

Intergovernmental  
Agreement for  
Remedial  
Investigation and  
Source Control  
Measures

DEQ No.  
LQVC-NWR-03-10

# Outfall Basin 52 Source Investigation Report

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City of Portland Outfall Project  
ECSI No. 2425

■

May 2012

PREPARED BY



ENVIRONMENTAL SERVICES  
CITY OF PORTLAND  
working for clean rivers

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# Abbreviations and Acronyms

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AOPC	Area of Potential Concern
ASPP	Accidental Spill Prevention Plan
BES	Bureau of Environmental Services
BMP	best management practice
City	City of Portland
DEQ	Oregon Department of Environmental Quality
ECSI	Environmental Cleanup Site Information
EPA	Environmental Protection Agency
IGA	Intergovernmental Agreement
JSCS	Joint Source Control Strategy
µg/Kg	microgram(s) per kilogram
mg/Kg	milligram(s) per kilogram
LWG	Lower Willamette Group
NEC	No Exposure Certification
NPDES	National Pollutant Discharge Elimination System
ODOT	Oregon Department of Transportation
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PIW	Peninsula Iron Works
SAP	sampling and analysis plan
SIFT©	Screened Inline Flow-Through
SLV	screening level value
SOP	standard operating procedure
TBT	tributyltin
TOC	total organic carbon
TS	total solids
WPCL	Water Pollution and Control Laboratory

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## SECTION 1

# Introduction

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This report presents the results of the City of Portland (City) source investigation and source control activities in Outfall Basin 52. As part of its Portland Harbor stormwater screening effort, the City characterized stormwater from Basin 52 in 2007 at a location representing cumulative discharge from the entire basin. Based on preliminary review and subsequent statistical analyses of the Basin 52 stormwater results in relation to harborwide stormwater data, the City determined that further source tracing was needed to identify sources of polychlorinated biphenyls (PCBs) and copper within the basin (BES, 2010a). The City conducted source investigations in the basin between June 2008 and January 2011.

City source investigations in Basin 52 identified sources of PCBs and metals to the Basin 52 municipal storm system. The major sources of these contaminants appear to be located in the north and central subbasins of Basin 52. PCBs and certain metals (chromium, copper, and nickel) were detected in stormwater solids samples collected from the north branch at concentrations that are considered significantly elevated relative to data collected for upland sites discharging to the Portland Harbor Superfund site. All identified sources now are in the process of being evaluated and controlled under Oregon Department of Environmental Quality (DEQ) Cleanup Program oversight or through the City industrial stormwater program. No further City source tracing is warranted in this basin. The investigation results presented in this report and ongoing source control work at the properties identified as major upland sources to Basin 52 will support future DEQ decisions for this basin.

These investigations are part of the City's ongoing Remedial Investigation associated with the Portland Harbor City of Portland Outfalls Project being conducted pursuant to the August 13, 2003, Intergovernmental Agreement (IGA) between DEQ and the City. The data collected under this investigation support ongoing work by DEQ and the City to identify, characterize and control discharges to the Basin 52 municipal storm system.

## 1.1 Purpose and Scope

The purpose of this report is: 1) to evaluate source investigation data collected to identify sources of PCBs and copper to the Basin 52 stormwater conveyance system; and 2) to verify that no further City source tracing is warranted in the basin. The City source investigation activities described in this report include collection and analysis of inline solids samples in 2008, sediment trap and inline solids samples in 2010 and surface soil samples in 2011. The solids data are evaluated relative to the Joint Source Control Strategy (JSCS; DEQ/EPA, 2005, updated in 2007) screening level values (SLVs) and relative to the range of reference concentrations provided in DEQ's *Stormwater Evaluation Guidance* (DEQ, 2010).

## 1.2 Report Organization

The remainder of this report is organized as follows:

- *Section 2: Background* — Summarizes the conveyance system configuration and drainage basin setting, contaminants of interest, and potential upland sources.
- *Section 3: Source Investigation Activities and Results* — Describes the stormwater solids and surface soil sampling activities and analytical approaches, and summarizes the analytical results.
- *Section 4: Data Evaluation* — Evaluates the results of the solids investigations to assess whether there are major current sources of contaminants in the basin.
- *Section 5: Source Control Activities* — Summarizes source control actions completed by the City and others during the course of the source investigation.
- *Section 6: Conclusions and Next Steps* — Summarizes the findings from the source investigation and identifies next steps that are needed in the basin.
- *Section 7: References*

## SECTION 2

# Background

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The location of Outfall 52 within the Portland Harbor Study Area is shown on Figure 1, along with the approximate drainage basin delineation and the current configuration of the stormwater conveyance system. The stormwater basin setting, conveyance system configuration, contaminants identified for source tracing, and potential upland sources are summarized below.

## 2.1 Outfall Basin and Conveyance System

The Outfall 52 stormwater system collects and conveys stormwater runoff from a mixed land-use drainage area and discharges to the east side of the Willamette River at river mile 5.8, offshore of Cathedral Park and just downstream of the St. Johns Bridge. The current stormwater basin that drains to Outfall 52 encompasses approximately 26 acres of land zoned for commercial, general employment, residential, open space, and major transportation uses. Current land use includes some industrial operations. For the purposes of this report, the river will be considered as running south to north.

The Basin 52 stormwater conveyance system has three major branches that connect at manhole AAE519; these branches are identified on Figure 1. The “north branch” receives stormwater from industrial and residential properties along N. Baltimore and N. Alta Avenues, primarily east of the railroad lines running along N. Bradford Street. The drainage area for this branch is referred to as the north subbasin. The “central branch” receives runoff from a small residential area, a small area within Cathedral Park, and the majority of the St. Johns Bridge;<sup>1</sup> the associated drainage area is referred to as the central subbasin. The “south branch” extends to the southeast from manhole AAE519 and then to the north-northeast along N. Burlington Avenue and receives stormwater from industrial properties that discharge to a line along N. Crawford Street and from residential properties that discharge to points upstream of the connection for the N. Crawford Street line. The drainage area for this branch is referred to as the south subbasin.

## 2.2 Contaminants for Source Tracing

Outfall 52 discharges into an area of Portland Harbor identified by the U.S. Environmental Protection Agency (EPA) as an area of potential concern (AOPC 11) based on elevated concentrations of metals, tributyltin (TBT), polycyclic aromatic hydrocarbons (PAHs), benzyl alcohol, total PCBs, and pesticides in inriver sediment (EPA, 2010).

As part of its Portland Harbor stormwater screening effort, the City collected stormwater grab samples during four storm events in 2007 at a Basin 52 location representing cumulative

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<sup>1</sup> The portion of Basin 52 comprising the drainage area associated with the St. Johns Bridge is not covered under the City’s Municipal Separate Storm Sewer System (MS4) permit; it is within the Oregon Department of Transportation (ODOT) MS4 permit area, as shown on Figure 1.

discharge from the entire basin (manhole AAE519; see Figure 1). The stormwater samples were analyzed for a broad suite of chemicals to identify stormwater contaminants potentially warranting further source tracing in the basin. The stormwater sampling activities and results are described in detail in the City's *Stormwater Evaluation Report* (BES, 2010a). Based on statistical analyses of the Basin 52 stormwater results in relation to harborwide stormwater data, the City determined that total PCBs and copper potentially warranted further source tracing within the basin.

## 2.3 Potential Upland Sources

Upland facilities initially identified as potential sources to City stormwater conveyance systems include DEQ Cleanup Program sites as listed in DEQ's Environmental Cleanup Site Information (ECSI) database and facilities permitted by DEQ under the National Pollution Discharge Elimination System (NPDES) industrial stormwater discharge permit program. The only ECSI site located in Basin 52 at the time of the investigations was the Crawford Street Corporation site (ECSI No. 2363). The location of this site is shown on Figure 1 along with two sites recently added to the ECSI database.<sup>2</sup> A portion of stormwater from the site (mostly roof drainage) discharges to the south branch of Basin 52 (N. Crawford Street line); site stormwater also discharges to Basin 50. DEQ added this site to the ECSI database in 1999 as a potential source of contamination to the Portland Harbor based on initial inriver sediment sampling results, and identifies the site as a possible TBT source (DEQ, 2001). A stormwater pathway evaluation is ongoing at the Crawford Street Corporation site under DEQ oversight; site stormwater contributions to Basin 52 have not been characterized.

Currently no NPDES-permitted facilities are located in Basin 52. The Peninsula Iron Works (PIW) facility located at 6618 N. Alta Avenue previously held an NPDES 1200-Z permit that was terminated in 2001. At that time, the facility met requirements for a No Exposure Certification (NEC), based on measures undertaken to remove stormwater exposures to potential contaminant sources at the site that were identified by the City's Industrial Stormwater Program. In 2008, the City inspected the PIW facility, noted industrial stormwater exposures, and notified PIW that an NPDES permit was required. In 2009, the City referred the PIW site to DEQ for enforcement in response to PIW's failure to apply for an NPDES permit. Following subsequent completion of measures to eliminate exposures of industrial operations to stormwater and the development of an Accidental Spill Prevention Plan, the NEC was reissued to PIW (see Section 5).

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<sup>2</sup> DEQ has entered into an agreement with the Oregon Department of Transportation (ODOT) to evaluate ODOT stormwater discharges to Portland Harbor, including runoff from the St. Johns Bridge. Based on the source tracing efforts described in this report, DEQ added Peninsula Iron Works to the ECSI database in January 2012.

## SECTION 3

# Source Investigation Activities and Results

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Based on a preliminary review of the Basin 52 stormwater screening data, the City concluded that major current PCBs and copper sources are present within the basin (BES, 2010a). To trace possible sources of these contaminants, the City collected samples of stormwater solids (sediment trap and inline solids) and surface soil within the three subbasins during iterative field investigations between June 2008 and January 2011.

## 3.1 Field Activities and Analytical Approach

The Basin 52 solids sampling field activities and analytical approach are described below for each stage of the investigation, followed by a summary of results. Sample collection and handling procedures were conducted using the applicable standard operating procedures (SOPs)<sup>3</sup> included in the City's *Amended Programmatic Sampling and Analysis Plan* for collection of water and solids samples for the City of Portland Outfalls Project (BES, 2007a) and in accordance with the *Amended Programmatic Quality Assurance Project Plan* for the project (BES, 2007b). Though copper was the only metal identified for source tracing in Basin 52, a broader suite of metals was analyzed during targeted investigations in the basin to assist with the identification of source areas.

The sampling locations for the Basin 52 source investigation are shown on Figures 2a – 2c. Photographs of the sampling locations and activities are provided in Appendix A. Field notes recorded during sampling activities discussed below are provided in Appendix B.

### 3.1.1 2008 Inline Solids Investigation

#### 3.1.1.1 Branch Lines

The first round of inline solids investigation in Basin 52 was conducted in June 2008 in general accordance with the Basin 52 Inline Solids Sampling and Analysis Plan (SAP; BES, 2008a). The June 2008 solids sampling targeted manholes at the downstream ends of each of the three subbasins, to evaluate each drainage area for source tracing contaminants. The targeted location (manhole AAE516) in the central branch was not sampled due to a lack of solids and the alternate location (manhole AAE522) could not be located. Solids samples were collected from the following locations:

<u>Branch</u>	<u>Manhole ID</u>	<u>Sampling Location</u>	<u>Area Represented</u>
North	AAE513	Within manhole (solids perched on the eastern ledge of the manhole)	Cumulative discharge from north subbasin <sup>4</sup>

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<sup>3</sup> The SOPs were established by the City's Field Operations section to standardize the data collection methodologies for a wide range of monitoring activities and thereby maintain comparability and representativeness of the data produced.

<sup>4</sup> This sample was collected from a ledge within the manhole invert resulting in some uncertainty regarding sample representativeness of the north branch.

South	AAE553	Upstream of manhole in 24-inch line	Discharge from N. Crawford St. and N. Burlington Avenue lines
South	AAE569	Upstream of manhole in 12-inch line entering from southeast	Discharge from N. Crawford St. line upstream of connection with N. Burlington Ave. line

The samples were analyzed for PCB Aroclors, selected metals (arsenic, cadmium, copper, lead, zinc), total organic carbon (TOC), total solids (TS), and grain size. Findings suggested the potential presence of major PCBs and metals source in the north branch.

#### 3.1.1.2 Catch Basins

Because inline solids investigation efforts in June 2008 were limited by available sample volumes at targeted locations, the City conducted a catch basin solids investigation to provide comprehensive screening of potential source areas within the basin. Given the basin topography and conveyance system orientation, stormwater from some properties migrates offsite via overland flows to catch basins in the adjacent streets that drain to OF 52.. The City therefore collected samples from catch basins adjacent to suspected sources during this phase of the investigation. Catch basin sampling locations were selected based on adjacent site uses, field observations from past City or DEQ inspections, and visual observations. Inline solids samples were collected from the following Basin 52 catch basins (see Figures 2a and 2b) on September 9 and 10, 2008, in accordance with the approach discussed in advance with DEQ (BES, 2008b):

<u>North branch:</u>	<u>Central branch:</u>	<u>South branch:</u>
ANE911	ANE921	ANE813
APA114	AAE673	ANE815
ANE910		AAE651
AAE694		

For locations where sufficient solids were available, the samples were analyzed for PCB Aroclors, metals (arsenic, cadmium, chromium, copper, lead, nickel, mercury, silver, and zinc), TS, TOC, and grain size. The samples from catch basins ANE910, ANE921, ANE813, ANE815, and AAE651, were not analyzed for metals and/or grain size because of insufficient sample volume. Findings indicated the potential presence of major current PCBs and metals sources in the north and central branches and a PCBs source in the south branch

### 3.1.2 2010 Sediment Trap Investigation

To verify the presence of contaminant source areas in Basin 52, the City cleaned portions of the Basin 52 conveyance system (see Section 5) and then deployed sediment traps in each of the three major branches during the 2010 winter/spring wet season. The sampling locations and objectives were reviewed and approved verbally by DEQ before sampling was initiated. The traps were installed and monitored in accordance with the City's standard sediment trap source investigation protocols. Sediment traps were installed at the following four locations in Basin 52 on February 2, 2010:

<u>Branch</u>	<u>Manhole/Trap ID</u>	<u>Sampling Location</u>	<u>Area Represented</u>
North	AAE498 / ST1	Downstream of manhole in 12-inch line	Discharge from N. Baltimore Avenue line
North	AAE513 / ST2	Upstream of manhole in 15-inch line	Cumulative discharge from north subbasin <sup>5</sup>
Central	AAE516 / ST4	Downstream of manhole in 18-inch line	Cumulative discharge from central subbasin
South	AAE700 / ST3	Downstream of manhole in 28-inch line	Discharge from the majority of south subbasin

Screened Inline Flow-Through (SIFT®) <sup>6</sup> sediment traps were installed at all four locations, to accommodate the small pipe sizes at three of the four locations. At manhole AAE700, a standard sediment trap also was installed alongside the SIFT® trap to evaluate trap performance. The sediment traps were inspected periodically, and accumulated sediments were removed as needed during the field inspections and archived. The sediment traps were removed on June 16, 2010. Solids in each trap at the time of removal were combined and homogenized with the archived solids (if any) that had been removed from that trap during the interim field inspections. The total amount of solids collected in the SIFT® traps ranged from approximately 260 to 975 grams (total wet weight) and was approximately 17 grams for the standard sediment trap sample. Documents prepared during processing of the sediment trap samples are included in Appendix B.

The SIFT® trap samples were analyzed for PCB congeners, PCB Aroclors, metals, TOC and TS. Because the volume of solids collected in the standard sediment trap in manhole AAE700 was limited, this sample was analyzed only for PCB congeners and TS. Sediment trap investigation results confirmed the presence of current major PCBs and metals sources in the north and central branches.

### 3.1.3 2010 Inline Solids Investigation

During the course of the Basin 52 source investigation activities in 2010, the City became aware that ODOT drainage from the majority of the St. Johns Bridge connected to the central branch of the City's Basin 52 stormwater conveyance system, and not to an ODOT outfall as previously believed. ODOT provided the City with documentation regarding the configuration of the St. Johns Bridge drainage system and the connection to Basin 52 (at manhole AAE685). The City subsequently obtained authorization from ODOT to expand the source investigation to evaluate bridge drainage as a potential source of PCBs and metals to Basin 52.

Two ODOT manholes (designated ODOT Manholes 2 and 4) were selected for the investigation. Manhole 4 was constructed as a sedimentation manhole to reduce sediment load in stormwater discharging to the City system. Manhole 2 is downstream of Manhole 4 and represents the ODOT discharge to Basin 52 from the St. Johns Bridge.

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<sup>5</sup> Sampling location does not include drainage from a small parking area in Cathedral Park.

<sup>6</sup> 2009. City of Portland. These traps are proprietary and patent pending. They were designed by the City for use in smaller pipe diameters and low-flow depth conditions.

The City collected inline solids samples from within the two ODOT manholes on September 7 and 8, 2010, in accordance with the Summer 2010 SAP (BES, 2010b). In conjunction with sampling these manholes, the City also resampled solids from catch basin ANE911 (in the north subbasin) to verify the presence of a major current source to that inlet. In response to the elevated concentration of total PCB congeners detected in the September 2008 solids sample from this catch basin, the City cleaned out solids from this catch basin in January 2010 (see Section 5).

The three solids samples (and a duplicate sample from ODOT manhole 2) were analyzed for PCB congeners, PCB Aroclors, TOC and TS in accordance with the SAP (BES, 2010b). The samples were archived after initial laboratory analysis and (except for the duplicate sample) subsequently were analyzed for metals in November 2011. In conjunction with the metals analyses, the samples were reanalyzed for TS, to ensure accurate dry-weight correction for the metals analyses. Results confirmed a current source of PCBs and metals to catch basin ANE911 and indicated that PCBs and metals also are present in the ODOT drainage system that discharges to Basin 52.

### 3.1.4 2011 Surface Soil Investigation

Based on the source investigation results for catch basin ANE911, the City conducted an erodible soils investigation in the vicinity of this catch basin; nine surface soil composite samples (and one duplicate composite sample) were collected on January 6, 2011. The purpose of the investigation was to evaluate whether erodible surface soil that could be carried by overland flow into catch basin ANE911 is a likely major source of the PCBs and metals. The samples were collected within the N. Alta Avenue right-of-way, near the intersection with N. Bradford Street and in the N. Bradford Street right-of-way along the railroad corridor and adjacent to the PIW facility. For each surface soil sample, individual subsamples were collected from approximately the upper 2 inches of soil and homogenized into a final composite sample. The locations of the area represented by each composite surface soil sample are shown on Figure 2c. The samples were analyzed for PCB Aroclors, selected metals (chromium, copper, lead, nickel, and zinc), TOC, and TS. Results confirmed that PCBs and metals are elevated in erodible soils in this area.

## 3.2 Summary of Results

PCBs were detected in most of the solids samples and metals were detected in all samples for which metals were analyzed. The highest concentrations of total PCBs and metals were detected in samples from the north branch. PCBs and metals were detected in all of the surface soil samples.

Tables 1 through 5 summarize the laboratory analytical results for the solids samples and include the JSCS SLVs for reference. The total PCBs concentrations in stormwater solids are displayed on Figures 3a and 3b. Concentrations of selected metals (chromium, copper, and nickel) in the stormwater solids samples are shown on Figure 4. Results for PCBs and selected metals in the surface soil samples are displayed on Figure 5.<sup>7</sup> The laboratory reports and data review memoranda are provided in Appendix C. The data are discussed in more detail in Section 4.

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<sup>7</sup> The data summary tables and figures for these samples were previously submitted to DEQ (BES, 2011a).

## SECTION 4

# Data Evaluation

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This section of the report presents a two-step evaluation of the solids source investigation results for each subbasin. The first step compares the sediment trap data collected at the downstream sampling location in each branch (shown on Figure 1) to JSCS SLVs and DEQ guidance regarding use of industrial reference concentrations (DEQ, 2010) to identify analytes for which there may be major current sources in the associated subbasin. These data were collected after the City cleaned portions of the Basin 52 conveyance system (see Section 5) and are considered representative of current discharges to Basin 52. The second step evaluates data collected at upstream locations within the subbasins to identify specific sources and pathways to Basin 52.

