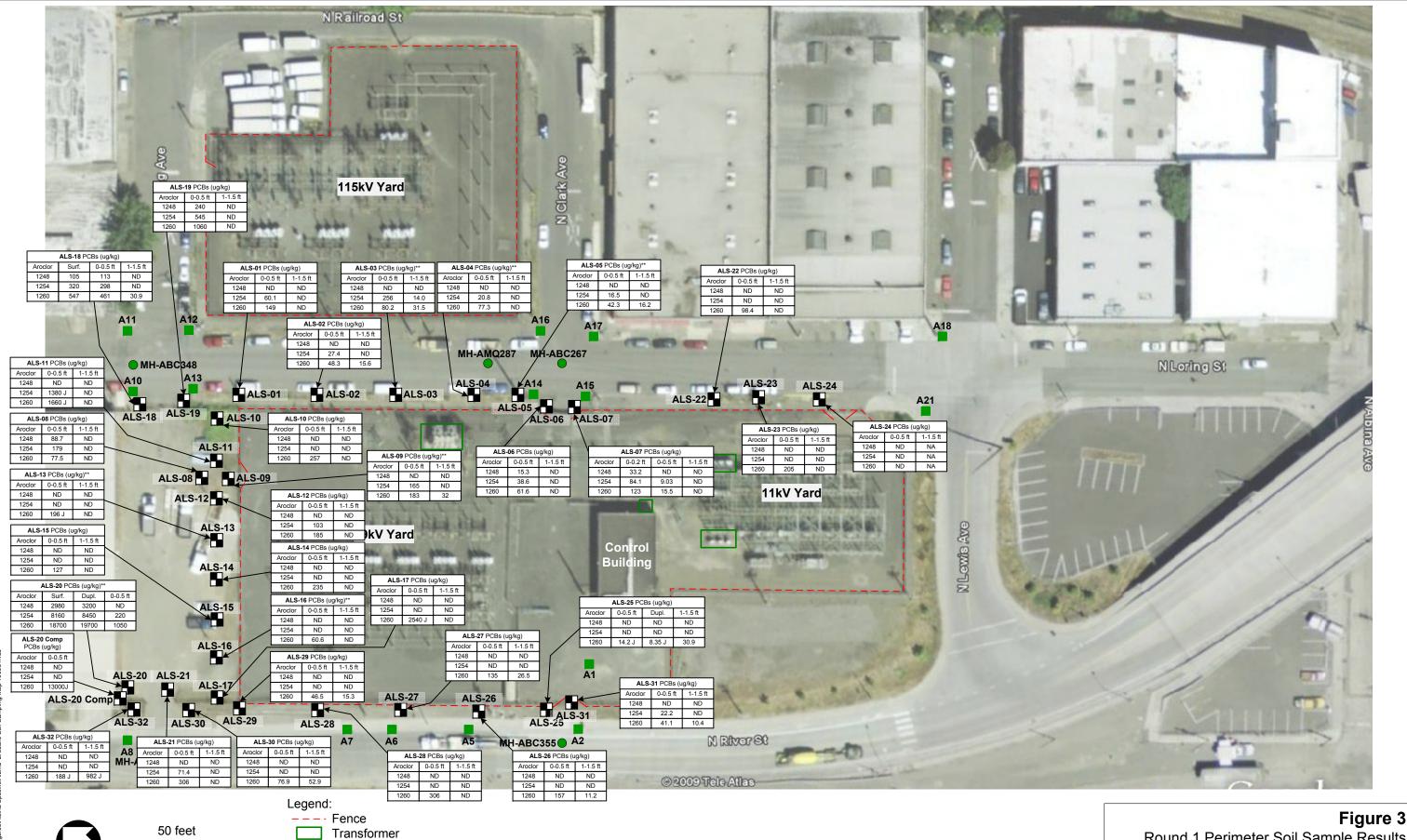
Limitations:

The purpose of this investigation is to report the findings of sampling and analysis. The investigation is intended to identify contamination related to environmental conditions at the

subject site. The samples collected only indicate the presence or absence of contaminants in the discrete grab sample. The sampling locations target the most likely locations for contamination, but contamination may exist in areas not sampled. The focus of this survey is on hazardous substances likely associated with the historic activities conducted within the subject site. In this context, the term hazardous substance includes the chemicals listed as hazardous substances in the Code of Federal Regulations, Oregon Administrative Rules, and petroleum products. This survey is in effect as of August 2, 2010.