## 4.1 North Subbasin

### 4.1.1 Subbasin Screening Results

The sediment trap sample collected at manhole AAE513 represents all stormwater contributions from the north branch, with the exception of a small parking area in Cathedral Park. Results for this sample are summarized in Tables 1 and 4 and discussed below.

- *Total PCBs:* The total PCB congeners concentration in the sample (924 micrograms per kilogram [ $\mu\text{g}/\text{Kg}$ ]) exceeds the JSCS Toxicity SLV and is significantly elevated relative to the range of PCB concentrations in DEQ's guidance. The total PCB Aroclors concentration in this sample (130  $\mu\text{g}/\text{Kg}$ , consisting of Aroclor 1260) is not significantly elevated.
- *Metals:* Chromium, copper, nickel and zinc were detected at concentrations greater than JSCS Toxicity SLVs in this sample, though all concentrations were less than 10 times the SLVs. Chromium and nickel concentrations are moderately elevated relative to the ranges in DEQ's guidance. Concentrations of other metals analyzed are not significantly elevated.

### 4.1.2 Source Tracing

Results of the subbasin screening evaluation indicate that current sources of PCBs, chromium, and nickel are present in the north subbasin. These contaminants also were detected at elevated concentrations in inline solids samples collected upstream of manhole AAE513 (see Table 1) and in the surface soil samples collected from right-of-way areas in N. Alta Avenue and along N. Bradford Street (see Table 5). Possible sources are discussed below. Although the sediment trap results do not indicate that there is a current major source of copper in this subbasin, copper was detected at an elevated concentration in the ledge sample collected from manhole AAE513 and is carried forward for source tracing based on the Basin 52 stormwater screening results (BES, 2010a).

#### 4.1.2.1 PCBs

Total PCB concentrations in north subbasin inline solids are presented on Figure 3a. Of the inline sampling locations upstream of the north subbasin screening location, only the samples from catch basin ANE911 had total PCB concentrations that exceed the JSCS Toxicity SLV (see Table 1). The total PCB concentrations detected at this location in the 2008 sample (8,160 µg/Kg, Aroclor 1260) and in the 2010 sample (2,860 µg/Kg, Aroclor 1260), collected after the catch basin had been cleaned (see Section 5), indicate a major current source to this catch basin. The total PCBs concentration in the sample from catch basin ANE910 also is elevated relative to the DEQ industrial reference concentrations but is below the Toxicity SLV. Sediment trap data collected downstream of this catch basin after it was cleaned does not indicate current major sources of PCBs in this portion of the north subbasin. Based on the spatial distribution of PCBs in inline solids, a primary pathway of current PCBs sources to the north branch appears to be through catch basin ANE911.<sup>8</sup>

Catch basin ANE911 has no piped connections from adjacent properties. The estimated drainage area to this inlet includes portions of: the PIW facility (roof drainage and outdoor operations), a parking area across from PIW, improved N. Alta and N. Crawford streets, and the railroad corridor along unimproved N. Bradford St. To investigate erodible surface soil as a possible source of the PCBs detected in catch basin ANE911, the City collected surface soil samples from locations near this catch basin, as discussed in Section 3.1.5. The results (listed in Table 5 and shown on Figure 5) confirm the presence of PCBs at elevated concentrations in erodible soils in this area. Total PCBs were detected at concentrations up to 11,900 µg/Kg in composite surface soil samples collected from areas that currently drain to this catch basin, and at concentrations up to 21,700 µg/Kg in composite surface soil samples collected in the N. Bradford Street right-of-way just outside the estimated drainage area for this catch basin. As with the solids samples from catch basin ANE911, the PCBs detected in the surface soil samples consist entirely of Aroclor 1260.

As noted above, catch basin ANE911 is located adjacent to the PIW facility (see Figure 2a). PIW has operated at this location for close to 100 years, based on review of historical Sanborn maps (BES, 2011b). The facility produced ship parts during World War I and has continued as a machine shop and manufacturer of metal parts and equipment to the present (PIW, 2011). Historical operations at the site are not well known but apparently included foundry and machining operations, along with oil storage, based on information shown on the Sanborn maps (BES, 2011b). These types of historical land uses can be linked to PCBs contamination. Two foundry sites in Portland have been investigated under DEQ Cleanup Program oversight,<sup>9</sup> and both properties identified PCBs in onsite soil at concentrations warranting control. Historical machine shop operations may have utilized PCB-containing cutting fluids.

Historical fate and transport of contaminants from the PIW site are not well understood; however, offsite migration via vehicle and equipment dragout, overland runoff, fugitive dusts, and direct releases may have contributed to PCBs concentrations observed in erodible soils and inline solids collected from the vicinity of the site. Aerial photographs and Sanborn maps

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<sup>8</sup> Inline solids were not collected from the N. Alta Street line.

<sup>9</sup> PECO, Inc. (ECSI No. 1973) and SFI Property (ECSI No. 5103).

indicate that site operations also occurred on adjacent property to the southeast (BES, 2011b). In the period before this property was paved, erodible soils may have been impacted by site operations. This area is now paved and owned by the City and is utilized by the Bureau of Parks and Recreation for Cathedral Park parking.

Current PIW operations include the use of the parking area across N. Alta St. and the unpaved area between the PIW building and the railroad tracks in N. Bradford St. Recent inspection by City Industrial Stormwater Program representatives during wet weather indicates that stormwater from unpaved areas southwest of the PIW building discharges underneath the rail lines to Cathedral Park (see Appendix D). Elevated PCBs (7,120 µg/Kg) were detected in surface soils on the opposite side of the tracks from PIW; more data are needed to characterize the nature and extent of PCBs in erodible soils in the vicinity of PIW.

In summary, residual PCBs contamination in surface soil in the vicinity of PIW and N. Bradford Street appears to be a major source of the PCBs detected at elevated concentrations in the samples from catch basin ANE911 and from the downstream sediment trap at manhole AAE513. The PCBs contamination in this area is suspected to be related to operations at the adjacent PIW site. These conclusions are based on the following lines of evidence:

- The high PCBs concentrations detected in samples from catch basin ANE911 and the generally low PCBs concentrations detected in other sample locations upstream of manhole AAE513;
- The high concentrations of PCBs in surface soil samples collected in the N. Alta Avenue and N. Bradford Streets, within and near the drainage area for catch basin ANE911; and
- The long-term presence of industrial operations (e.g., foundry and metals machine shop) that are commonly associated with potential use of PCBs.

#### 4.1.2.2 *Metals*

Chromium, copper, and nickel concentrations in north subbasin inline solids are presented on Figure 4. The highest concentrations of these metals were detected at catch basin APA114. This inlet is located at the intersection of N. Crawford Street and N. Alta Avenue at the foot of the driveway for the Independent Marine Propeller facility -- a propeller repair and machine shop (see Figure 4).

Observations made by BES Field Operations staff during Basin 52 sampling activities<sup>10</sup> and complaints previously received by the City (as discussed in Section 5) indicate operations at the Independent Marine Propeller facility periodically have included grinding of large metal propellers in the outdoor area adjacent to the building and hosing down the area. These activities result in washwater discharges to catch basin APA114, adjacent streets, and catch basin AAE673 (see Appendix A, Photos 21, 22, and 25a/b).<sup>11</sup> Based on these observations and

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<sup>10</sup> Observations on September 9, 2008, as communicated in an internal email from L. Scheffler (BES) to A. Dirks (BES), dated September 10, 2008.

<sup>11</sup> In addition to the observations during the September 2008 sampling activities, the City's Industrial Stormwater Program received a complaint on April 6th, 2007, from the City's Spill Protection and Citizen Response section regarding observed grinding and spraying of propellers on the exterior asphalted work area at the Independent Marine Propeller site.

the high chromium, copper and nickel concentrations detected in catch basin APA114, the Independent Marine Propeller site is suspected to be a major source of the chromium, copper and nickel in the sediment trap sample from the downstream end of the north branch.

The samples from catch basin ANE911 also had elevated concentrations of chromium, copper and nickel, though much lower than the concentrations in the catch basin APA114 sample. Catch basin ANE911 is located at the western end of N. Alta Avenue, adjacent to the PIW facility, which was a suspected source of metals to this catch basin, based on observations of metals shavings on the ground surface in the immediate vicinity of the catch basin (BES, 2008c). Metals concentrations detected in the erodible soils samples in the vicinity of catch basin ANE911 were not appreciably elevated (see Table 5 and Figure 5). Catch basin ANE911 also captures runoff from portions of N. Alta Avenue and N. Crawford Street adjacent to Independent Marine Propeller. Offsite migration of metals from the Independent Marine Propeller site is a likely source to catch basin ANE911.

## 4.2 Central Subbasin

### 4.2.1 Subbasin Screening Results

Contributions from the central subbasin are represented by the sediment trap samples (parent and duplicate) collected at manhole AAE516. The results and parent/duplicate average results for these samples<sup>12</sup> are summarized in Tables 2 and 4 and discussed below.

- *Total PCBs:* The average total PCB congeners concentration (398 µg/Kg) and average total PCB Aroclors concentration (356 µg/Kg, a mix of Aroclors 1016/1242 and 1254) are less than the Toxicity SLV and are moderately elevated relative to the DEQ industrial reference concentrations.
- *Metals:* Average chromium, copper, lead, nickel and zinc concentrations are greater than the JSCS Toxicity SLVs, though all concentrations are less than 10 times the respective SLV. Relative to the DEQ industrial reference concentrations, the chromium concentration is significantly elevated and the nickel concentration is moderately elevated. Average concentrations of other metals detected in the sediment trap samples from this location are not elevated.

### 4.2.2 Source Tracing

Results of the subbasin screening evaluation indicate that current sources of PCBs, chromium, and nickel are present in the central subbasin. Possible sources of these contaminants (along with copper, which was identified for potential further source tracing in the stormwater screening evaluation) are discussed below.

#### 4.2.2.1 PCBs

PCB congeners and/or PCB Aroclors were detected in all samples collected upstream of manhole AAE516 except catch basin AAE673<sup>13</sup>. The highest total PCBs concentration (281

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<sup>12</sup> The average concentration for the parent and duplicate samples was calculated following guidelines used by the Lower Willamette Group for data reporting (Kennedy/Jenks, 2004).

µg/Kg) was detected in the sample from ODOT manhole 4. Though this concentration is moderately elevated relative to DEQ industrial reference concentrations (DEQ, 2010), total PCBs concentrations in solids collected from the ODOT system downstream of manhole 4 were not as elevated (115 µg/Kg). Stormwater discharges from the western portion of the St. Johns Bridge were characterized by the Lower Willamette Group (LWG) in 2007 (Anchor and Integral, 2008). Total PCBs were detected in stormwater and sediment trap samples at low to moderate concentrations relative to DEQ industrial reference concentrations.

Inline solids data collected from the ODOT system discharging to Basin 52 confirms that ODOT bridge drainage increases loading of PCBs to the basin. Though solids concentrations are not high relative to DEQ guidance concentrations, more data may be needed from ODOT to verify that the ODOT bridge is not a major ongoing source of PCBs to Basin 52 via stormwater discharges.

#### 4.2.2.2 Metals

Samples collected from three of the four sampling locations upstream of manhole AAE516 were analyzed for metals: catch basin AAE673 and ODOT manholes 2 and 4. The chromium and copper concentrations in the sample from ODOT manhole 4 exceed the Toxicity SLVs but are within an order-of-magnitude of the SLVs and are not elevated relative to DEQ guidance. Nickel concentrations in the ODOT samples were below the Toxicity SLV. Results indicate that St. Johns Bridge runoff is not a likely major source of chromium, copper and nickel to this branch.<sup>14</sup>

Chromium, copper, and nickel concentrations at catch basin AAE673 are higher than at the downstream sediment trap location, exceed Toxicity SLVs, and are elevated relative to the DEQ industrial reference concentrations. Copper and nickel concentrations are greater than 10 times the SLVs. The drainage area for this catch basin consists of a relatively short stretch of N. Crawford Street and also captures a portion of overland stormwater runoff from the Independent Marine Propeller facility driveway (see Appendix A, Photos 25a/b). As discussed in Section 4.1.2.2, illicit discharges from the Industrial Marine Propeller site to catch basin AAE673 have been observed and inlets near the facility may also be impacted by vehicle tracking from the site. This facility is the suspected source of the same metals at nearby catch basin APA114, as discussed in Section 4.1.2, and likely also accounts for the elevated detections of these metals in the sample from catch basin AAE673.

## 4.3 South Subbasin

### 4.3.1 Subbasin Screening Results

The two sediment trap samples collected at manhole AAE700 (standard trap and SIFT© trap) represent all contributions from the south subbasin, except for discharges into the short storm line along the N. Pittsburg Avenue spur in Cathedral Park. These samples were collected after

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<sup>13</sup> Method detection limits for this sample were elevated.

<sup>14</sup> Chromium and zinc were detected at moderately elevated concentrations in LWG stormwater samples from the western portion of the St. Johns Bridge; metals were not analyzed in the LWG sediment trap sample (Anchor and Integral, 2008).

several catch basins and catch basin lateral lines were cleaned in the vicinity of manhole AAE700 (see Section 5). Results for these samples are summarized in Tables 3 and 4 and discussed below.

- *Total PCBs:* The total PCB congeners concentration detected in the SIFT® trap sample (196 µg/Kg) is moderately elevated relative to DEQ industrial reference concentrations. However, PCB Aroclors were not detected in this sample, and the total PCB congeners concentration in the paired standard sediment trap sample is low.
- *Metals:* Metals were analyzed only in the SIFT® trap sample; there was insufficient sample volume in the standard trap for metal analyses. Copper, nickel, and zinc concentrations in this sample exceeded the JSCS Toxicity SLVs, but are less than 10 times the SLV and are not significantly elevated relative to DEQ industrial reference concentrations (DEQ, 2010).

These results indicate that no major sources of metals or PCBs currently discharge to the south branch.

#### 4.3.2 Source Tracing

Although the 2010 sediment trap screening results for this branch do not indicate any major current sources of PCBs or metals in the south subbasin, the 2008 inline solids sample from the closest upstream catch basin (AAE651; see Figure 3b) indicated a potential historical PCBs source(s) in this subbasin. The total PCB Aroclors concentration in the catch basin AAE651 solids sample is 348 µg/Kg, which is moderately elevated relative to the DEQ industrial reference concentrations (DEQ, 2010). The lower sediment trap results (ND – 196 µg/Kg) that followed line cleaning in this area indicate that the elevated concentration in CB AAE651 may have represented legacy contaminated solids in this rail corridor area. Total PCBs concentrations in the other inline solids samples from this branch are low (see Table 3). Results for the 2008 inline solids samples from this branch do not indicate major sources of copper or other metals discharging to the south branch.

## SECTION 5

# Source Control Activities

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Source control measures the City has completed in coordination with the Basin 52 source investigation are summarized below and shown on Figure 6. These measures were identified based on initial review of the stormwater solids data and were completed in January 2010, in preparation for the February 2010 sediment trap deployments (BES, 2010c).

- All catch basins and connecting catch basin lead lines discharging to the following manholes were cleaned:
  - Manhole AAE498 (north branch)
  - Manhole AAE510 (north branch)
  - Manhole AAE700 (south branch)<sup>15</sup>
- The following north branch stormwater line segments were cleaned after the catch basins, laterals, and upgradient manholes were cleaned:
  - AAE498 to AAE511
  - AAE511 to AAE510
  - AAE510 to AAE513

In addition, the City has taken the following actions with regard to suspected sources in Basin 52:

- *Independent Marine Propeller (8675 N. Crawford Street)*: This facility has been the subject of multiple complaints regarding air emissions (fugitive paint fumes and dust) and surface runoff (BES, 2007c; DEQ, 2007). In response to a complaint that the facility was spraying and grinding propellers on their exterior asphalted work area, the City inspected the site in spring 2007. Based on observations during the site inspection, the City concluded that drainage from this property's exterior areas likely flows overland into the adjacent streets and enters the Willamette River via the City's Basin 52 stormwater conveyance system. Given the potential for the company's activities to contaminate stormwater runoff entering the river, the City formally requested that the site operators confine the industrial activities to the interior work areas and cease utilizing the exterior yard for the propeller grinding and spraying. The City also requested that the site operators complete an Industrial and Commercial Environmental Survey, provided them with technical assistance on appropriate best management practices (BMPs) for preventing stormwater contamination, and requested that BMPs be implemented at this facility. It also notified the site operators that the discharge of any wash or wastewaters to the City's storm sewers is strictly prohibited (BES, 2007d).

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<sup>15</sup> Cleaning of the lateral line between two of the four catch basins in this area could not be completed due to line damage beneath the railroad corridor along N. Bradford St.

In response, Independent Marine Propeller made operational changes to remove exposures of site industrial activities to stormwater. Following City inspection of the site on June 15, 2011, the City determined that site operations would qualify for NPDES 1200-Z Industrial Stormwater Permit coverage if exposures were present. Because no such exposures were observed, the City requested submittal of a request for an NEC and is working with the site to ensure that an NEC can be issued.

- *Peninsula Iron Works (6618 N. Alta Avenue)*: The City has worked with PIW in recent years to reduce industrial exposures to stormwater at the site. During the September 2008 catch basin sampling in Basin 52, the City observed that the right-of-way areas adjacent to the site on N. Alta Avenue and N. Bradford Street (along the railroad tracks) were being used as outdoor operations areas for PIW. Abundant metal shavings that appeared to be related to site operations were observed within and surrounding catch basin ANE911 (BES, 2008c). Based on observations during a follow-up City stormwater inspection on October 15, 2008, the City confirmed that industrial exposures to stormwater were occurring (BES, 2008d). Specifically, the City identified the following industrial activities taking place on site in areas exposed to stormwater and notified PIW operators that they were required to apply for a 1200-Z permit (BES, 2008d):
  - Scrap metal was being transferred to a recycling dumpster/bin and material was being collected from the bin in a manner causing shavings to be deposited on the ground in close proximity to catch basin ANE911, resulting in exposure to stormwater;
  - Old railroad ties used for product transport, waste equipment with hydraulic fluid, finished products, slag pieces, and metal shavings were being stored in a manner that exposed these materials to stormwater; and
  - Waste steel (which can be contaminated with oily residue, slag residue or other materials) was being stored outside and exposed to stormwater.

After a period of no response, the City issued PIW a Notice of Noncompliance (BES, 2009a) and enforcement referral (BES, 2009b) for failure to apply for the 1200-Z permit. Under City oversight, PIW subsequently completed sufficient actions to remove industrial activity exposures to stormwater, thereby becoming eligible for an NEC in lieu of an NPDES 1200-Z permit. Actions completed at the site to remove exposures include (BES, 2009c, 2009d):

- Waste materials (including old equipment and hoppers) were moved into covered areas;
- The recycling dumpster/bin was moved from its former location adjacent to catch basin ANE911 to the southwest side of building (approximately 40 feet from the catch basin). An absorbent sock was placed around the bin, and a permanent awning was installed over the bin;
- Scrap wood was moved to a covered storage area or placed on an elevated platform and covered with a tarp to prevent contact with stormwater;
- The onsite stormwater trench drain was cleaned out; and

- PIW staff were trained on general environmental housekeeping practices.

The NEC requires the site to file an updated form every 5 years and to maintain an Accidental Spill Prevention Plan (ASPP) for the facility to maintain site cleanliness. The controls identified in PIW's ASPP<sup>16</sup> include a preventative maintenance program with catch basin and trench drain cleanings to occur as needed, and sweeping of the loading/unloading areas and storage area twice weekly. The ASPP also includes procedures for transferring and storing materials/wastes and spill response.

In December 2011, the City submitted a request to DEQ for Site Assessment at the PIW site, based on the Basin 52 source investigation results and historical documentation of industrial operations at the site (BES, 2011b). DEQ added this site to the ECSI database (ECSI #5686) and is working with the site to enter into a DEQ Cleanup Program agreement.