Please contact the Coordinated Site Analysis program if you have further questions, or if during site activities any suspected contamination is encountered, at 503-823-5836 or 503-823-7881.





**Note: An additional subsurface soil sample was collected at depths

the reporting limit.

ranging from 1.7-2.5 feet at this location. All PCB Aroclor results were below

Soil Sample Location (ALS-xx)

Existing Storm Drain Manhole (MH-xxxx)

Existing Catch Basin (Ax)

Approximate Scale

Round 1 Perimeter Soil Sample Results
Albina Substation

BRIDGEWATER GROUP, INC.

PERCo

A SUBSIDIARY OF PACIFICORP





50 feet Approximate Scale --- Fence

Transformer

Soil Sample Location (ALS-xx) – Round 2

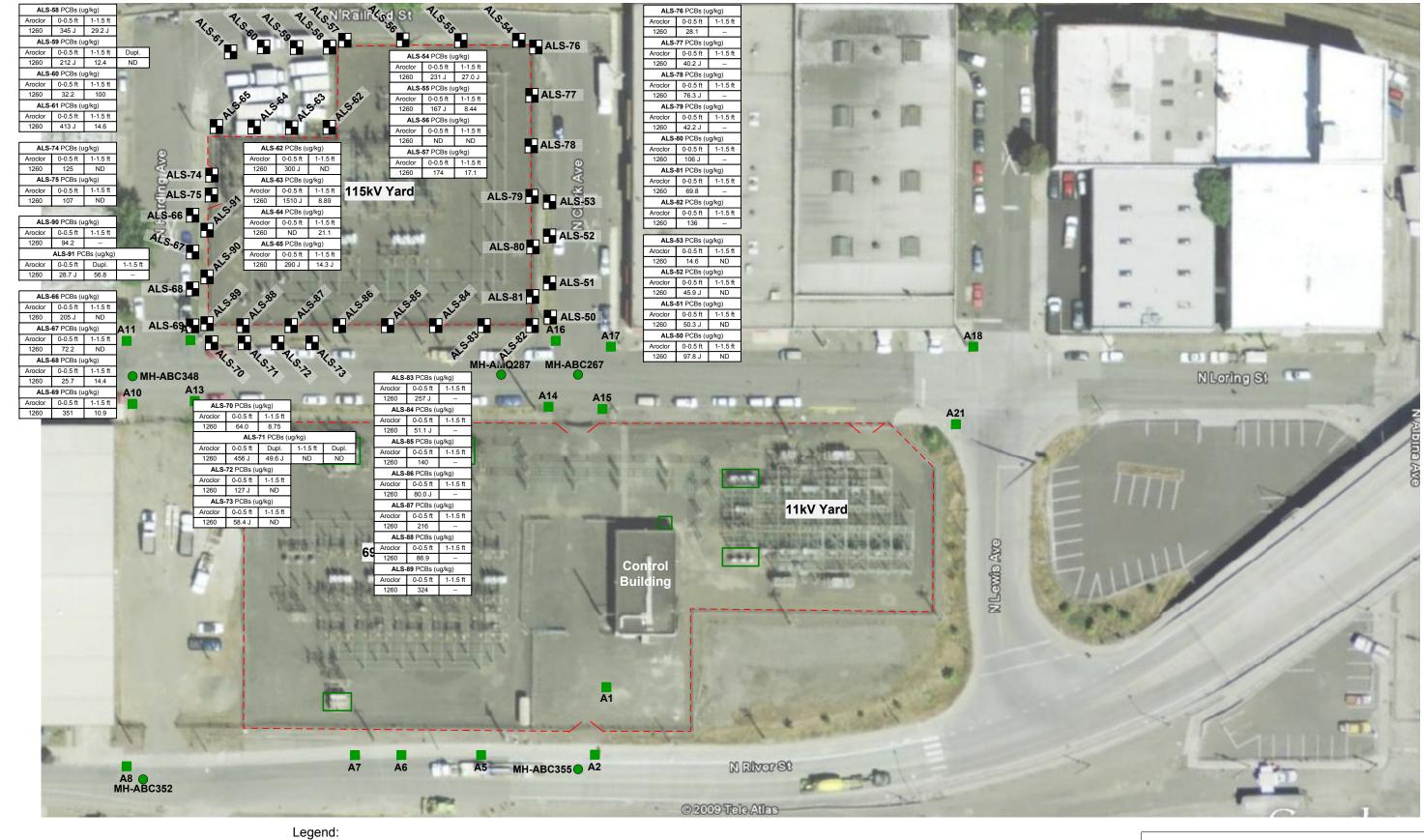
Soil Sample Location (ALS-xx) Existing Catch Basin (Ax)

Existing Storm Drain Manhole (MH-xxxx)



Figure 4 Round 2 Perimeter Soil Sample Results Albina Substation

BRIDGEWATER GROUP, INC.



4

50 feet
Approximate Scale

--- Fence

FenceTransformer

Soil Sample Location (ALS-xx)

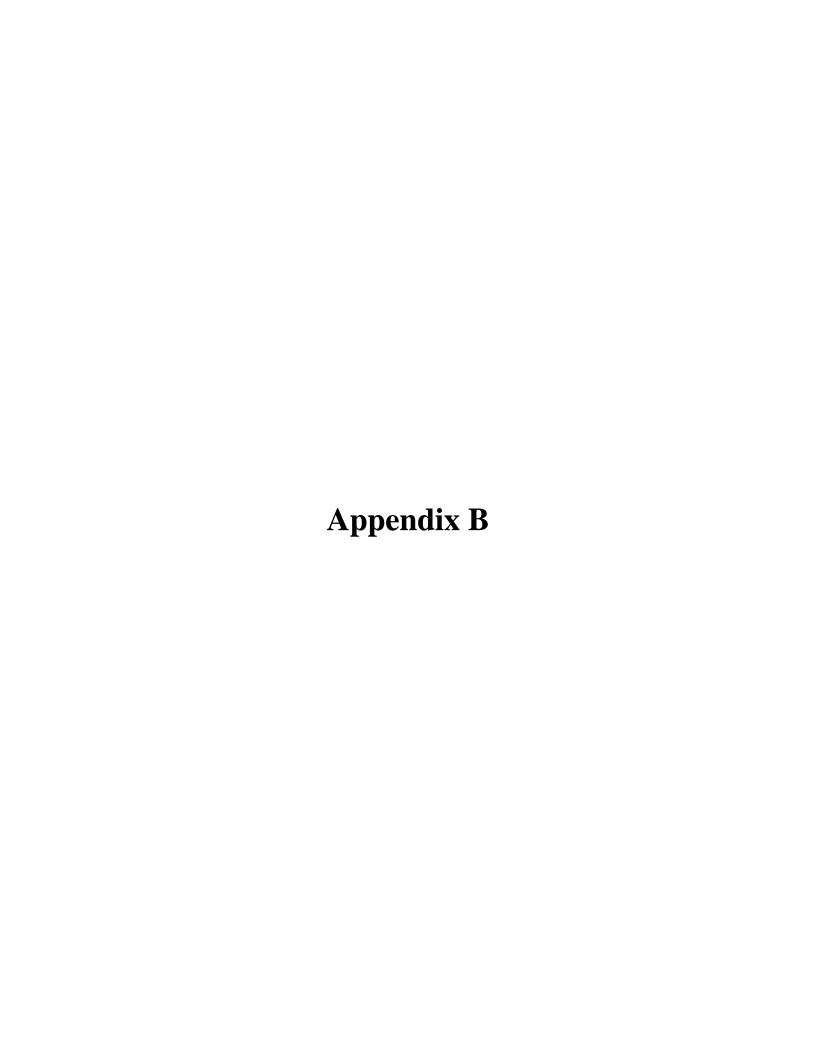
Existing Catch Basin (Ax)Existing Storm Drain Manhole (MH-xxxx)

NOTE: Only PCB Aroclor 1260 was detected in the Round 3 samples. All other Aroclors were below Reporting Limits



Figure 5
Round 3 Perimeter Soil Sample Results
Albina Substation

BRIDGEWATER GROUP, INC.



CS# 1138

CHAIN OF CUSTODY

Affiliation				The state of the s	TO THE PARTY OF TH		TOTAL TOTAL		TOTAL TOTAL	Company of the Compan	(50-136 ALSU-90-R	C5738 ALSU-53	LAB ID Field ID	Samples: Temperature Z On loe? Yes / No	no PCBs	Albina Verification Samples	Projecí #	Company forward BES/CSA	Environmental Sciences, Inc. 2415 SE 11th Ave. Portland Oregon 97214	The state of the s
Date) <i>q</i>	-									01/13/1-	7/9/10	Sampling Date	Turnaround Time:	Beport Attention	Purchase Order#	FAX 83-835565	Phone 573-758		
Time											SCII	11:39	Sampling Time			der#	82855	-973		CHA
ត											5.1	1.32	lg Matrix	Regular [29	-7681		NOF
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				 										826					ione(5	A N
Date	Date/ 6///										pcs	PCB	Analysis Requested				RUS#	Comments	303) 231-9320 F	Report Number
Time	Time インイ・トー		- HAMADA CONTRACTOR CO										ested						Phone(503) 231-9320 FAX(503) 231-9344	