- *ODOT*

The City revised the Basin 52 drainage basin boundary to reflect the portion of the St. Johns Bridge that discharges to the basin and provided results of the City investigation of solids in the ODOT drainage system to ODOT. The ODOT stormwater conveyance system that drains the eastern portion of the St. Johns Bridge includes a sedimentation manhole to reduce solids loading to Basin 52. DEQ and ODOT have entered into an IGA for investigation of discharges to Portland Harbor, including discharges from the St. Johns Bridge.

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<sup>16</sup> The ASPP was submitted for City review on March 2, 2009, and approved by the City on August 21, 2009.

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## Conclusions and Next Steps

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The City source investigations in Basin 52 confirmed that all major sources of PCBs and certain metals have been identified and are now in appropriate programs to select and implement necessary source controls. Basin 52 data do not indicate that major current sources of other contaminants are discharging to the basin and further City source tracing is not warranted.

Concentrations of total PCBs and certain metals (chromium, copper and nickel) in stormwater solids collected from this basin are elevated relative to concentrations for basins and industrial sites discharging to Portland Harbor (DEQ, 2010). This finding is similar to results of the City's *Stormwater Evaluation Report*, which identified PCBs and copper as analytes warranting further source tracing in the basin. Basin data indicate the major current sources of these contaminants are located in the north and central subbasins.

Based on the spatial distribution of elevated detections and information on upland sites within the basin, residual PCBs in erodible surface soils adjacent to the PIW facility appear to be a major source of PCBs to the north subbasin system. Review of available historical information indicates foundry and/or machine shop operations have been active at the PIW site for approximately 100 years; the PCBs contamination in surface soil in the vicinity of this site is suspected to be related to these historical site operations (via offsite dispersal mechanisms such as vehicle and equipment dragout, overland runoff, fugitive dusts, and direct releases). Outdoor operations at the Independent Marine Propeller facility appear to be the major source of metals to the north and central subbasins. PCBs and metals were also detected in the central subbasin in the ODOT drainage system affiliated with the St. Johns Bridge. The south subbasin does not appear to contain major sources of PCBs or metals to the municipal storm system.

The City Industrial Stormwater Program has provided technical assistance to the PIW and Independent Marine Propeller facilities to reduce stormwater exposures, resulting in the issuance of an NEC certification at PIW and recommendation for an NEC at Independent Marine Propeller. Basin 52 source investigation results in the vicinity of PIW supported a City request to DEQ for Site Assessment at PIW. DEQ has been working with PIW to finalize a Cleanup Program Agreement for the site. The ODOT St. Johns Bridge drainage system includes a sedimentation manhole to reduce solids loading from the bridge to Basin 52, and ODOT may be collecting additional information on St. Johns Bridge drainage as part of an IGA with the DEQ Cleanup Program. Source control efforts at these three sites are expected to address the major current sources of PCBs and metals to the Basin 52 conveyance system.

As all major sources of PCBs and the metals to Basin 52 have been identified and are being controlled, no further source investigation in Basin 52 is warranted. The City will continue to provide technical assistance to PIW and Independent Marine Propeller and to coordinate with DEQ on the PIW and ODOT source investigation and control efforts in the basin. The source investigation results presented in this report and ongoing work at the properties identified as major upland sources to the City conveyance system will support future DEQ decisions for this basin.

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## SECTION 7

# References

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- Anchor and Integral. 2008. Portland Harbor RI/FS. Round 3A and 3B Stormwater Data Report. Prepared for the Lower Willamette Group, Portland, OR. Anchor Environmental, L.L.C., Seattle, WA. September 2008.
- BES. 2007a. Amended Programmatic Quality Assurance Project Plan, City of Portland Outfalls Project, Revision to Programmatic Source Control Remedial Investigation Work Plan Appendix D. Prepared by the City of Portland, Bureau of Environmental Services, Portland Harbor Program. August 2007.
- BES. 2007b. Amended Programmatic Sampling and Analysis Plan, City of Portland Outfalls Remedial Investigation/Source Control Measures Project. Prepared by the City of Portland, Bureau of Environmental Services, Portland Harbor Program. August 2007.
- BES. 2007c. Subject: Independent Marine Propeller – 8675 N. Crawford. Email to L. Scheffler and D. Sanders (BES Portland Harbor Superfund Program) from M. Hauser (BES Spill Protection & Citizen Response Section). April 9, 2007.
- BES. 2007d. RE: Site Activities at Independent Marine Propeller- 8675 N. Crawford St, Portland OR. Letter to S. Parsons (Independent Marine Propeller) from L. Shelley (City of Portland BES Industrial Stormwater Program). June 6, 2007.
- BES. 2008a. City of Portland Outfalls Project, Basin 52 Inline Solids Sampling and Analysis Plan. Letter from L. Scheffler (BES) to K. Tarnow (DEQ). June 18, 2008.
- BES. 2008b. Subject: Notification of Proposed Sampling Activities – Basin 52. Email from L. Scheffler (BES) to K. Tarnow (DEQ). August 26, 2008.
- BES. 2008c. Subject: Peninsula Iron Works. Email from L. Scheffler (BES) to L. Johnson (BES Industrial Stormwater Program). September 10, 2008.
- BES. 2008d. RE: General NPDES Industrial Stormwater Discharge Permit Required, Stormwater Facility Inspection of Peninsula Iron Works, located at 6618 N Alta. Letter to D. Johnson (PIW) from L. Johnson (BES Industrial Stormwater Program). October 16, 2008.
- BES. 2009a. RE: Notice of Noncompliance – Failure to Apply for NPDES Permit, Discharge of Wastes to Waters of the State: Oregon Revised Statute 468.B.025, Peninsula Iron Works, 6618 N Alta. Letter to D. Johnson (PIW) from L. Johnson (BES Industrial Stormwater Program). January 5, 2009.
- BES. 2009b. RE: Enforcement Referral – Failure to Apply for NPDES Permit, Discharge of Wastes to Waters of the State: Oregon Revised Statute 468.B.025, Peninsula Iron Works, 6618

- N Alta. Letter to D. Johnson (PIW) from L. Johnson (BES Industrial Stormwater Program). February 2, 2009.
- BES. 2009c. Site notes from BES Industrial Stormwater Program staff site visit to Peninsula Iron Works on February 12, 2009.
- BES. 2009d. Site notes from BES Industrial Stormwater Program staff site visit to Peninsula Iron Works on February 26, 2009.
- BES. 2010a. *Stormwater Evaluation Report, City of Portland Outfall Project, ECSI No. 2425.* Prepared by the City of Portland, Bureau of Environmental Services, Portland Harbor Program. February 2010.
- BES. 2010b. Subject: City of Portland Outfall Project, Source Investigations for Basins 18, 19A, 52, 52C, 53, 53A, and S-1, Summer 2010 Sampling and Analysis Plan. Letter from L. Scheffler (BES) to K. Tarnow (DEQ). August 20, 2010.
- BES. 2010c. Subject: Maintenance Assistance. Internal memorandum from L. Scheffler (BES) to Mark Braun (BES, Maintenance Engineering). January 11, 2010.
- BES. 2011a. Re: Basin 52 Source Investigation. Data transmittal to K. Tarnow (DEQ) from L. Scheffler (BES). June 16, 2011.
- BES. 2011b. Subject: Request for DEQ Site Assessment of Peninsula Iron Works Property at 6618 N. Alta Avenue. Letter to A. Liverman (DEQ) from L. Scheffler (BES). December 13, 2011.
- DEQ. 2001. Environmental Cleanup Site Information (ECSI) Database Site Summary Report - Details for Site ID 2363, Crawford Street Corporation. Last updated 2001. Website accessed on February 28, 2011. <http://www.deq.state.or.us/lq/ECSI/ecsidetail.asp?seqnbr=2363>
- DEQ. 2007. RE: Air Quality Complaint, Multnomah County, 09-06-2007 @ 08:02. Letter to Independent Marine Propeller & Machine Shop from D. Murphy (DEQ). September 24, 2007.
- DEQ. 2010. "Tool for Evaluating Stormwater Data" – Appendix E to *Guidance for Evaluating the Stormwater Pathway at Upland Sites*. January 2009 (updated October 2010).
- DEQ. 2012a. Environmental Cleanup Site Information (ECSI) Database Site Summary Report - Details for Site ID 5686, Peninsula Iron Works. <http://www.deq.state.or.us/lq/ECSI/ecsidetail.asp?seqnbr=5686>
- DEQ. 2012b. Environmental Cleanup Site Information (ECSI) Database Site Summary Report - Details for Site ID 5437, Oregon Department of Transportation – Portland Harbor Source Control Evaluation. Last updated 2010. Website accessed on April 4, 2012. <http://www.deq.state.or.us/lq/ECSI/ecsidetail.asp?seqnbr=5437>

DEQ and EPA. 2005 (amended 2007). Portland Harbor Joint Source Control Strategy. Prepared by the Oregon Department of Environmental Quality and the U.S. Environmental Protection Agency. December 2005 (Table 3-1 updated July 2007). Available online at <http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/jointsource.htm>.

EPA. 2010. Portland Harbor Superfund Site; Administrative Order of Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Portland Harbor Feasibility Study Source Tables. Letter from EPA to Mr. Bob Wyatt, Chairman, Lower Willamette Group. November 23, 2010.

Kennedy/Jenks. 2004. Portland Harbor RI/FS, Guidelines for Data Reporting, Data Averaging, and Treatment of Non-Detected Values for the Round 1 Database. June 10, 2004.

PIW. 2011. Peninsula Iron Works website. <http://peniron.com/html/aboutus.htm>. Accessed June 1, 2011.

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Table 1  
Basin 52 Inline Solids Results - North Branch

		Manhole AAE513		Catch Basin ANE911		Catch Basin APA114	Manhole AAE498	Catch Basin ANE910	Catch Basin AAE694	JSCS <sup>(2)</sup> Screening Level Value		
		Inline Solids	Sediment Trap Solids (SIFT® Trap)	Inline Solids	Inline Solids	Inline Solids	Sediment Trap Solids (SIFT® Trap)	Inline Solids	Inline Solids			
		Within Manhole, on East Ledge of Manhole FO080842	Upstream in 15" Line FO105695	FO081104	FO105871 <sup>(1)</sup>	FO081105	Downstream in 12" Line FO105694	FO081108	FO081109			
Class	Analyte	Units	6/26/2008	6/17/2010	9/9/2008	9/7/2010	9/9/2008	6/17/2010	9/10/2008	9/10/2008	Toxicity	Bioaccumulation
Total Organic Carbon (EPA 9060 MOD)												
	TOC	mg/Kg	120,000	81,000	32,400	28,600	60,800	46,000	85,400	40,700	--	--
Total Solids (SM 2540 G)												
	TS	%	53.1	48.2	90.3	84 <sup>(1)</sup>	62.9	58.2	97.5	95.6	--	--
Grain Size (ASTM D421/422)												
	Gravel (>4750 µm)	Fract %	4.32	NA	30.68	NA	7.84	NA	NA	46.31	--	--
	Coarse Sand (4750-2000 µm)	Fract %	21.47	NA	22.81	NA	13.3	NA	NA	14.44	--	--
	Medium Sand (2000-425 µm)	Fract %	28.05	NA	26.97	NA	28.91	NA	NA	14.31	--	--
	Fine Sand (425-75 µm)	Fract %	16.98	NA	13.6	NA	30.38	NA	NA	11.27	--	--
	Silt (3.2-75 µm)	Fract %	24.71	NA	4.58	NA	16.74	NA	NA	10.42	--	--
	Clay (<3.2 µm)	Fract %	4.46	NA	1.34	NA	2.81	NA	NA	3.25	--	--
Metals (EPA 6020)												
	Arsenic	mg/Kg	7.67	5.25	7.42	4.61 <sup>(1)</sup>	7.08	3.19	NA	2.61	33	7
	Cadmium	mg/Kg	0.93	1.01	0.59	0.464 <sup>(1)</sup>	1.91	0.66	NA	0.51	4.98	1
	Chromium	mg/Kg	NA	162	563	659 <sup>(1)</sup>	5,260	99.5	NA	46.4	111	--
	Copper	mg/Kg	1,240	254	5,000	873 <sup>(1)</sup>	13,500	97.3	NA	69.7	149	--
	Lead	mg/Kg	81.6	86.5	272	105 <sup>(1)</sup>	150	59.3	NA	39.1	128	17
	Mercury	mg/Kg	NA	0.068	0.036	0.0173 <sup>(1)</sup>	0.087	0.048	NA	0.125	1.06	0.07
	Nickel	mg/Kg	NA	99.2	321	431 <sup>(1)</sup>	3,050	43.2	NA	25.8	48.6	--
	Silver	mg/Kg	NA	0.39	0.84	0.235 <sup>(1)</sup>	1.36	0.21	NA	0.10	5	--
	Zinc	mg/Kg	649	462	437	316 <sup>(1)</sup>	3,120	350	NA	187	459	--
Polychlorinated Biphenyl Congeners (PCBs) (EPA 1668A)												
	Total PCBs <sup>(3)(4)</sup>	µg/Kg	NA	924 <sup>(5)</sup>	NA	2,350	NA	55.4 <sup>(5)</sup>	NA	NA	676	0.39
Polychlorinated Biphenyls(PCBs) (EPA 8082)												
	Aroclor 1016	µg/Kg	10 U	20 U	1,000 U	200 U	10 U	10 U	10 U	10 U	530	--
	Aroclor 1221	µg/Kg	20 U	40 U	2,000 U	400 U	20 U	20 U	20 U	20 U	--	--
	Aroclor 1232	µg/Kg	10 U	20 U	1,000 U	200 U	10 U	10 U	10 U	10 U	--	--
	Aroclor 1242	µg/Kg	10 U	20 U	1,000 U	200 U	10 U	10 U	10 U	10 U	--	--
	Aroclor 1248	µg/Kg	10 U	20 U	1,000 U	200 U	10 U	11	10 U	10 U	1,500	--
	Aroclor 1254	µg/Kg	10 U	20 U	1,000 U	200 U	60	10 U	123 J	10 U	300	--
	Aroclor 1260	µg/Kg	114	130	8,160	2,860	29 J	9 J	515	54	200	--
	Aroclor 1262	µg/Kg	10 U	20 U	1,000 U	200 U	10 U	10 U	10 U	10 U	--	--
	Aroclor 1268	µg/Kg	10 U	20 U	1,000 U	200	10 U	10 U	10 U	10 U	--	--
	Total PCBs <sup>(4)</sup>	µg/Kg	114	130	8,160	2,860	89 J	20 J	638 J	54	676	0.39

Notes:

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 Aroclors, the value is estimated due to pattern overlap.

U = Analyte was not detected above the reported sample quantification limit

-- No JSCS screening level value available

µg/Kg = Micrograms per kilogram

mg/Kg = Milligrams per kilogram

<sup>(1)</sup> Sample was archived after initial laboratory analysis and subsequently analyzed for metals on November 17, 2011 (under laboratory number W11K141-03). The recommended method-specific holding time was exceeded due to delayed request for metals analysis; however, because the samples were properly preserved, the results are acceptable for the purposes of this investigation. Percent total solids (TS) also was reanalyzed at this time to ensure accuracy of metals results; TS = 81.6%.

<sup>(2)</sup> JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Amended July 2007)

<sup>(3)</sup> Refer to Table 4 for individual PCB congener results.

<sup>(4)</sup> Total PCBs are calculated by assigning "0" to undetected constituents and to results flagged with "EMPC".

<sup>(5)</sup> Total PCB concentration includes one or more estimated value(s). Because estimated values are not significant relative to the total value (i.e., < 1%), the total PCB concentration is only slightly biased.

= Concentration exceeds JSCS Toxicity Screening Level Value

**bold** = Concentration exceeds JSCS Bioaccumulation Screening Level Value

Table 2  
Basin 52 Inline Solids Results - Central Branch

			Manhole AAE516			Catch Basin AAE673	Catch Basin ANE921		ODOT Manhole 2 <sup>(1)</sup>		ODOT Manhole 4 <sup>(1)</sup>	JSCS <sup>(2)</sup> Screening Level Value	
			Sediment Trap Solids (SIFT® Trap)			Inline Solids	Inline Solids		Inline Solids		Inline Solids		
			Downstream in 18" Line FO105698	Downstream in 18" Line Duplicate FO105702	Parent/Duplicate Sample Average <sup>(3)</sup> FO105698 & FO105702	FO081106	FO081103	Duplicate FO081107	Within Manhole FO105870 <sup>(4)</sup>	Within Manhole Duplicate FO105873	Within Manhole FO105872 <sup>(5)</sup>		
Class	Analyte	Units	6/17/2010	6/17/2010	6/17/2010	9/9/2008	9/9/2008	9/9/2008	9/7/2010	9/7/2010	9/8/2010	Toxicity	Bioaccumulation
Total Organic Carbon (EPA 9060 MOD)													
	TOC	mg/Kg	35,000	40,000	37,500	113,000	64,100	77,200	8,710	7,580	20,100	--	--
Total Solids (SM 2540 G)													
	TS	%	66.6	NA	NA	64.9	47.3	50.5	86.9 <sup>(4)</sup>	85.7	77.5 <sup>(5)</sup>	--	--
Grain Size (ASTM D421/422)													
	Gravel (>4750 µm)	Fract %	NA	NA	NA	20.36	6.32	5.5	NA	NA	NA	--	--
	Coarse Sand (4750-2000 µm)	Fract %	NA	NA	NA	15.2	9.75	9.26	NA	NA	NA	--	--
	Medium Sand (2000-425 µm)	Fract %	NA	NA	NA	22.03	23.9	22.28	NA	NA	NA	--	--
	Fine Sand (425-75 µm)	Fract %	NA	NA	NA	14.88	30.16	29.95	NA	NA	NA	--	--
	Silt (3.2-75 µm)	Fract %	NA	NA	NA	20.06	24.47	27.82	NA	NA	NA	--	--
	Clay (<3.2 µm)	Fract %	NA	NA	NA	7.47	5.38	5.2	NA	NA	NA	--	--
Metals (EPA 6020)													
	Arsenic	mg/Kg	3.34	2.81	3.08	5.62	NA	NA	2.18 <sup>(4)</sup>	NA	4.03 <sup>(5)</sup>	33	7
	Cadmium	mg/Kg	<b>1.18</b>	<b>1.05</b>	<b>1.12</b>	<b>1.22</b>	NA	NA	0.351 <sup>(4)</sup>	NA	<b>1.02</b> <sup>(5)</sup>	4.98	1
	Chromium	mg/Kg	243	280	262	954	NA	NA	89.8 <sup>(4)</sup>	NA	159 <sup>(5)</sup>	111	--
	Copper	mg/Kg	309	339	324	2,170	NA	NA	44.8 <sup>(4)</sup>	NA	188 <sup>(5)</sup>	149	--
	Lead	mg/Kg	<b>89.8</b>	<b>204</b>	<b>147</b>	<b>110</b>	NA	NA	<b>40.3</b> <sup>(4)</sup>	NA	<b>151</b> <sup>(5)</sup>	128	17
	Mercury	mg/Kg	<b>0.079</b>	0.067	<b>0.073</b>	<b>0.085</b>	NA	NA	0.0168 <sup>(4)</sup>	NA	0.0466 <sup>(5)</sup>	1.06	0.07
	Nickel	mg/Kg	112	122	117	512	NA	NA	27.1 <sup>(4)</sup>	NA	41.8 <sup>(5)</sup>	48.6	--
	Silver	mg/Kg	0.21	0.19	0.2	0.35	NA	NA	0.100 U	NA	0.202 <sup>(5)</sup>	5	--
	Zinc	mg/Kg	692	613	653	1,160	NA	NA	332 <sup>(4)</sup>	NA	632 <sup>(5)</sup>	459	--
Polychlorinated Biphenyl Congeners (PCBs) (EPA 1668A)													
	Total PCBs <sup>(6)(7)</sup>	µg/Kg	<b>400</b>	<b>396</b> <sup>(8)</sup>	<b>398</b>	NA	NA	NA	<b>115</b>	<b>67.5</b>	<b>281</b> <sup>(8)</sup>	676	0.39
Polychlorinated Biphenyls(PCBs) (EPA 8082)													
	Aroclor 1016/1242	µg/Kg	78 J	101 J	90 J	100 U	20 U	20 U	10 U	10 U	10 U	530 <sup>(9)</sup>	--
	Aroclor 1221	µg/Kg	20 U	20 U	20 U	200 U	40 U	40 U	20 U	20 U	20 U	--	--
	Aroclor 1232	µg/Kg	10 U	10 U	10 U	100 U	20 U	20 U	10 U	10 U	10 U	--	--
	Aroclor 1248	µg/Kg	10 U	10 U	10 U	100 U	20 U	20 U	60	76	97	1,500	--
	Aroclor 1254	µg/Kg	110 J	422 J	266 J	100 U	33 J	61 J	35	26	66	300	--
	Aroclor 1260	µg/Kg	10 U	10 U	10 U	100 U	60	83	10 U	10 U	10 U	200	--
	Aroclor 1262	µg/Kg	10 U	10 U	10 U	100 U	20 U	20 U	10 U	10 U	10 U	--	--
	Aroclor 1268	µg/Kg	10 U	10 U	10 U	100 U	20 U	20 U	10 U	10 U	10 U	--	--
	Total PCBs <sup>(7)</sup>	µg/Kg	<b>188 J</b>	<b>523 J</b>	<b>356 J</b>	ND	<b>93 J</b>	<b>144 J</b>	<b>95</b>	<b>102</b>	<b>163</b>	676	0.39

Notes:

J = The result is an estimated concentration. For PCB Aroclors, the value is estimated due to pattern overlap of the detected Aroclors or inconsistent QC results that indicate non-homogenous sample matrix.