Laboratory Report

City of Portland Environmental Services

Project Name:

Albina verification Samples

Project Location:

Albina PCB

Project Number:

Date Sampled:

7/9/10

Report Number: 78805 Report Date: 7-12-10

Date received:

7/9/10

EPA 8082

Analyte: Polychlorinated biphenyls (PCBs) identification and quantification in soil

				AR	OCLO	₹#			Surrogate
Field ID	Lab ID	1016	1221	1232	1242	1248	1254	1260	Recovery (%)
ALSU-83	C5938	ND	ND	ND	ND	ND	ND	ND	93%
ALSU-90R	C5939	ND	ND	ND	ND	ND	ND	ND	89%
BLANK		ND	ND	ND	ND	ND	ND	ND	
Reporting Limit		0.1	0.1	0.1	0.1	0.1	0.1	0.1	

Surrogate is Decachlorobiphenyl

ND = Not Detected (below reporting limit or detection limit)



Quality Control Report for PCB by EPA8082

Batch Date:

7/9/2010

Matrix Blank BLANK	Preparation Batch PCB100708-1	Result (ug/ml) 0.004	Acceptable Range <0.01	Surrogate Recovery 107%	Surr. Acc. Range 50%-150%
			Theoretical		
Matrix	Preparation	Result	Result	Percent	
Spike	Batch	(ug/ml)	(ug/ml)	Recovery	Acc. Range
LCS1	PCB100708-1	<u> </u>	1	100%	70%-130%

CHAIN OF CUSTODY

Report Number____

Phone(503) 231-9320 FAX(503) 231-9344

Environmental Sciences, Inc. 2415 SE 11th Ave. Portland Oregon 97214

Relinquished by	Relinquished by										LAB ID	Samples: Tempo	SIIII A		Project#	
Ai	Af									ALSV -	Fie	Temperature On loe? Yes / No	BINA(NIRIUERRD)	bing PCB Verification	6	OP/RES
Affilation /	Affiliation (BES									28	Field ID	lice? Yes / No	UERRO)	fication		
Date	T) 14/)()								1 1	$ O'' _{E''}(L)$	Sampling Date	Tumaround Time:	Report Attention	Purchase Order#	Fax SZ	Phone 503-823-7
Time										01171	Sampling Time		2002 2002	¥ #	3-8	3-8
	15% 25						 ·			708	Matrix	Regular [Colle		$ I \vee I $	23-
Received by	Received by									UFR	Container	Regular 3-5 Business Days	Sollected By ODONOUAY		3-55	788
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- A	<u>.</u>	 				 					NW-					
Affiliation	Affiliation	 			 								HCII	J BTEX)		
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Date	T Page		 							<u>1</u>	Ana					င္ပ
	0/14			•		:				2	Analysis Requested		()	Comments
Time	Time										sted			£		

754 II38



Laboratory Report

City of Portland/BES

Project Name:

Albina PCB Verification

Project Location:

Albina (Ni River Rd)

Project Number:

7/14/10

Report Number: Report Date:

78877

Date Sampled: Date received:

7/14/10

7/15/10

EPA 8082

Analyte: Polychlorinated biphenyls (PCBs) identification and quantification in soil

All concer	trations lis	ted in mg/Kg (p _l	pm)						
				ARC	CLOR	#			Surrogate
Field ID	Lab ID	1016	1221	1232	1242	1248	1254	1260	Recovery (%)
ALSV-28	C6411	ND	ND	ND	ND	ND	ND	ND	70%

BLANK	 ND	ND	ND	ND	ND	ND	ND	89%
Reporting Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	

Surrogate is Decachlorobiphenyl ND = Not Detected (below reporting limit or detection limit)



Quality Control Report for PCB by EPA8082

Batch Date:

11/5/2008

Matrix Blank BLANK	Preparation Batch PCB81031-1	Result (ug/ml)	Acceptable Range <0.1	Surrogate Recovery	Surr. Acc. Range 50%-150%
Matrix Spike LCS1	Preparation Batch PCB81031-1	Result (ug/ml)	Theoretical Result (ug/ml)	Percent Recovery	Acc. Range 70%-130%

Environmental Sciences, Inc. 2415 SE 11th Ave. Portland Oregon 97214

CHAIN OF CUSTODY

Y

Report Number____

Phone(503) 231-9320 FAX(503) 231-9344

78918

Relinquished by	Semindustried by			2							C6601 ALS	LAB ID	Samples: Temperature 2	RIVER	Project Name / NA PC	Project #	C 174 of
Affiliation	COPIRTY	A ZGII . A									5V-29	Field ID	25 4 On Ice? Yes / No	ROAD QUOSTATION)	PCB(verification)		MRTLand
Date	Date									1 1	7/16/10	Sampling Date	Tumaround Time:	Report Atten	Purchase Order#	FAX SO	Phone 57
Time	Ilme	1									11102	Sampling Time	1	Report Attention	der#	3-8	03-80
								٠			2016	Matrix	Regular	0		23-5	23-
Received by	Received by Aye										JIAR	Container	3-5 Business Days	Scollected By		-95	188
, la	Aye									1	407	Volume	Days	U AL		O),)
		L											TPH-				
<u> </u>	(≥												TPH-				
Affiliation	Athillation	_	_		-		 	 						HCIE	TEX)		-
	at the	H	_							7					(PA		
	1												826				
Date	7-16-10										PCB	Analysis Requested				360	Comments
Time	Time											sted					



PCB Laboratory Report

City of Portland Environmental Services

1120 SW 5th Ave., Room 1000

Project Name:

Albina PCB (Verification)

Portland, OR 97204-1912

Project Location:

Ni River Rd (Sub Station)

Project Number:

78918

Date Sampled:

7/16/10

Report Number: Report Date:

7/20/10

Date received:

7/16/10

EPA 8082

Analyte: Polychlorinated biphenyls (PCBs) identification and quantification in soil

All concer	ıtrations liste	d in mg/Kg (pp	m)		1.175				
				ARO	CLOR;	#			Surrogate
Field ID	Lab ID	1016	1221	1232		1248	1254	1260	Recovery (%)
ALSV-29	C6601	ND	ND	ND	ND	ND	ND	ND	61%

BLANK	 ND	ND	ND	ND	ND	ND	ND	95%
Reporting Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	

Surrogate is Decachlorobiphenyl ND = Not Detected (below reporting limit or detection limit)



Quality Control Report for PCB by EPA8082

Batch Date:

11/5/2008

Matrix Blank BLANK	Preparation Batch PCB81031-1	Result (ug/ml)	Acceptable Range <0.1	Surrogate Recovery	Surr. Acc. Range 50%-150%
Matrix Spike LCS1	Preparation Batch PCB81031-1	Result (ug/ml)	Theoretical Result (ug/ml)	Percent Recovery	Acc. Range 70%-130%

CHAIN OF CUSTODY

Report Number_

Phone(503) 231-9320 FAX(503) 231-9344

11179123

Comments Companies Fixe 503 - 823 - 788 Comments																							
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Laboratory Report

City of Portland Environmental Services

Project Name:

Albina Verification

Project Location:

Albina River Rd

Project Number:

Date Sampled:

7/30/10

Date received:

7/30/10

EPA 8082

Report Number: 79123

Report Date: 8-2-10

Analyte: Polychlorinated biphenyls (PCBs) identification and quantification in soil

				AR	OCLO	₹#			Surrogate
Field ID	Lab ID	1016	1221	1232	1242	1248	1254	1260	Recovery (%)
ALSV-32	C7742	ND	ND	ND	ND	ND	ND	ND	80%
ALSU-48	C7743	ND	ND	ND	ND	ND	ND	ND	82%
BLANK Reporting Limit		ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	

Surrogate is Decachlorobiphenyl ND = Not Detected (below reporting limit or detection limit)



Quality Control Report for PCB by EPA8082

Batch Date:

7/30/2010

Matrix Blank BLANK	Preparation Batch PCB100730-1	Result (ug/ml) 0.01	Acceptable Range <0.1	Surrogate Recovery 109%	Surr. Acc. Range 50%-150%
Matrix	Preparation	Result	Theoretical Result	Percent	
Spike	Batch	(ug/ml)	(ug/ml)	Recovery	Acc. Range
LCS1	PCB100730-1	1.08	1	108%	70%-130%