U = Analyte was not detected above the reported sample quantification limit

-- No JSCS screening level value available

µg/Kg = Micrograms per kilogram

mg/Kg = Milligrams per kilogram

<sup>(1)</sup> ODOT manhole 2 and ODOT manhole 4 were initially identified as sampling locations SJB2 and SJB1, respectively.

<sup>(2)</sup> JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Amended July 2007)

<sup>(3)</sup> The average concentration for the parent and duplicate samples was calculated following guidelines used by the LWG for data reporting (Kennedy/Jenks, 2004).

<sup>(4)</sup> Sample was archived after initial laboratory analysis and subsequently analyzed for metals on November 17, 2011 (under laboratory number W11K141-01); however, because the sample was properly preserved, the results are acceptable for the purposes of this investigation. Percent total solids (TS) also was reanalyzed at this time to ensure accuracy of metals results; TS = 83.2%.

<sup>(5)</sup> Sample was archived after initial laboratory analysis and subsequently analyzed for metals on November 17, 2011 (under laboratory number W11K141-03)); however, because the sample was properly preserved, the results are acceptable for the purposes of this investigation . TS also was reanalyzed at this time to ensure accuracy of metals results; TS = 77.9%.

<sup>(6)</sup> Refer to Table 4 for individual PCB congener results.

<sup>(7)</sup> Total PCBs are calculated by assigning "0" to undetected constituents and to results flagged with "EMPC".

<sup>(8)</sup> Total PCB concentration includes one or more estimated value(s). Because estimated values are not significant relative to the total value (i.e., < 1%), the total PCB concentration is only slightly biased.

<sup>(9)</sup> Results for Aroclors 1016 and 1242 are reported by the analytical laboratory as a combined result. JSCS includes a screening level value for Aroclor 1242 only.

= Concentration exceeds JSCS Toxicity Screening Level Value

**bold** = Concentration exceeds JSCS Bioaccumulation Screening Level Value

Table 3  
Basin 52 Inline Solids Results - South Branch

		Manhole AAE700		Catch Basin AAE651	Catch Basin ANE813	Manhole AAE553		Manhole AAE569	Catch Basin ANE815			
Class	Analyte	Units	Sediment Trap Solids (Standard Trap)	Sediment Trap Solids (SIFT® Trap)	Inline Solids	Inline Solids	Inline Solids	Inline Solids	Inline Solids	Inline Solids	JSCS <sup>(1)</sup> Screening Level Value	
			Downstream in 28" Line FO105696	Downstream in 28" Line FO105697	FO081102	FO081100	Upstream in 24" Line FO080840	Upstream in 24" Line Duplicate FO080843	Upstream in 12" Line FO080841	FO081101	Toxicity	Bioaccumulation
			6/17/2010	6/17/2010	9/9/2008	9/9/2008	6/26/2008	6/26/2008	6/26/2008	9/9/2008		
Total Organic Carbon (EPA 9060 MOD)												
	TOC	mg/Kg	NA	84,000	63,800	22,500	36,000	35,000	5,500	35,900	-- --	
Total Solids (SM 2540 G)												
	TS	%	54.1	46.6	95.1	98.9	82.1	83.1	84.9	91.3	-- --	
Grain Size (ASTM D421/422)												
	Gravel (>4750 µm)	Fract %	NA	NA	NA	22.96	19.73	24.66	8.08	20.02	-- --	
	Coarse Sand (4750-2000 µm)	Fract %	NA	NA	NA	19.98	21.86	19.36	3.06	16.88	-- --	
	Medium Sand (2000-425 µm)	Fract %	NA	NA	NA	30.88	41.85	34.79	14.64	24.96	-- --	
	Fine Sand (425-75 µm)	Fract %	NA	NA	NA	16.29	12.54	17.03	62.83	21.98	-- --	
	Silt (3.2-75 µm)	Fract %	NA	NA	NA	7.71	2.26	2.92	9.41	13.06	-- --	
	Clay (<3.2 µm)	Fract %	NA	NA	NA	2.18	1.78	1.25	1.97	3.1	-- --	
Metals (EPA 6020)												
	Arsenic	mg/Kg	NA	4.57	NA	NA	1.94	1.39	2.09	NA	33 7	
	Cadmium	mg/Kg	NA	1.51	NA	NA	0.72	0.56	0.29	NA	4.98 1	
	Chromium	mg/Kg	NA	98.5	NA	NA	NA	NA	NA	NA	111 --	
	Copper	mg/Kg	NA	150	NA	NA	106	117	33.6	NA	149 --	
	Lead	mg/Kg	NA	104	NA	NA	23.7	22.0	70.7	NA	128 17	
	Mercury	mg/Kg	NA	0.112	NA	NA	NA	NA	NA	NA	1.06 0.07	
	Nickel	mg/Kg	NA	60.0	NA	NA	NA	NA	NA	NA	48.6 --	
	Silver	mg/Kg	NA	0.25	NA	NA	NA	NA	NA	NA	5 --	
	Zinc	mg/Kg	NA	730	NA	NA	588	431	109	NA	459 --	
Polychlorinated Biphenyl Congeners (PCBs) (EPA 1668A)												
	Total PCBs <sup>(2)(3)</sup>	µg/Kg	28.5 J	196 <sup>(4)</sup>	NA	NA	NA	NA	NA	NA	676 0.39	
Polychlorinated Biphenyls(PCBs) (EPA 8082)												
	Aroclor 1016/1242 <sup>(5)</sup>	µg/Kg	NA	20 U	37 J	10 U	10 U	10 U	10 U	10 U	530 --	
	Aroclor 1221	µg/Kg	NA	40 U	20 U	20 U	20 U	20 U	20 U	20 U	-- --	
	Aroclor 1232	µg/Kg	NA	20 U	10 U	10 U	10 U	10 U	10 U	10 U	-- --	
	Aroclor 1248	µg/Kg	NA	20 U	10 U	10 U	10 U	10 U	10 U	10 U	1,500 --	
	Aroclor 1254	µg/Kg	NA	20 U <sup>(6)</sup>	108 J	29 J	26 J	22 J	27 J	30 J	300 --	
	Aroclor 1260	µg/Kg	NA	20 U <sup>(6)</sup>	203 J	38	29	21	23	28	200 --	
	Aroclor 1262	µg/Kg	NA	20 U	10 U	10 U	10 U	10 U	10 U	10 U	-- --	
	Aroclor 1268	µg/Kg	NA	20 U	10 U	10 U	10 U	10 U	10 U	10 U	-- --	
	Total PCBs <sup>(3)</sup>	µg/Kg	NA	ND	348 J	67 J	55 J	43 J	50 J	58 J	676 0.39	

Notes:

J = The result is an estimated concentration. For PCB Aroclors, the value is estimated due to high surrogate recoveries and/or pattern overlap. For PCB Congeners, the value is estimated due to poor internal standard recovery in the sample and the associated QC samples.

U = Analyte was not detected above the reported sample quantification limit

-- No JSCS screening level value available

µg/Kg = Micrograms per kilogram

mg/Kg = Milligrams per kilogram

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

<sup>(2)</sup> Refer to Table 4 for individual PCB congener results.

<sup>(3)</sup> Total PCBs are calculated by assigning "0" to undetected constituents and to results flagged with "EMPC".

<sup>(4)</sup> Total PCB concentration includes one or more estimated value(s). Because estimated values are not significant relative to the total value (i.e., < 1%), the total PCB concentration is only slightly biased.

<sup>(5)</sup> Results for Aroclors 1016 and 1242 are reported by the analytical laboratory as a combined result. The JSCS includes a screening level value for Aroclor 1242 only.

<sup>(6)</sup> WPCL reports that sample FO105697 exhibited trace levels of PCBs (less than laboratory method reporting limits) tentatively identified as mixed Aroclors 1254/1260.

= Concentration exceeds JSCS Toxicity Screening Level Value

**bold** = Concentration exceeds JSCS Bioaccumulation Screening Level Value

Table 4  
Basin 52 Inline Solids Results - PCB Congeners

			North Branch			Central Branch						South Branch				
			Manhole AAE513	Catch Basin ANE911	Manhole AAE498	Manhole AAE516		ODOT MH2 <sup>(1)</sup>		ODOT MH 4 <sup>(1)</sup>		Manhole AAE700				
			Sediment Trap Solids (SIFT® Trap)	Inline Solids	Sediment Trap Solids (SIFT® Trap)	Sediment Trap Solids (SIFT® Trap)		Inline Solids		Inline Solids		Sediment Trap Solids (Standard Trap)	Sediment Trap Solids (SIFT® Trap)			
			Upstream of Manhole in 15" line FO105695	FO105871	Downstream of Manhole in 12" Line FO105694	Downstream of Manhole in 18" Line FO105698	Downstream of Manhole in 18" Line (Duplicate) FO105702	Within Manhole FO105870	Within Manhole (Duplicate) FO105873	Within Manhole FO105872	Within Manhole FO105872	Downstream of Manhole in 28" Line FO105696	Downstream of Manhole in 28" Line FO105697	JSCS <sup>(3)</sup> Screening Level Value		
IUPAC Number <sup>(2)</sup>	Chemical Name	Units	6/17/2010	9/7/2010	6/17/2010	6/17/2010	6/17/2010	9/7/2010	9/7/2010	9/7/2010	9/7/2010	6/17/2010	6/17/2010	Toxicity	Bioaccumulation	
Polychlorinated Biphenyl Congeners (EPA 1668A)																
PCB 1	2-MoCB	µg/Kg	0.0441 J	0.0235 U	0.0245 U	0.2210	0.2810 J	0.0477	0.0378	0.0792		0.8930 JB	0.0467 J	--	--	
PCB 2	3-MoCB	µg/Kg	0.0256 J		0.0245 U	0.0399	0.0504 J	0.0248 U	0.0242 U	0.0252		0.1800 JB	0.0318 J	--	--	
PCB 3	4-MoCB	µg/Kg	0.0566	0.0235 U	0.0245 U	0.1590	0.1800	0.0349	0.0306	0.0641 J		0.0875 JB	0.0759	--	--	
PCB 4	2,2'-DiCB	µg/Kg	0.246	0.0788	0.0275	1.95	2.26	0.634	0.479	0.987		0.2 J	0.237	--	--	
PCB 5	2,3-DiCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.0987	0.1220	0.0296	0.0242 U	0.0358		0.0334 UJ	0.0250 U	--	--	
PCB 6	2,3'-DiCB	µg/Kg	0.1260	0.0446	0.0245 U	0.9570	1.1600	0.2790	0.2360	0.3990		0.0838 J	0.1350	--	--	
PCB 7	2,4-DiCB	µg/Kg	0.0249	0.0235 U	0.0245 U	0.1910	0.2360	0.0533	0.0464	0.0716		0.0334 UJ	0.0258	--	--	
PCB 8	2,4'-DiCB	µg/Kg	0.581	0.173	0.0591	4.72	5.77	1.34	1.09	1.91		0.205 J	0.602	--	--	
PCB 9	2,5-DiCB	µg/Kg	0.0396	0.0235 U	0.0245 U	0.3270	0.4020	0.0944	0.0789	0.1110		0.0334 U	0.0418	--	--	
PCB 10	2,6-DiCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.1020	0.1290	0.0433	0.0330	0.0624		0.0334 U	0.0250 U	--	--	
PCB 11	3,3'-DiCB	µg/Kg	1.38	0.168	0.185	0.768	0.997	0.149 U	0.145 U	0.401		0.397 B	0.751	--	--	
PCB 12/13	3,4-DiCB + 3,4'-DiCB	µg/Kg	0.0984	0.0470 U	0.0490 U	0.3820	0.4380	0.1510	0.1170	0.3100		0.0669 U	0.1090	--	--	
PCB 14	3,5-DiCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.0245 U	0.0244 U	0.0248 U	0.0242 U	0.0244 U		0.0334 U	0.0250 U	--	--	
PCB 15	4,4'-DiCB	µg/Kg	0.81	0.13	0.0632	3.28	3.61	1.18	0.921	3.33		0.441	0.919	--	--	
PCB 16	2,2',3'-TriCB	µg/Kg	0.463	0.158	0.0464	3.33	4.15	1.25	0.938	3.73		0.174	0.501	--	--	
PCB 17	2,2',4'-TriCB	µg/Kg	0.465	0.178	0.0466	3.3	4.16	1.35	1.01	3.45		0.365	0.493	--	--	
PCB 18/30	2,2',5'-TriCB + 2,4,6-TriCB	µg/Kg	0.62	0.38	0.0893	6.33	7.74	2.75	2.02	6.03		0.723	0.666	--	--	
PCB 19	2,2',6'-TriCB	µg/Kg	0.134	0.054	0.0245 U	0.908	1.14	0.343	0.265	1.01		0.0813 J	0.136	--	--	
PCB 20/28	2,3,3'-TriCB + 2,4,4'-TriCB	µg/Kg	2.14	0.697	0.203	10.5	13.1	4.85	3.32	12.3		1.68 J	2.08	--	--	
PCB 21/33	2,3,4-TriCB + 2',3,4'-TriCB	µg/Kg	1.21	0.35	0.113	6.4	8.08	2.61	1.78	5.66		0.746 J	1.15	--	--	
PCB 22	2,3,4'-TriCB	µg/Kg	0.872	0.241	0.0802	4.15	5.08	1.72	1.19	4.07		0.609 J	0.861	--	--	
PCB 23	2,3,5-TriCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.0245 U	0.0244 U	0.0248 U	0.0242 U	0.0244 U		0.0334 UJ	0.0250 U	--	--	
PCB 24	2,3,6-TriCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.0957	0.1570	0.0756	0.0335	0.0244 U		0.0334 UJ	0.0250 U	--	--	
PCB 25	2,3',4'-TriCB	µg/Kg	0.157	0.0462	0.0245 U	0.823	1.02	0.348	0.235	0.877		0.119 J	0.159	--	--	
PCB 26/29	2,3',5'-TriCB + 2,4,5'-TriCB	µg/Kg	0.3730	0.1060	0.0490 U	2.0100	2.4900	0.8150	0.5580	1.9600		0.2790 J	0.3620	--	--	
PCB 27	2,3',6'-TriCB	µg/Kg	0.0956	0.0345	0.0245 U	0.6160	0.7630	0.2370	0.1820	0.9450		0.0616 J	0.1040	--	--	
PCB 31	2,4',5'-TriCB	µg/Kg	1.88	0.562	0.168 B	9.75	12.1	4.19	2.81	8.9		1.48	1.81	--	--	
PCB 32	2,4',6'-TriCB	µg/Kg	0.361	0.154	0.0338	2.2	2.64	1.06	0.787	3.32		0.294	0.391	--	--	
PCB 34	2',3,5-TriCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.0378	0.0461	0.0248 U	0.0242 U	0.0344		0.0334 U	0.0250 U	--	--	
PCB 35	3,3',4-TriCB	µg/Kg	0.0968	0.0239	0.0245 U	0.183	0.239	0.072	0.0605	0.233		0.0347	0.0759	--	--	
PCB 36	3,3',5-TriCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.0235 U	0.0244 U	0.0248 U	0.0242 U	0.0244 U		0.0334 U	0.0250 U	--	--	
PCB 37	3,4,4'-TriCB	µg/Kg	1.14	0.223	0.0911	2.89	3.44	1.3	0.816	3.31		0.387	1.13	--	--	
PCB 38	3,4,5-TriCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.0235 U	0.0244 U	0.0248 U	0.0242 U	0.0244 U		0.0334 U	0.0250 U	--	--	
PCB 39	3,4',5-TriCB	µg/Kg	0.0246 U	0.0235 U	0.0245 U	0.0472	0.0622	0.0271	0.0242 U	0.0523		0.0334 U	0.0250 U	--	--	
PCB 40/41/71	2,2',3,3'-TeCB + 2,2',3,4-TeCB + 2,3',4',6-TeCB	µg/Kg	1.240	0.528	0.147 U	5.610	6.470	2.310	1.380	8.110		0.580	1.580	--	--	
PCB 42	2,2',3,4'-TeCB	µg/Kg	0.584	0.232	0.0613	2.64	3.07	1.07	0.649	3.88		0.296	0.671	--	--	
PCB 43	2,2',3,5-TeCB	µg/Kg	0.0984 U	0.0941 U	0.0981 U	0.332	0.384	0.136	0.0969 U	0.423		0.134 U	0.0999 U	--	--	
PCB 44/47/65	2,2',3,5'-TeCB + 2,2',4,4'-TeCB + 2,3,5,6-TeCB	µg/Kg	2.24	0.856	0.233	11.3	12	4.38	2.31	13.5		0.986	3.65	--	--	
PCB 45/51	2,2',3,6-TeCB + 2,2',4,6'-TeCB	µg/Kg	0.375	0.163	0.0981 U	2.1	2.48	0.763	0.515	3.16		0.21	0.851	--	--	
PCB 46	2,2',3,6'-TeCB	µg/Kg	0.143	0.0576	0.049 U	0.721	0.851	0.256	0.175	1.04		0.0669 U	0.187	--	--	
PCB 48	2,2',4,5-TeCB	µg/Kg	0.440	0.171	0.049 U	2.130	2.550	0.868	0.539	2.830		0.237	0.479	--	--	
PCB 49/69	2,2',4,5'-TeCB + 2,3',4,6-TeCB	µg/Kg	1.240	0.502	0.122	6.520	7.030	2.520	1.380	7.910		0.578	1.780	--	--	
PCB 50/53	2,2',4,6-TeCB + 2,2',5,6'-TeCB	µg/Kg	0.282	0.139	0.098 U	1.520	1.750	0.549	0.345	2.160		0.162	0.654	--	--	
PCB 52	2,2',5,5'-TeCB	µg/Kg	3.72	2.85	0.284 B	19.2	18.6	7.21	3.11	16.9		0.965	3.57	--	--	
PCB 54	2,2',6															

Table 4  
Basin 52 Inline Solids Results - PCB Congeners

			North Branch			Central Branch						South Branch				
			Manhole AAE513	Catch Basin ANE911	Manhole AAE498	Manhole AAE516		ODOT MH2 <sup>(1)</sup>		ODOT MH 4 <sup>(1)</sup>		Manhole AAE700				
			Sediment Trap Solids (SIFT® Trap)	Inline Solids	Sediment Trap Solids (SIFT® Trap)	Sediment Trap Solids (SIFT® Trap)		Inline Solids		Inline Solids		Sediment Trap Solids (Standard Trap)	Sediment Trap Solids (SIFT® Trap)	JSCS <sup>(3)</sup> Screening Level Value		
			Upstream of Manhole in 15" line FO105695	FO105871	Downstream of Manhole in 12" Line FO105694	Downstream of Manhole in 18" Line FO105698	Downstream of Manhole in 18" Line (Duplicate) FO105702	Within Manhole FO105870	Within Manhole (Duplicate) FO105873	Within Manhole FO105872		Downstream of Manhole in 28" Line FO105696	Downstream of Manhole in 28" Line FO105697			
IUPAC Number <sup>(2)</sup>	Chemical Name	Units	6/17/2010	9/7/2010	6/17/2010	6/17/2010	6/17/2010	9/7/2010	9/7/2010	9/7/2010		6/17/2010	6/17/2010	Toxicity	Bioaccumulation	
PCB 96	2,2',3,6,6'-PeCB	µg/Kg	0.0570	0.0563	0.0490 U	0.1730	0.1530	0.0496 U	0.0485 U	0.1530		0.0669 U	0.1100	--	--	
PCB 99	2,2',4,4',5-PeCB	µg/Kg	2.68	1.94	0.74	7.82	5.37	2.19	0.992	4.73		0.293	2.82	--	--	
PCB 103	2,2',4,5',6-PeCB	µg/Kg	0.0675	0.101	0.049 U	0.103	0.0877	0.0496 U	0.0485 U	0.0743		0.0669 U	0.158	--	--	
PCB 104	2,2',4,6,6'-PeCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 105	2,3,3',4,4'-PeCB	µg/Kg	4.11	3.05	1.57	7.68	5.02	1.64	1.03	3.79		0.36	2.82	--	0.17	
PCB 106	2,3,3',4,5-PeCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 107/124	2,3,3',4',5-PeCB + 2',3,4,5,5'-PeCB	µg/Kg	0.526	0.516	0.136	0.775	0.498	0.18	0.103	0.323		0.134 U	0.295	--	--	
PCB 109	2,3,3',4,6-PeCB	µg/Kg	0.804	1.05	0.201	1.09	0.698	0.26	0.165	0.5		0.0669 U	0.422	--	--	
PCB 110/115	2,3,3',4',6-PeCB + 2,3,4,4',6-PeCB	µg/Kg	18.9	37.9	3.99	24.5	17.6	6.39	2.94	11.1		1.19	10.2	--	--	
PCB 111	2,3,3',5,5'-PeCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 112	2,3,3',5,6-PeCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 114	2,3,4,4',5-PeCB	µg/Kg	0.203	0.189	0.0955	0.465	0.321	0.114	0.0661	0.236		0.0669 U	0.136	--	0.17	
PCB 118	2,3',4,4',5-PeCB	µg/Kg	12	18	3.2	18.6	12.2	4.11	2.44	8.62		1	6.2	--	0.12	
PCB 120	2,3',4,5,5'-PeCB	µg/Kg	0.0492 U	0.1620	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0 U	0.0499 U	--	--	
PCB 121	2,3',4,5',6-PeCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 122	2',3,3',4,5-PeCB	µg/Kg	0.1170	0.0821	0.0490 U	0.2150	0.1390	0.0577	0.0485 U	0.1040		0.0669 U	0.0929	--	--	
PCB 123	2',3,4,4',5-PeCB	µg/Kg	0.124	0.184	0.0521 EMPC	0.287	0.21	0.0931	0.0485 U	0.158		0.0669 U	0.127	--	0.21	
PCB 126	3,3',4,4',5-PeCB	µg/Kg	0.3050 EMPC	0.5880 EMPC	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0845 EMPC	--	0.00005	
PCB 127	3,3',4,5,5'-PeCB	µg/Kg	0.0492 U	0.0565	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0583	--	--	
PCB 128/166	2,2',3,3',4,4'-HxCB + 2,3,4,4',5,6-HxCB	µg/Kg	8.38	19.80	1.46	3.65	2.59	0.52	0.44	1.34		0.23	2.46	--	--	
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	µg/Kg	102	284	7.69	21.8	20	3.5	2.86	8.76		1.35	16.4	--	--	
PCB 130	2,2',3,3',4,5'-HxCB	µg/Kg	4.19	10.1	0.527	1.54	1.11	0.235	0.183	0.534		0.0866	1.09	--	--	
PCB 131	2,2',3,3',4,6-HxCB	µg/Kg	0.659	1.66	0.122	0.43	0.311	0.0808	0.0485 U	0.166		0.0669 U	0.219	--	--	
PCB 132	2,2',3,3',4,6'-HxCB	µg/Kg	25.20	72.80	2.51	7.60	6.36	1.41	0.88	3.00		0.41	5.25	--	--	
PCB 133	2,2',3,3',5,5'-HxCB	µg/Kg	0.993	2.59	0.0806	0.26	0.214	0.0496 U	0.0485 U	0.0962		0.0669 U	0.0499 U	--	--	
PCB 134/143	2,2',3,3',5,6-HxCB + 2,2',3,4,5,6'-HxCB	µg/Kg	3.290	9.630	0.399	1.350	1.050	0.281	0.163	0.484		0.134 U	0.845	--	--	
PCB 135/151	2,2',3,3',5,6'-HxCB + 2,2',3,5,5',6-HxCB	µg/Kg	34.6	96.4	1.27	5.82	6.49	1.11	0.632	2.46		0.341	5.68	--	--	
PCB 136	2,2',3,3',6,6'-HxCB	µg/Kg	10.8	30.3	0.52	3	2.81	0.584	0.278	1.45		0.144	2.28	--	--	
PCB 137	2,2',3,4,4',5-HxCB	µg/Kg	1.1	1.07	0.455	1.41	0.846	0.21	0.157	0.457		0.0669 U	0.799	--	--	
PCB 139/140	2,2',3,4,4',6-HxCB + 2,2',3,4,4',6'-HxCB	µg/Kg	0.548	0.862	0.102	0.447	0.291	0.0991 U	0.0969 U	0.154		0.134 U	0.256	--	--	
PCB 141	2,2',3,4,5,5'-HxCB	µg/Kg	22.8	69.2	1.1	3.49	3.86	0.586	0.493	1.39		0.208	2.77	--	--	
PCB 142	2,2',3,4,5,6-HxCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 144	2,2',3,4,5',6-HxCB	µg/Kg	5.69	15.9	0.209	1.07	1.14	0.196	0.112	0.37		0.0669 U	0.793	--	--	
PCB 145	2,2',3,4,6,6'-HxCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 146	2,2',3,4',5,5'-HxCB	µg/Kg	13.2	35	0.689	2.53	2.35	0.4	0.314	0.973		0.148	2.29	--	--	
PCB 147/149	2,2',3,4',5,6-HxCB + 2,2',3,4',5',6-HxCB	µg/Kg	73.9	215	3.44	13.7	14.1	2.69	1.67	5.84		0.827	12.2	--	--	
PCB 148	2,2',3,4',5,6'-HxCB	µg/Kg	0.0637	0.0841	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 150	2,2',3,4',6,6'-HxCB	µg/Kg	0.1110	0.1810	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0706	--	--	
PCB 152	2,2',3,5,6,6'-HxCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.0499 U	--	--	
PCB 153/168	2,2',4,4',5,5'-HxCB + 2,3',4,4',5',6-HxCB	µg/Kg	93.9	269	3.75	13.8	16.1	2.34	1.86	6.16		0.881	12.2	--	--	
PCB 154	2,2',4,4',5,6'-HxCB	µg/Kg	0.571	1.03	0.049 U	0.145	0.0978	0.0496 U	0.0485 U	0.0487 U		0.0669 U	0.368	--	--	
PCB 155	2,2',4,4',6,6'-HxCB	µg/Kg	0.0492 U	0.0470 U	0.0490 U	0.0489 U	0.0488 U	0.0496 U	0.0485 U	0.0487 U						

Table 4  
Basin 52 Inline Solids Results - PCB Congeners

		North Branch			Central Branch						South Branch			
		Manhole AAE513	Catch Basin ANE911	Manhole AAE498	Manhole AAE516		ODOT MH2 <sup>(1)</sup>		ODOT MH 4 <sup>(1)</sup>		Manhole AAE700			
		Sediment Trap Solids (SIFT® Trap)	Inline Solids	Sediment Trap Solids (SIFT® Trap)	Sediment Trap Solids (SIFT® Trap)		Inline Solids		Inline Solids		Sediment Trap Solids (Standard Trap)	Sediment Trap Solids (SIFT® Trap)		
		Upstream of Manhole in 15" line FO105695	FO105871	Downstream of Manhole in 12" Line FO105694	Downstream of Manhole in 18" Line FO105698	Downstream of Manhole in 18" Line (Duplicate) FO105702	Within Manhole FO105870	Within Manhole (Duplicate) FO105873	Within Manhole FO105872		Downstream of Manhole in 28" Line FO105696	Downstream of Manhole in 28" Line FO105697	JSCS <sup>(3)</sup> Screening Level Value	
IUPAC Number <sup>(2)</sup>	Chemical Name	Units	6/17/2010	9/7/2010	6/17/2010	6/17/2010	9/7/2010	9/7/2010	9/7/2010		6/17/2010	6/17/2010	Toxicity	Bioaccumulation
PCB 202	2,2',3,3',5,5',6,6'-O <sub>2</sub> CB	µg/Kg	2.2	4.16	0.0736 U	0.152	0.29	0.0744 U	0.0727 U	0.144	0.1 U	0.361	--	--
PCB 203	2,2',3,4,4',5,5',6-O <sub>2</sub> CB	µg/Kg	8.52	17.8	0.125	0.413	1.07	0.0744 U	0.0883	0.44	0.1 U	1.09	--	--
PCB 204	2,2',3,4,4',5,6,6'-O <sub>2</sub> CB	µg/Kg	0.0738 U	0.0706 U	0.0736 U	0.0734 U	0.0732 U	0.0744 U	0.0727 U	0.0731 U	0.1 U	0.0749 U	--	--
PCB 205	2,3,3',4,4',5,5',6-O <sub>2</sub> CB	µg/Kg	0.915	1.91	0.0736 U	0.0734 U	0.112	0.0744 U	0.0727 U	0.0731 U	0.1 U	0.116	--	--
PCB 206	2,2',3,3',4,4',5,5',6-NoCB	µg/Kg	2.88	4.29	0.07 U	0.34	0.63	0.07 U	0.07 U	0.40	0.11	0.86	--	--
PCB 207	2,2',3,3',4,4',5,6,6'-NoCB	µg/Kg	0.383	0.624	0.0736 U	0.0734 U	0.0873	0.0744 U	0.0727 U	0.0731 U	0.1 U	0.104	--	--
PCB 208	2,2',3,3',4,5,5',6,6'-NoCB	µg/Kg	0.597	0.62	0.0736 U	0.0927	0.151	0.0744 U	0.0727 U	0.122	0.1 U	0.305	--	--
PCB 209	Decachlorobiphenyl	µg/Kg	0.423	0.116	0.0736 U	0.119	0.194	0.0744 U	0.0727 U	0.137	0.116	0.76	--	--
	Total Monochlorobiphenyls	µg/Kg	0.126 <sup>(4)</sup>	0.0244	ND	0.420	0.511 <sup>(4)</sup>	0.0826	0.0684	0.168 <sup>(4)</sup>	1.16 J	0.154 <sup>(4)</sup>	--	--
	Total Dichlorobiphenyls	µg/Kg	3.31	0.594	0.335	12.8	15.1	3.80	3.00	7.62	1.33 J	2.82	--	--
	Total Trichlorobiphenyls	µg/Kg	10.0	3.21	0.871 <sup>(4)</sup>	53.5	66.4	23.0	16.0	55.9	7.03 J	9.92	--	--
	Total Tetrachlorobiphenyls	µg/Kg	19.9	9.02	1.67 <sup>(4)</sup>	82.1	84.8	33.9	17.0	92.0	6.26 J	21.7	--	--
	Total Pentachlorobiphenyls	µg/Kg	96.1	188	18.1	142.0	102	37.0	16.7	763	5.53 J	52.5	--	--
	Total Hexachlorobiphenyls	µg/Kg	427	1200	27.2	89.6	86.1	15.2	11.0	36.6	5.03 J	70.9	--	--
	Total Heptachlorobiphenyls	µg/Kg	305	821	6.54	16.7	32.9	2.11	3.27	9.77	1.79 J	29.1	--	--
	Total Octachlorobiphenyls	µg/Kg	57.7	123	0.707	2.50	6.76	ND	0.468	2.36	0.121 J	7.07	--	--
	Total Nonachlorobiphenyls	µg/Kg	3.86	5.53	ND	0.435	0.865	ND	ND	0.517	0.108 J	1.27	--	--
	Total Decachlorobiphenyls	µg/Kg	0.423	0.116	ND	0.119	0.194	ND	ND	0.137	0.116 J	0.760	--	--
	Total PCBs <sup>(5)</sup>	µg/Kg	924 <sup>(4)</sup>	2,350	55.4 <sup>(4)</sup>	400	396 <sup>(4)</sup>	115	67.5	281 <sup>(4)</sup>	28.5 J	196 <sup>(4)</sup>	676	0.39

Notes:  
MH = manhole  
MoCB = Monochlorobiphenyl  
DiCB = Dichlorobiphenyl  
TriCB = Trichlorobiphenyl  
TeCB = Tetrachlorobiphenyl  
PeCB = Pentachlorobiphenyl  
HeCB = Hexachlorobiphenyl  
HpCB = Heptachlorobiphenyl  
OcCB = Octachlorobiphenyl  
NoCB = Nonachlorobiphenyl  
-- No JSCS screening level available.  
B = The analyte was found in the associated method blank at a level that is significant relative to the sample result.  
EMPC = Estimated Maximum Possible Concentration. Values are not included in total Homolog or total PCBs concentrations.  
J = The result is an estimated concentration. For individual congeners, the value is estimated because the associated internal standard was recovered outside of method-specified control limits. For total PCB Congeners and homolog concentrations, the value is estimated due to poor internal standard recovery in the sample and the associated QC samples.  
U = The analyte was not detected above the reported sample quantification limit.  
UJ = The analyte was not detected above the reported sample quantification limit. However, the associated internal standard was recovered outside of method specified laboratory control limits, and the reported quantitation limit may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.  
µg/Kg = micrograms per kilogram  
ND = not detected  
<sup>(1)</sup> ODOT MH2 and ODOT MH4 were initially identified as sampling locations SJB2 and SJB1, respectively.  
<sup>(2)</sup> IUPAC - International Union of Pure and Applied Chemistry  
<sup>(3)</sup> JSCS SLVs- Portland Harbor Joint Source Control Strategy Screening Level Values (DEQ/EPA Final December 2005, Amended July 2007)  
<sup>(4)</sup> Total homolog and total congener values may be slightly biased due to congener detections in the laboratory method blank and/or internal standard recoveries outside of method control limits.  
<sup>(5)</sup> Total PCBs are calculated by assigning "0" to undetected constituents and to results flagged with "EMPC".  
■ = Concentration exceeds JSCS Toxicity Screening Level Value  
**bold** = Concentration exceeds JSCS Bioaccumulation Screening Level Value

**Table 5**  
**Basin 52 Surface Soil Results**

			Sample Location 52_15	Sample Location 52_16		Sample Location 52_17	Sample Location 52_18	Sample Location 52_19	Sample Location 52_20	Sample Location 52_21	Sample Location 52_22	Sample Location 52_23		
			Five-point Composite Between RR Track and Cathedral Park Parking Lot	Five-point Composite Between RR Track and PIW		Five-point Composite Between RR Track and PIW	Five-point Composite Between RR Track and 6600 N Baltimore Ave	Five-point Composite Between RR Track and 6600 N Baltimore Ave	Five-point Composite Between RR Track and N Alta Ave	Two-point Composite From Potholes Northeast of CB ANE911	Discrete Sample From Pothole North-northwest of CB ANE911	Five-point Composite Between RR Track and Cathedral Park		
			W11A060-01	W11A060-02	Duplicate W11A060-09	W11A060-03	W11A060-04	W11A060-05	W11A060-06	W11A060-07	W11A060-08	W11A060-10	JSCS <sup>(1)</sup> Screening Level Value	
Class	Analyte	Units	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	Toxicity	Bioaccum- ulation
Total Organic Carbon (EPA 9060 MOD)														
	TOC	mg/Kg	23,000	13,000	15,000	13,000	34,000	84,000	45,000	70,000	20,000	25,000	--	--
Total Solids (SM 2540 G)														
	TS	%	80.1	91.9	92.1	89.7	88.3	69.6	73.9	76.7	89.6	85.3	--	--
Metals (EPA 6020)														
	Chromium	mg/Kg	131 J	296	104	549	31.1	57.1	136	216	304	40.0	111	--
	Copper	mg/Kg	169	415	436	444	57.0	161	422	224	541	69.8	149	--
	Lead	mg/Kg	181	84.2	96.7	56.3	172	149	113	75.9	47.1	101	128	17
	Nickel	mg/Kg	49.3 J	113	81.8	302	32.7	57.5	99.7	144	144	25.6	48.6	--
	Zinc	mg/Kg	358	142	146	198	211	273	408	523	178	164	459	--
Polychlorinated Biphenyls(PCBs) (EPA 8082)														
	Aroclor 1016	µg/Kg	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	530	--
	Aroclor 1221	µg/Kg	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	--	--
	Aroclor 1232	µg/Kg	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	--	--
	Aroclor 1242	µg/Kg	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	--	--
	Aroclor 1248	µg/Kg	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	1,500	--
	Aroclor 1254	µg/Kg	1,000 U	1,000 U	1,000 U	1,000 U	50.0 U	50.0 U	50.0 U	100 U	100 U	1,000 U	300	--
	Aroclor 1260	µg/Kg	21,700	11,900	10,500	10,700	606	1,170	846	1,940	1,240	7,120	200	--
	Aroclor 1262	µg/Kg	1,000 U	1,000 U	1,000 U	1,000 U	50.0 U	50.0 U	50.0 U	100 U	100 U	1,000 U	--	--
	Aroclor 1268	µg/Kg	1,000 U	1,000 U	1,000 U	1,000 U	50.0 U	50.0 U	50.0 U	100 U	100 U	1,000 U	--	--
	Total PCBs <sup>(2)</sup>	µg/Kg	21,700	11,900	10,500	10,700	606	1,170	846	1,940	1,240	7,120	676	0.39

## Notes:

U = Analyte was not detected above the reported sample quantification limit

-- No JSCS screening level value available

µg/Kg = Micrograms per kilogram

mg/Kg = Milligrams per kilogram

CB = catch basin

RR = Railroad

PIW = Peninsula Iron Works

<sup>(1)</sup> JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Amended July 2007)<sup>(2)</sup> Total PCBs are calculated by assigning "0" to undetected constituents.

Concentration exceeds JSCS Toxicity SLV

bold = Concentration exceeds JSCS Bioaccumulation screening level value

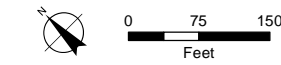
## Figures

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**LEGEND**

- Outfall Basin 52
- ODOT MS4 Permitted Area (Discharges to Basin 52)
- Stormline Branches**
  - North Branch
  - Central Branch
  - South Branch
- All Other Features**
  - Basin 52 Stormwater Sample Screening Location
  - Branch Solids Sample Screening Location
  - Storm Line
  - Manhole (MH)
  - Catch Basin (CB)
  - City Outfall
  - Non-City Outfall
  - DEQ ECSI Site
  - Tax Lot
  - River Mile Tents



**FIGURE 1**  
Outfall Basin 52 Drainage Basin Overview

**Disclaimer:**  
Information contained on this map is accurate according to available records, however the City of Portland makes no warranty, expressed or implied, as to the completeness or accuracy of the information published.

**Prepared By:**  
GSI, April 11, 2012  
005\_SCIRI/OF\_Basin\_52/  
Source\_Investigation\_Report

**Source:**  
City of Portland BES,  
Aerial Photo 2010

**ENVIRONMENTAL SERVICES  
CITY OF PORTLAND**  
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#### LEGEND

- Outfall Basin 52
- ODOT MS4 Permitted Area (Discharges to Basin 52)
- Sample Locations
- Sample Type**
  - Sediment Trap (ST) Sample
  - Inline Solids Sample
- 2007 Stormwater Sampling Location
- All Other Features**
  - Storm Line
  - ODOT Storm Line
  - Manhole (MH)
  - Catch Basin (CB)
  - DEQ ECSI Site
  - Tax Lot
  - River Mile Tenths



**FIGURE 2a**  
Basin 52 - North and Central Branches  
Sampling Locations

**Disclaimer:**  
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**Prepared By:**  
GSI, April 9, 2012  
005\_SCIR\OF\_Basin\_52\Source\_Investigation\_Report

**Source:**  
City of Portland BES,  
Aerial Photo 2010

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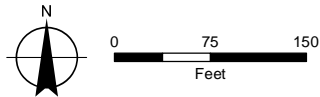
**LEGEND**

- Outfall Basin 52
- ODOT MS4 Permitted Area (Discharges to Basin 52)
- Sample Locations

- Sample Type**
- Sediment Trap (ST) Sample
  - Inline Solids Sample

**All Other Features**

- Storm Line
- Manhole (MH)
- Catch Basin (CB)
- City Outfall
- Non-City Outfall
- DEQ ECSI Site
- Tax Lot
- River Mile Tenths



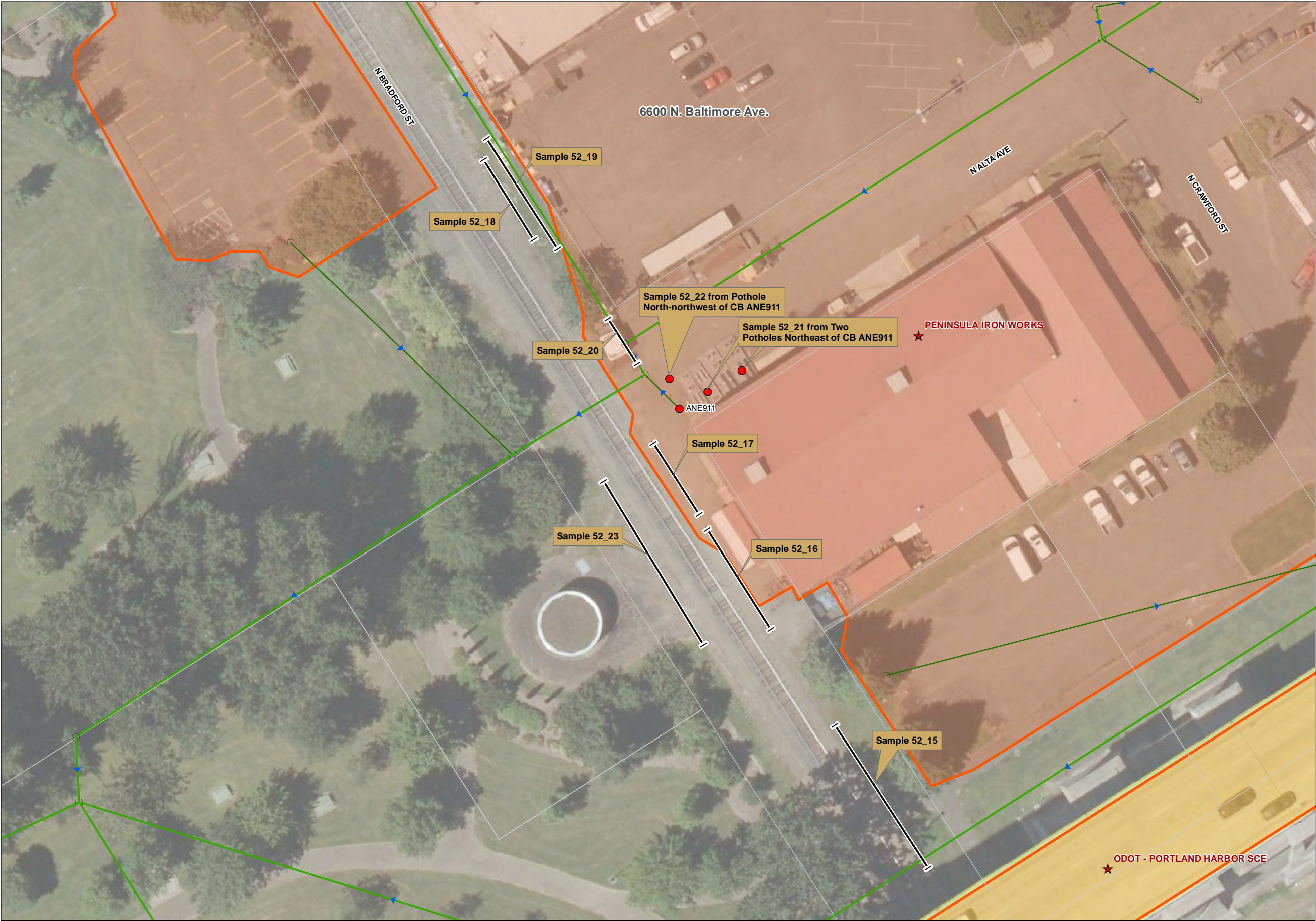
**FIGURE 2b**  
Basin 52 - South Branch  
Sampling Locations

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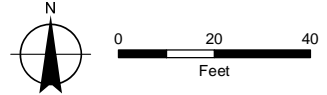
**Prepared By:**  
GSI, April 5, 2012  
005\_SCIR\OF\_Basin\_52\Source\_Investigation\_Report

**Source:**  
City of Portland BES,  
Aerial Photo 2010

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- LEGEND**
- Outfall Basin 52
  - ODOT MS4 Permitted Area (Discharges to Basin 52)
  - Sample Locations
  - Area of Composite Sample
  - Surface Soil Sample
  - Storm Line
  - Manhole (MH)
  - Catch Basin (CB)
  - DEQ ECSI Site
  - Tax Lot
  - River Mile Tenths



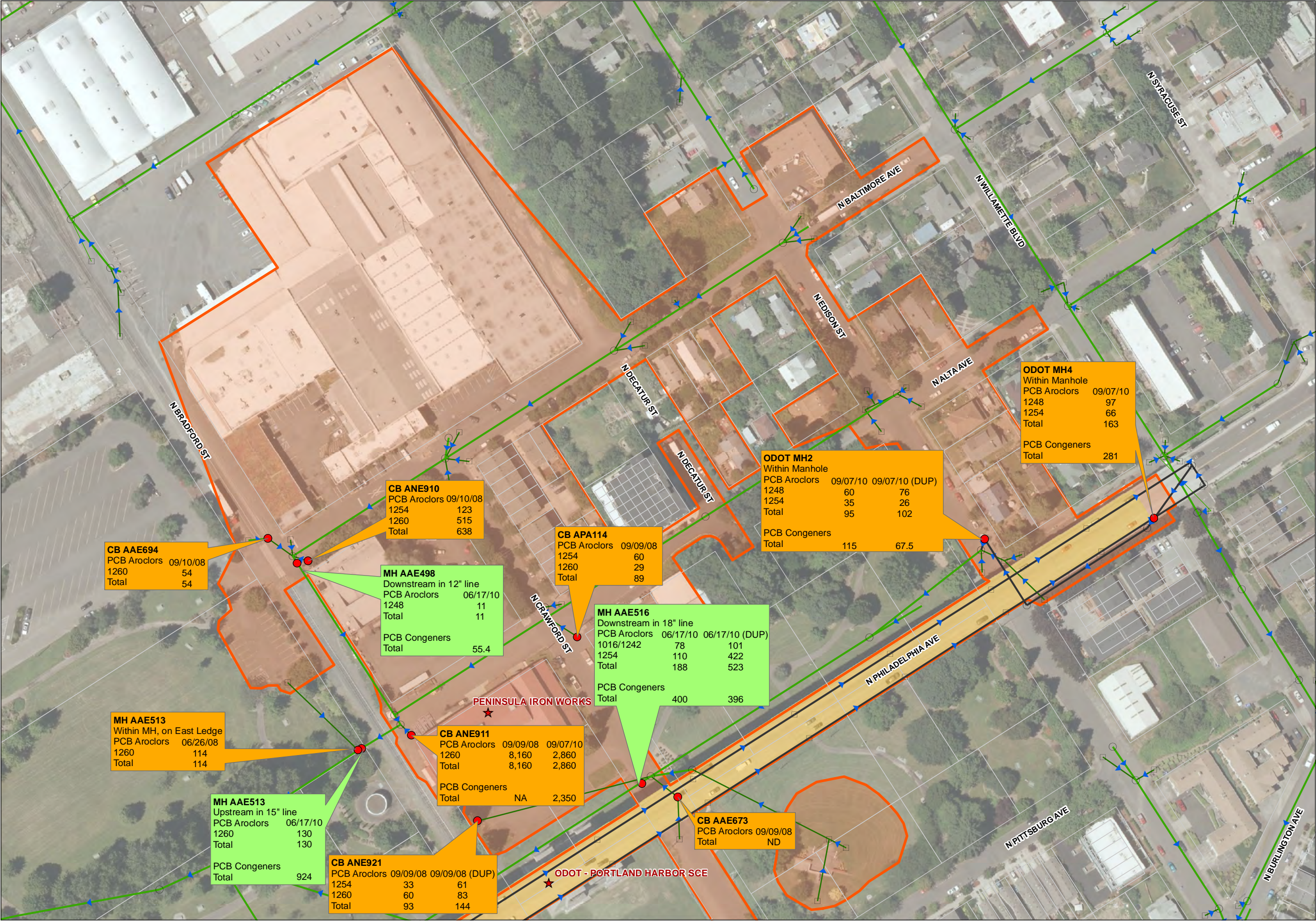
**FIGURE 2c**  
Basin 52  
Surface Soil Sampling Locations

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**LEGEND**

- Outfall Basin 52
- ODOT MS4 Permitted Area (Discharges to Basin 52)
- Sample Locations

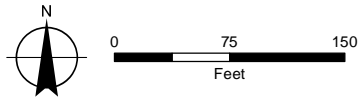
**Sample Type**

- Sediment Trap Sample
- Inline Solids Sample

**All Other Features**

- Storm Line
- ODOT Storm Line
- Manhole (MH)
- Catch Basin (CB)
- DEQ ECSI Site
- Tax Lot
- River Mile Tenths

**NOTE:**  
Sediment trap and inline solids results in µg/Kg.



**FIGURE 3a**  
Basin 52 - North and Central Branches  
Total PCBs

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**Prepared By:**  
GSI, May 14, 2012  
005\_SCIR\OF\_Basin\_52\Source\_Investigation\_Report

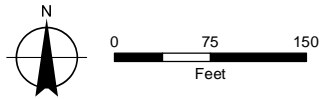
**Source:**  
City of Portland BES,  
Aerial Photo 2010

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- LEGEND**
- Outfall Basin 52
  - ODOT MS4 Permitted Area (Discharges to Basin 52)
  - Sample Locations
- Sample Type**
- Sediment Trap Sample
  - Inline Solids Sample
- All Other Features**
- Storm Line
  - Manhole (MH)
  - Catch Basin (CB)
  - City Outfall
  - Non-City Outfall
  - DEQ ECSI Site
  - Tax Lot
  - River Mile Tenths

**NOTE:**  
Sediment trap and inline solids results in µg/Kg.



**FIGURE 3b**  
Basin 52 - South Branch  
Total PCBs

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Source\_Investigation\_Report

**Source:**  
City of Portland BES,  
Aerial Photo 2010

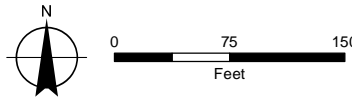
**ENVIRONMENTAL SERVICES**  
CITY OF PORTLAND  
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Portland, Oregon, 97204-1912



**LEGEND**

- Outfall Basin 52
- ODOT MS4 Permitted Area (Discharges to Basin 52)
- Sample Locations
- Sample Type**
  - Sediment Trap Sample
  - Inline Solids Sample
- All Other Features**
  - Storm Line
  - ODOT Storm Line
  - Manhole (MH)
  - Catch Basin (CB)
  - DEQ ECSI Site
  - Tax Lot
  - River Mile Tenths

**NOTE:**  
Sediment trap and inline solids results in mg/Kg.  
NA - Not Analyzed



**FIGURE 4**  
Basin 52 - North and Central Branches Metals (Cr, Cu, Ni)

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**Prepared By:**  
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005\_SCIRI/OF\_Basin\_52  
Source\_Investigation\_Report  
**Source:**  
City of Portland BES,  
Aerial Photo 2010

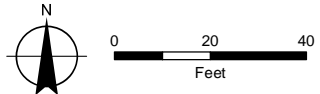




**LEGEND**

- Outfall Basin 52
- ODOT MS4 Permitted Area (Discharges to Basin 52)
- Sample Locations
- Area of Composite Sample
- Sample Type**
  - Surface Solids Sample
  - Inline Solids Sample
- All Other Features**
  - Storm Line
  - Manhole (MH)
  - Catch Basin (CB)
  - DEQ ECSI Site
  - Tax Lot
  - River Mile Tenths

**NOTE:**  
PCB Aroclor and congener results in µg/Kg  
Metal results in mg/Kg.



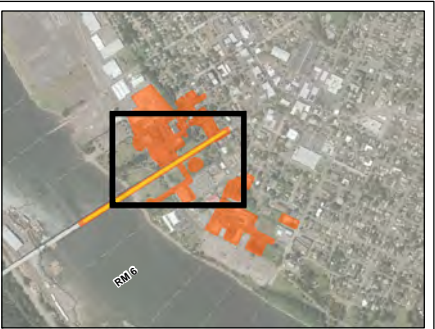
**FIGURE 5**  
Basin 52 - Vicinity of Peninsula Iron Works  
Surface Soil and Inline Solids  
PCBs and Metals (Cr, Cu, Ni)

**Disclaimer:**  
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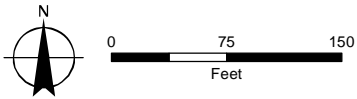
**Prepared By:**  
GSI, April 11, 2012  
005\_SCIR\OF\_Basin\_52\Source\_Investigation\_Report

**Source:**  
City of Portland BES,  
Aerial Photo 2010

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Portland, Oregon, 97204-1912



- LEGEND**
- Outfall Basin 52
  - ODOT MS4 Permitted Area (Discharges to Basin 52)
  - Line Cleaned in January 2010
- All Other Features**
- Storm Line
  - Manhole (MH)
  - Catch Basin (CB)
  - DEQ ECSI Site
  - Tax Lot
  - River Mile Tenths



**FIGURE 6**  
Basin 52 - Source Control Line Cleaning

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**Prepared By:**  
GSI, May 14, 2012  
005\_SCIRI/OF\_Basin\_52  
Source\_Investigation\_Report

**Source:**  
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Aerial Photo 2010

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CITY OF PORTLAND  
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Portland, Oregon 97205-1912

APPENDIX A

# Field Photographs

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## June 2008 Inline Solids Sampling



**Photo 1 (June 26, 2008).** View of solids accumulated on the eastern ledge in manhole AAE513.



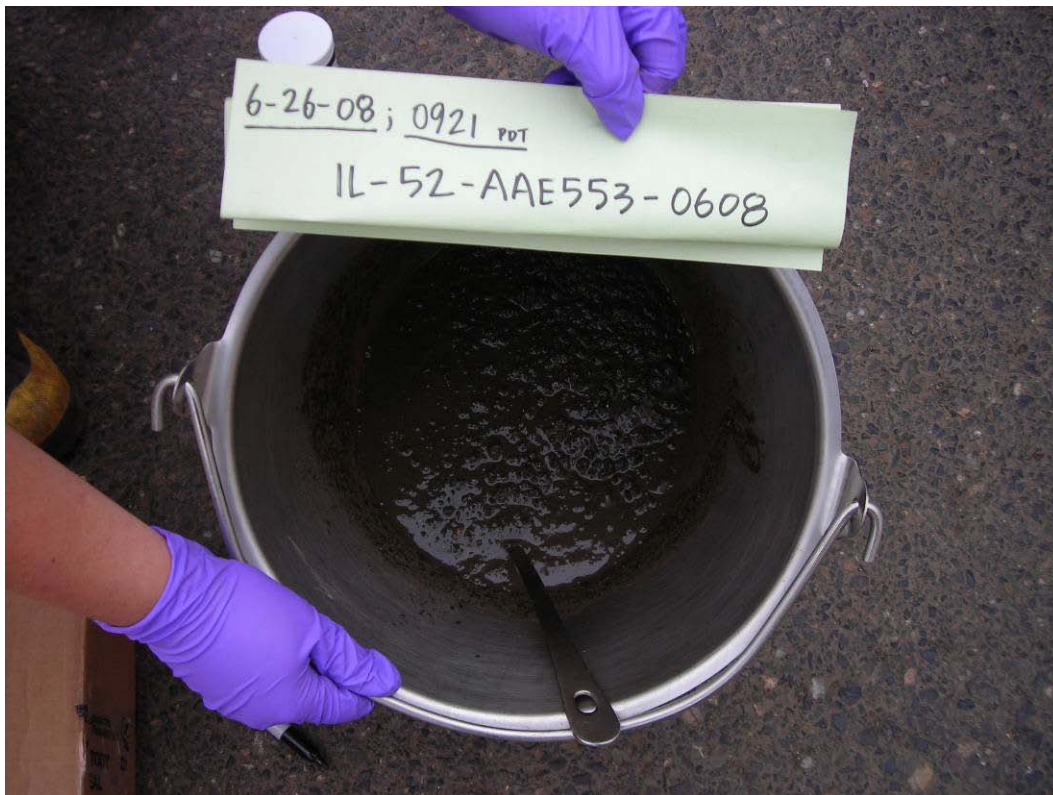
**Photo 2 (June 26, 2008).** Final composited sample from manhole AAE513.



**Photo 3 (June 26, 2008).** Sampling location at manhole AAE553. View is to the northeast.



**Photo 4 (June 26, 2008).** Manhole AAE553 looking upstream; view of solids sampled.



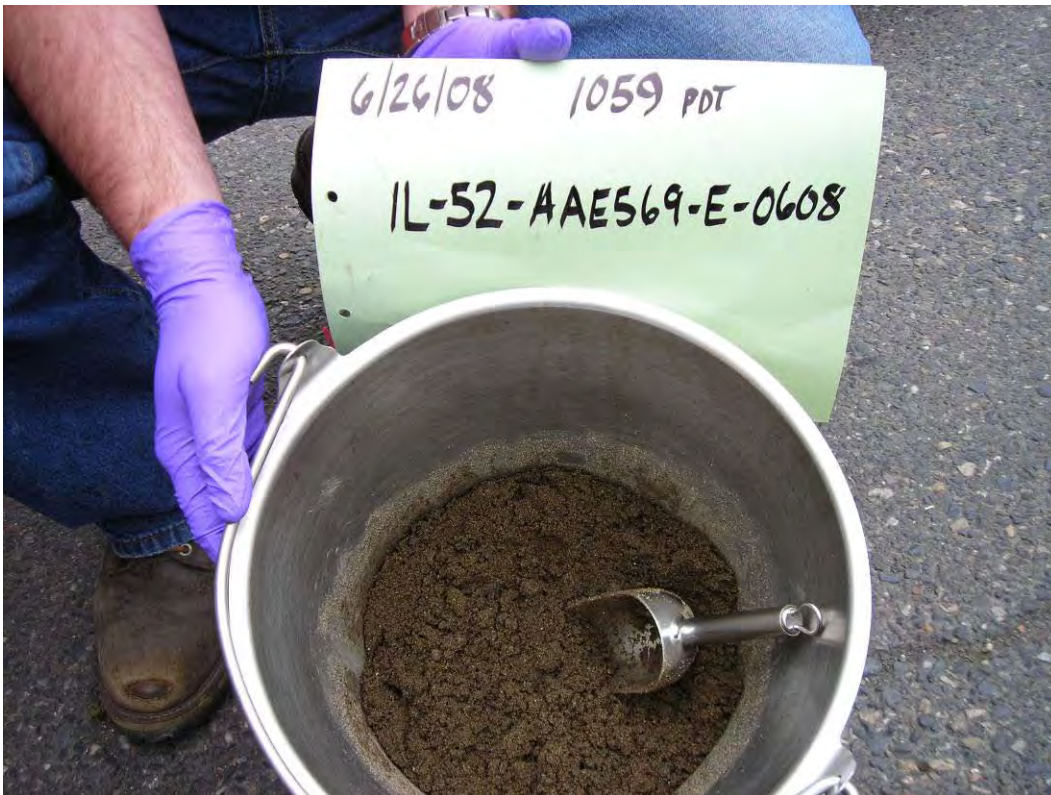
**Photo 5 (June 26, 2008).** Final composited sample from manhole AAE553.



**Photo 6 (June 26, 2008).** Sampling location at manhole AAE569. View is to the east-southeast, up N. Crawford Street.



**Photo 7 (June 26, 2008).** 12-inch line entering manhole AAE569 from the east-southeast; view of solids sampled.



**Photo 8 (June 26, 2008).** Final composited sample from manhole AAE569, east-southeast line.

## September 2008 Catch Basin Sampling



Photo 9 (September 9, 2008). Sampling location at catch basin ANE813. View is to the south-southwest.



Photo 10 (September 9, 2008). Final composited sample from catch basin ANE813.



Photo 11 (September 9, 2008). Sampling location at catch basin ANE815.

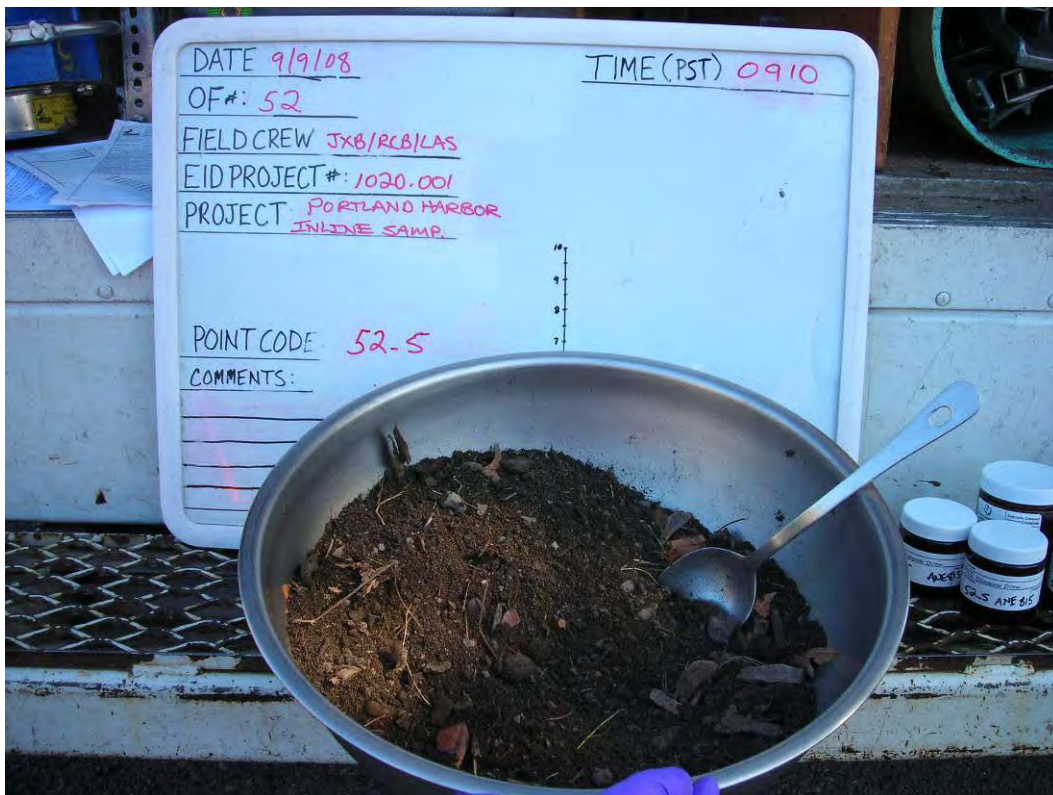


Photo 12 (September 9, 2008). Final composited sample from catch basin ANE815.



**Photo 13 (September 9, 2008).** Sampling location at catch basin AAE651. View is to the south-southeast.



**Photo 14 (September 9, 2008).** Final composited sample from catch basin AAE651.

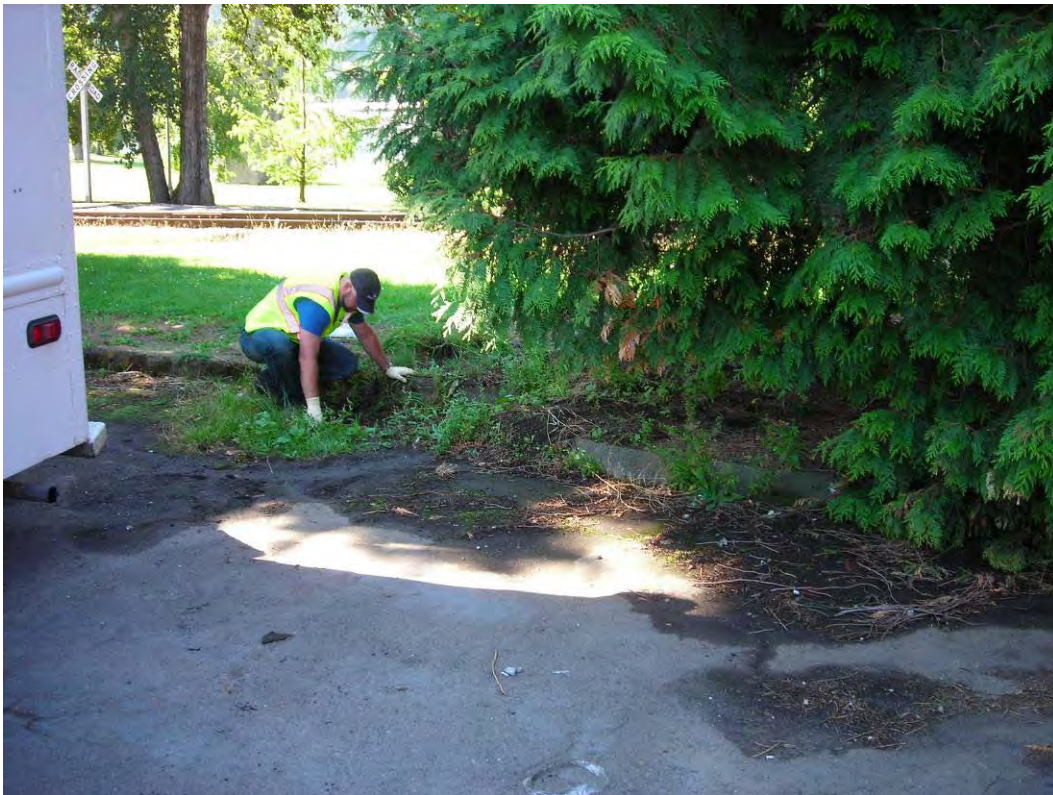


Photo 15 (September 9, 2008). Preparing to sample at catch basin ANE921. View is to the south.



Photo 16 (September 9, 2008). Final composited sample from catch basin ANE921.



Peninsula Iron Works

**Photo 17 (September 9, 2008).** Sampling location at catch basin ANE911. View is to the east.



**Photo 18 (September 9, 2008).** View of part of drainage area for at catch basin ANE911. View is to the east-northeast.



**Photo 19 (September 9, 2008).** Metal shavings in immediate vicinity of catch basin ANE911, between Peninsula Iron Works building and the recycling dumpster.



**Photo 20 (September 9, 2008).** Final composited sample from catch basin ANE911.



**Photo 21 (September 9, 2008).** Sampling location at catch basin APA114, adjacent to Independent Marine Propeller facility; note runoff from washing in facility's driveway into catch basin APA114 and continuing on N. Crawford Street toward catch basin AAE673.



**Photo 22 (September 9, 2008).** View to the south-southeast on N. Crawford Street, just south-southeast of intersection with N. Alta Avenue. Wash water runoff from Independent Marine Propeller facility driveway is visible along northeast side of roadway, flowing toward catch basin AAE673.



Photo 23 (September 9, 2008). Catch basin APA114.



Photo 24 (September 9, 2008). Final composited sample from catch basin APA114.



**Photo 25a/b (September 9, 2008).** Sampling location at catch basin AAE673. Water flowing into catch basin is wash water runoff from Independent Marine Propeller driveway (see Photos 21, 22).



**Photo 26 (September 9, 2008).** Final composited sample from catch basin AAE673.



**Photo 27 (September 10, 2008).** Sampling location at catch basin ANE910. View is to the northeast, up N. Baltimore Avenue.



**Photo 28 (September 10, 2008).** Final composited sample from catch basin ANE910.



**Photo 29 (September 10, 2008).** Sampling location at catch basin AAE694. View is to the northwest.



**Photo 30 (September 10, 2008).** Final composited sample from catch basin AAE694.

## 2010 Sediment Trap Sampling

### ST1 (Manhole AAE498)



**Photo 31 (March 5, 2010).** Location of sediment trap ST1 (manhole AAE498). View is to the northwest.



**Photo 32 (February 2, 2010).** SIFT©<sup>1</sup> sediment trap installed in the 12-inch line exiting manhole AAE498.

<sup>1</sup> 2009 City of Portland. These traps are proprietary and patent pending. These traps were designed by the City for use in smaller pipe diameters and low-flow depth conditions.



Photo 33 (April 6, 2010). Primary and secondary sediment trap chambers at monthly field check.



Photo 34 (June 16, 2010). Primary and secondary sediment trap chambers at time of removal.



**Photo 35 (June 17, 2010).** Final homogenized composite sediment trap sample from ST1 / manhole AAE498.

### ***ST2 (Manhole AAE513)***



**Photo 36(March 5, 2010).** Location of sediment trap ST2 (manhole AAE513). View is to the northeast.



**Photo 37 (February 2, 2010).** SIFT© sediment trap installed in the 15-inch line entering manhole AAE513.



**Photo 38 (April 6, 2010).** Primary and secondary sediment trap chambers at monthly field check.



**Photo 39 (June 16, 2010).** Close-up view of solids in secondary chamber at time of removal.



**Photo 40 (June 17, 2010).** Final homogenized composite sediment trap sample from ST2 / manhole AAE513.

### ***ST3 (Manhole AAE700)***



**Photo 41 (March 5, 2010).** Location of sediment trap ST3 (manhole AAE700). View is to the southwest.



**Photo 42 (February 2, 2010).** SIFT© and standard sediment trap installed side by side in the 28-inch line exiting manhole AAE700).



**Photo 43 (April 6, 2010).** Secondary chamber of SIFT© sediment trap, with solids present at time of monthly field check.



**Photo 44 (June 16, 2010).** Sediment traps in installed location at time of removal.



Photo 45 (June 16, 2010). Primary and secondary chambers of SIFT© sediment trap at time of removal.

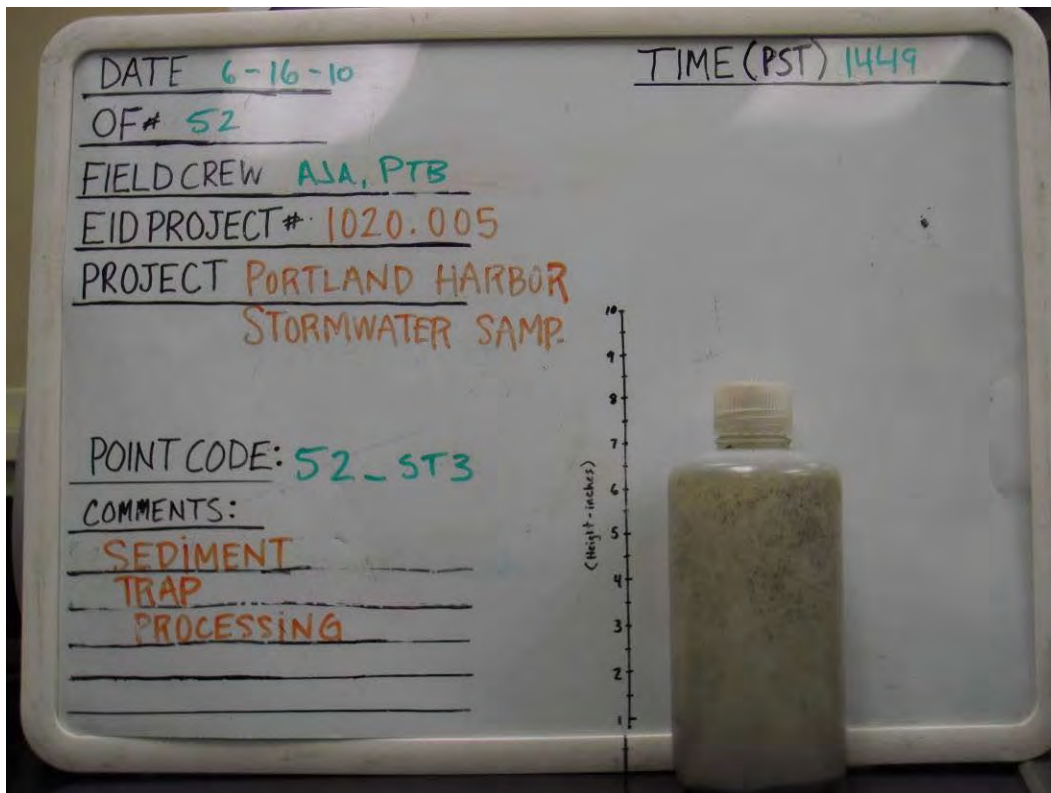
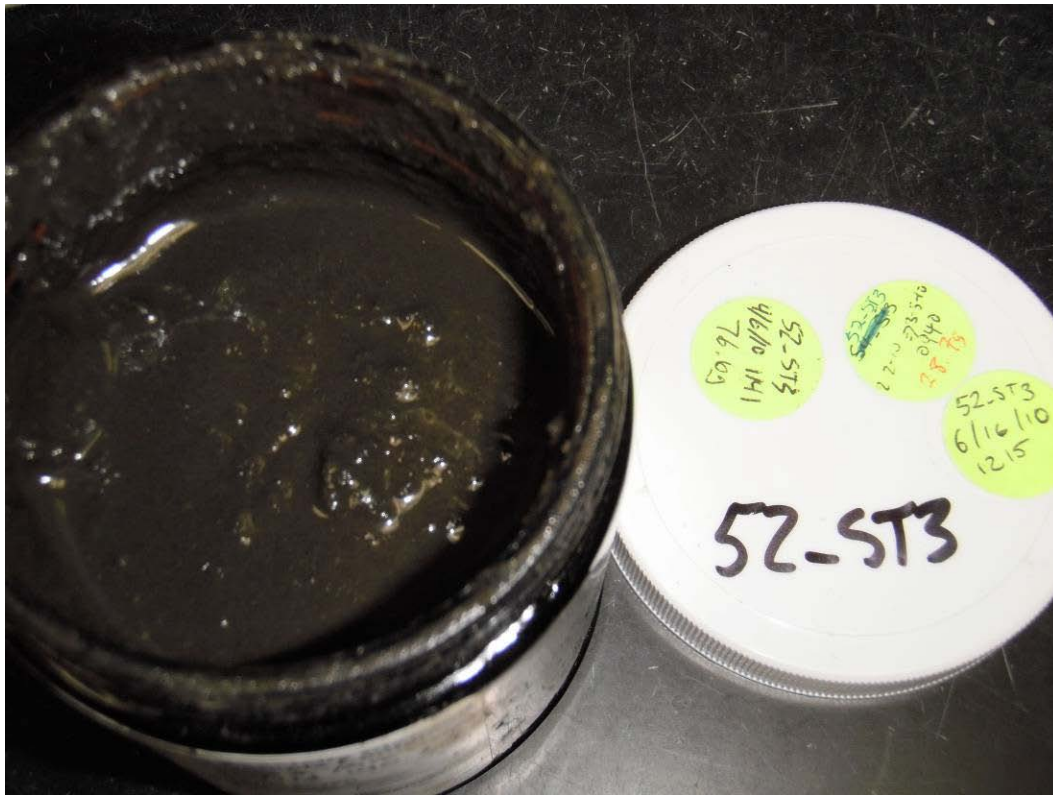


Photo 46 (June 16, 2010). Standard sediment trap bottle prior to filtration.



**Photo 47 (June 17, 2010).** Final homogenized composite sediment trap sample from ST3 / manhole AAE700 SIFT© trap.

#### ***ST4 (Manhole AAE516)***



**Photo 48 (March 5, 2010).** Location of sediment trap ST4 (manhole AAE516). View is to the southwest.



**Photo 49 (February 2, 2010).** SIFT© sediment trap installed in the 27-inch line exiting manhole AAE516.



**Photo 50 (April 6, 2010).** Primary and secondary sediment trap chambers at monthly field check.



**Photo 51 (June 16, 2010).** Accumulated sediment in secondary chamber at time of removal.



**Photo 52 (June 17, 2010).** Composite sample (including bacterial growth) from first archived jar prior to homogenization.



Photo 53 (June 17, 2010). Final homogenized composite sample from ST4 / manhole AAE516.

## September 2010 Inline Solids Sampling



Photo 54 (September 7, 2010). Catch basin ANE911 and surrounding drainage area. View is to the northeast.



**Photo 55 (September 7, 2010).** View inside catch basin ANE911 prior to sampling.



**Photo 56 (September 7, 2010).** Final homogenized sample from catch basin ANE911.



**Photo 57 (September 7, 2010).** Drainage area for ODOT manhole 2 (discharges to manhole AAE685), adjacent to St. Johns Bridge. View is to the east.



**Photo 58 (September 7, 2010).** Sediment and standing water inside ODOT manhole 2.



**Photo 59 (September 7, 2010).** Final homogenized sample from ODOT manhole 2.



**Photo 60 (September 8, 2010).** ODOT manhole 4 beneath St. Johns Bridge. View is to the northeast.



**Photo 61 (September 8, 2010).** Accumulated solids in ODOT manhole 4. Manhole is constructed as a sedimentation chamber.



**Photo 62 (September 8, 2010).** Final homogenized sample from ODOT manhole 4.

## 2011 Surface Soil Sampling



**Photo 63 (January 6, 2011).** Sampling Area 1 (52\_15), looking south.



**Photo 64 (January 6, 2011).** Collection of subsample A from Area 1.



**Photo 65 (January 6, 2011).** Sampling Area 2 (52\_16), looking to the southeast.



**Photo 66 (January 6, 2011).** Collecting subsample B from sample Area 2.



**Photo 67 (January 6, 2011).** Sample Area 3 (52\_17), looking northwest.



**Photo 68 (January 6, 2011).** Sample Area 3 (52\_17), looking southeast.



**Photo 69 (January 6, 2011).** Collecting subsample B from sample Area 3.



**Photo 70 (January 6, 2011).** Sample Area 4 (52\_18), looking southwest.



**Photo 71 (January 6, 2011).** Sample Area 4 (52\_18), looking south-southeast.



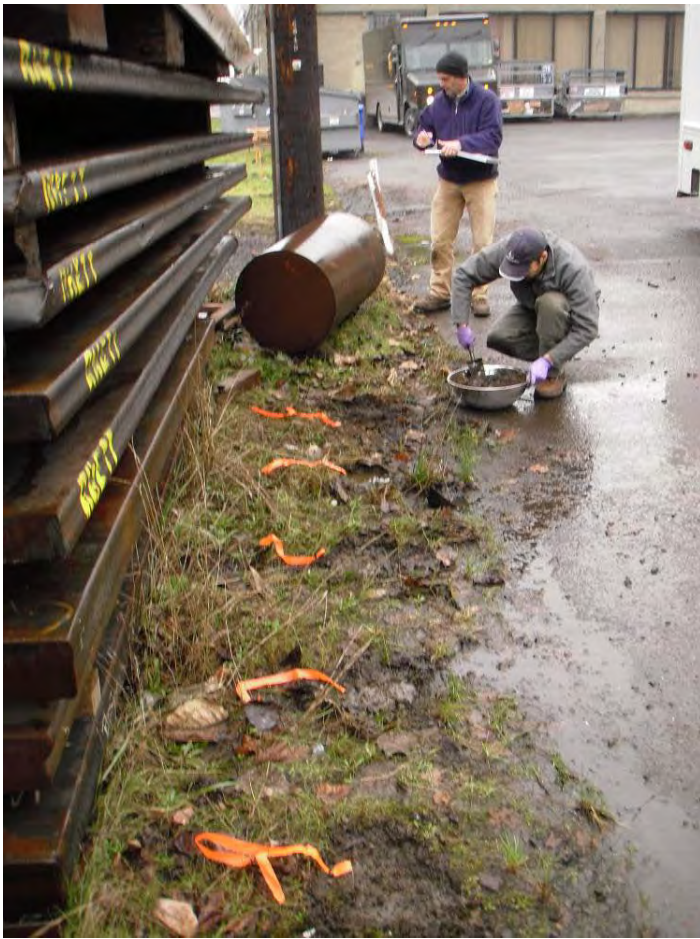
**Photo 72 (January 6, 2011).** Collecting subsample B from sample Area 4.



**Photo 73 (January 6, 2011).** Sample Area 5 (52\_19), looking northwest.



**Photo 74 (January 6, 2011).** Collecting subsample D from sample Area 5.



**Photo 75 (January 6, 2011).** Sample Area 6 (52\_20), looking northwest.



**Photo 76 (January 6, 2011).** Collecting subsample E from sample Area 6.



**Photo 77 (January 6, 2011).** Location of subsample A from sample Area 7 (52\_21). Erodible soils were collected from pocket of erodible soils underneath iron slabs.



**Photo 78 (January 6, 2011).** Location of subsample B from sample Area 7 (52\_21).



**Photo 79 (January 6, 2011).** Sample Area 9 (52\_22), looking northwest.



**Photo 80 (January 6, 2011).** Sample Area 8 (52\_23), looking northwest.

APPENDIX B

# Field Notes

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## ***June 2008 Inline Solids Sampling***

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Page 1 of 4

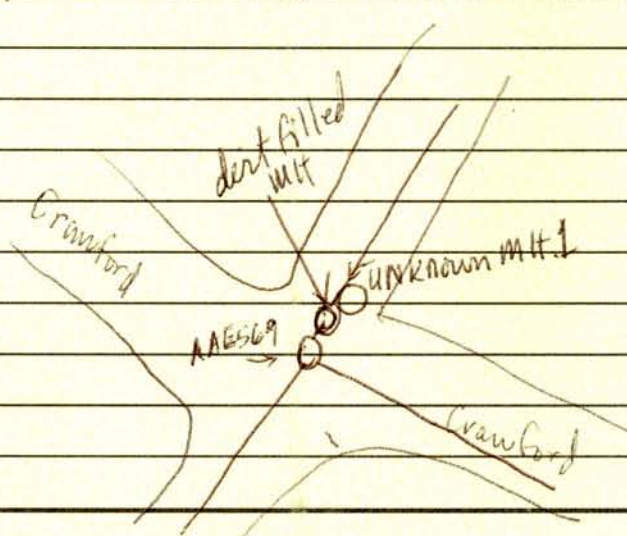
Project <u>Portland Harbor In-Line Sampling</u>	Project No. <u>1000.001</u>
Location <u>Basin 52</u>	Date <u>6/26/08</u>
Subject _____	By <u>RCB/LAP/WCK</u>

0831 Arrive @ node AAE 553. Some solids present in MH as well as standing water. Will attempt to collect sediments from upstream of the MH.

0846 Enter MH. Observed scds upstream of node. Took measurements and photos of 24" line up & downstream, as well as two laterals coming in from NW + S. Took photos.

0921 Sample collected from 0 - 1.5' upstream of node. Will also collect a DWP from this site due to large sediment volume.

0951 Arrive @ node AAE 569. This node is the MH that has the intersection w/ the Crawford St. Line. We will enter the MH (unknown 1) two MHS NE of AAE 569 up the Burlington Hill. Our maps do not accurately depict what is actually happening on the street. The middle MH is full of dirt/fill? but appears to have active CBS attached to it.



1010: Entered <sup>Unknown MH</sup> and found Unknown 1 connects to AAE 569. Not much sediment in line. Measured pipes leading in and out of Unknown MH 1. Took photos.

Attachments \_\_\_\_\_



Page 2 of 4

Project Portland Harbor In-Line Sed Sample  
Location Basin 52  
Subject \_\_\_\_\_

Project No. 1020.001  
Date 6/26/08  
By LAP/WCR/REB

1029: Began collecting sample from 0-3' upstream. Sediment actually appears to be biofilm and not actual sediment. Material is gelatinous to the touch and is gray in color. Took photo of sample area.

1040: WCR exits Unknown MH1 and took additional photo of MH from street. Also took photos of dirt filled MH & AAE569.

1044: WCR enters AAE569. Lateral to the east has abundant sediment. Took photos from inside AAE569. Upstream first,<sup>12</sup> then downstream,<sup>12</sup> then 12" clay lateral (Crawford East Line), then 10" lateral.

1055: Sampling equipment used for Unknown MH 1 sent down AAE569 to attempt to collect solids from the upstream 20" line only. No sample-able solids found. Abandoned sampling effort from N. Burlington 20" line.

1059: Lowered fresh sampling equipment down AAE569 to collect solids from 12" lateral coming in from Crawford Street east. Gathered sandy sediments from 6"-32" up the 12" line. Seds are homogenous and brown in color and is approximately 3.75" in depth. Took three photos of sample area.

1108 Sample composited and placed in jars.

1109 Photo taken of site looking up Crawford St to the East.

Attachments





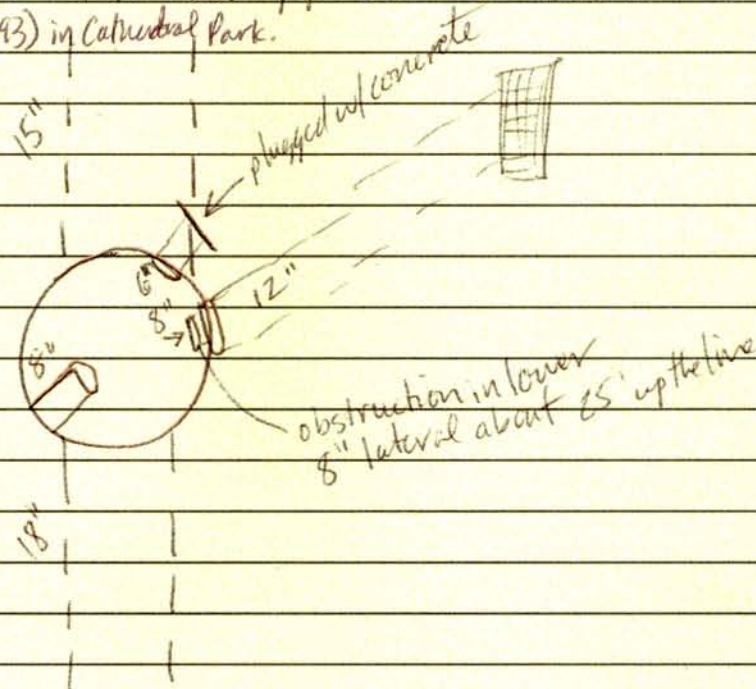
Page 3 of 4

Project Portland Harbor In Line Sed Samp  
Location Basin 52  
Subject \_\_\_\_\_

Project No. 1020.001  
Date 6/26/08  
By RIB/LAP/WCR/LAS

1308 Arrived on site @ node AAE516. Bureau of Maintenance has uncovered this MH for us to do our work. New asphalt was put down around MIt and some residual asphalt was present in MIt collar. Also absorbent sandy material left surrounding the surface of the MH. It is likely that these solids may have been inadvertently swept into the MH during maintenance. No solids visible from street level.

1320 LAP enters MH. No visible solids observed upstream or downstream in main line. Very little solids in NW lateral but this lateral only drains nearby parking lot, so no samples collected. No sample-able solids observed in MH. Re entered MIt to check pipe diameters due to discovery of MIt upstream (AAE693) in Cultural Park.



Attachments



Page 4 of 4

Project Portland Harbor In Line Sed samp  
Location Basin 52  
Subject \_\_\_\_\_

Project No. 1020.001  
Date 6/26/08  
By YCR/LAP/WCR/LAS

1340 Exited MH to investigate upstream MH AAE693.

1353 Arrived at AAE693. LAP enters MH. No sample-able solids upstream or downstream in main line. No solids in lateral either. Offsite @ 1409.

1426 Arrived at AAE513 in lower Cathedral Park near the pump station. Emergency sanitary bypass lines visible in MH. No visible solids from surface. LAP enters MH. Some standing water in main line; very low level. No sample-able material upstream in main line. Some material in downstream main line, but only enough to fill a 4oz jar. MH collar is above grade so ~~likely~~ likelihood of surface material falling in is ~~low~~ low.

1458 Collected sample from AAE513 from sed<sup>deposited</sup> collected on ledge SW of invert.

1510 Checked out one more MH at intersection of N. Baltimore and RR tracks. No visible solids from street level. No entry made.

1516 Return to WPLL to relinquish samples.

Attachments



CITY OF PORTLAND  
ENVIRONMENTAL SERVICES

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



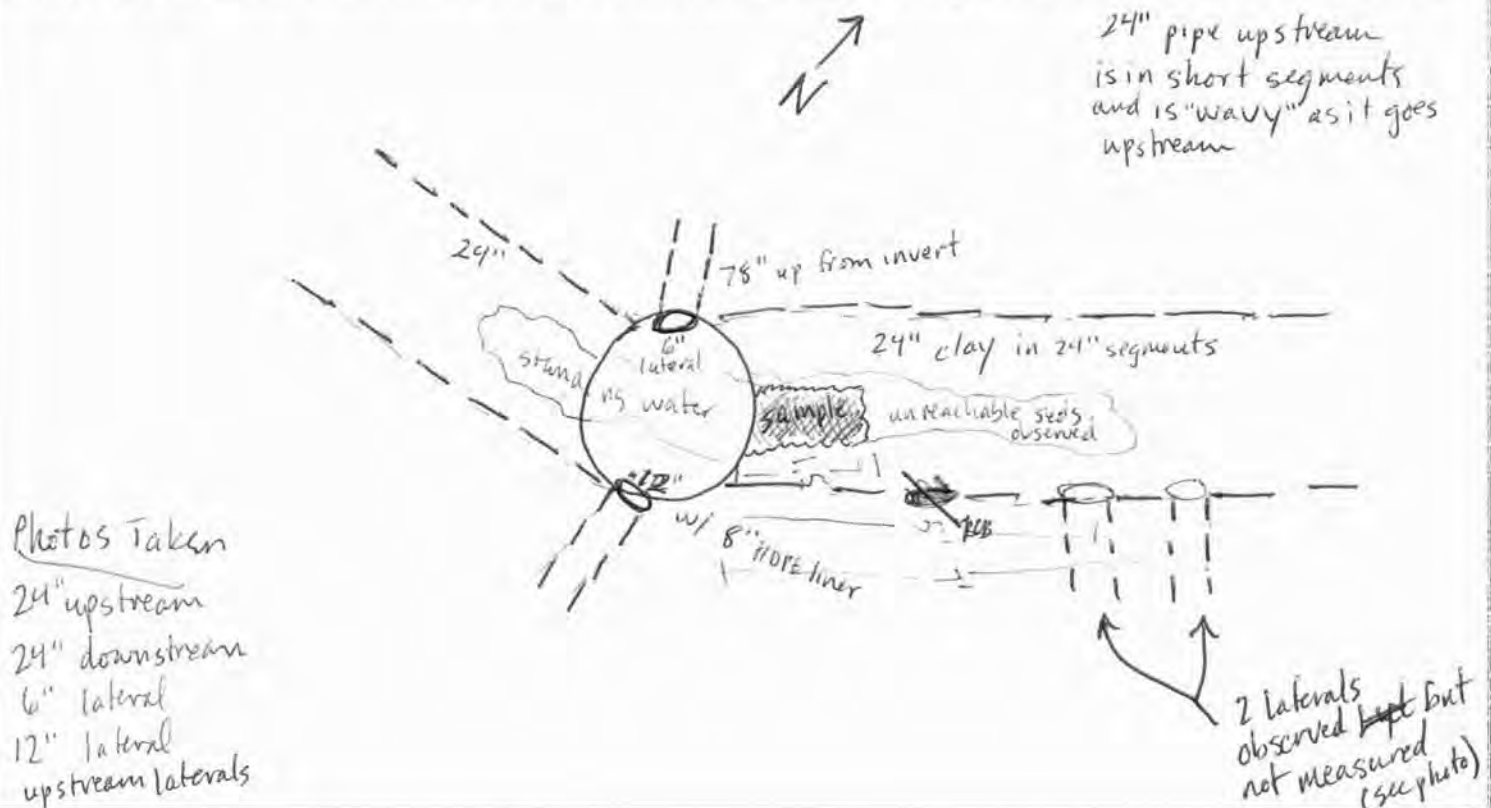
INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name:	Portland Harbor In-Line Sed Samps		Project Number:	1020.001
Sampling Team:	Date:	Arrival Time:	Current Weather Conditions/Last Rain:	
LAP/WCR	6/26/08	0831	Overcast 55°F	
Basin:	Node:	Subbasin:		
52	AHE 553			
Sampling Location Description/Address: N. Burlington & RR crossing				

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	0.75" @ 0.05 fps
Does river appear to back up to this location? Describe rate/color/odor of flow:	No
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:	3.5-3.75" deep sediment extends about 5'-6', then a small pocket of gravel @ ~10' upstream, standing water pooled up to ~20' upstream

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



Date: 6/26/08		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: AAE 553	
Sampling Equipment:		<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)			
Equipment Decontamination process:		<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)			
Sample date: 6/26/08	Sample time: 0921	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-52-AAE553-0608			
Sample location description: (number of feet from node of entry) 0.1.5' upstream					
Sample collection technique:		SS spoon & bucket			
Describe Color of sample:		gray/brown			
Describe Texture/Particle size:		fine to coarse sands & small gravels			
Describe visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.):		no sheen; decomposing organics odor			
Describe depth of solids in area where sample collected:		3.5" - 3.75"			
Describe amount and type of debris in sample:		No debris except a few metal shards			
Amount and type of debris removed from final sample:		Nothing removed			
Compositing notes: composited using SS spoon; sample is ~ 5% water					
Sample Jars Collected (number, size, full or partial)?					
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).  <i>All jars filled 4 - 4 oz 1 - 502 amber</i>					
Lab ID FO 08040		Duplicate sample collected? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Dupe ID Duplicate sample identification # on COC: <del>FO 080843</del> FO 080843			
Any deviations from standard procedures: None					

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



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INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portland Harbor In-Line<sup>sed.</sup> Sample Project Number: 1020.001  
Sampling Team: LAP/WCE/RLB Date: 6/26/08 Arrival Time: 0951 Current Weather Conditions/Last Rain: Overcast 57°F  
Basin: 52 Node: Unknown MH near AAE569 Subbasin: upstream of Crawford St.

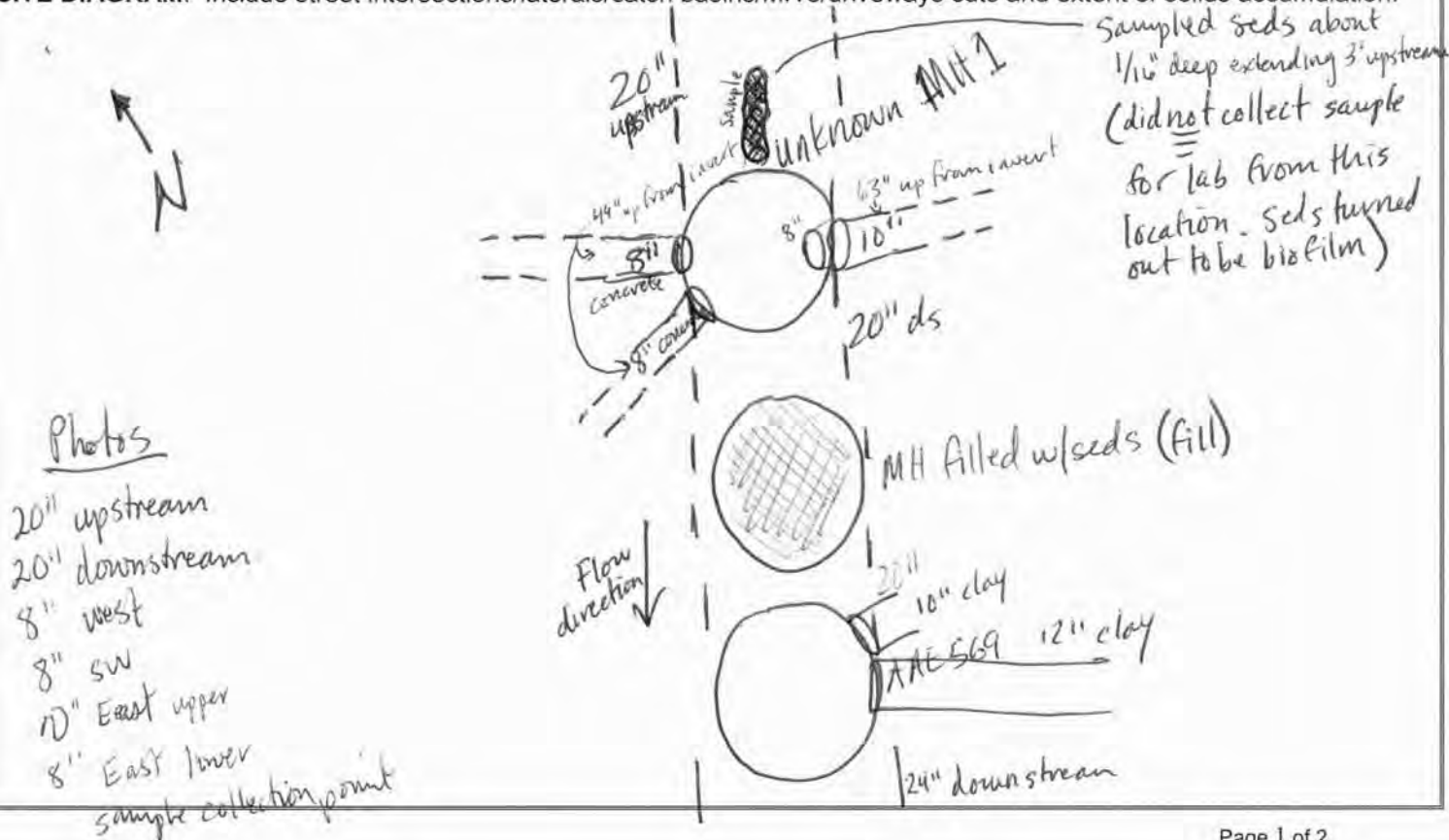
Sampling Location Description/Address:

Intersection of N. Burlington & N. Crawford

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line? Very small pool of standing water  
Does river appear to back up to this location? Describe rate/color/odor of flow: No  
Are sediments observed in the line? very little  
Are sample-able quantities of sediments present in the line? Yes (in 12" clay lateral in MH AAE569)  
Describe lateral extent of sample-able sediments present in the line: see FDS for AAE569.

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



Date: 6/26/08		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: Unknown near AAE 569	
Sampling Equipment:			<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)		
Equipment Decontamination process:			<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)		
Sample date: 6/26/08	Sample time:	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-52-AAE569-0608			
Sample location description: (number of feet from node of entry)					
Sample collection technique:			SS spoon & bucket		
Describe Color of sample:			light brown		
Describe Texture/Particle size:			homogeneous fine to medium sands		
Describe visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.):			none		
Describe depth of solids in area where sample collected:			SEE FDS FOR AAE569		
Describe amount and type of debris in sample:			<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">↓</div> <div style="text-align: center;">↓</div> </div>		
Amount and type of debris removed from final sample:					
Compositing notes:					
Sample Jars Collected (number, size, full or partial)?					
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).  <div style="font-size: 4em; text-align: center; opacity: 0.5;">NO SAMPLE</div>					
Lab ID		Duplicate 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	
Plan view of sediments inline	
Homogenized sample (sediment in bowl)	
Other?	



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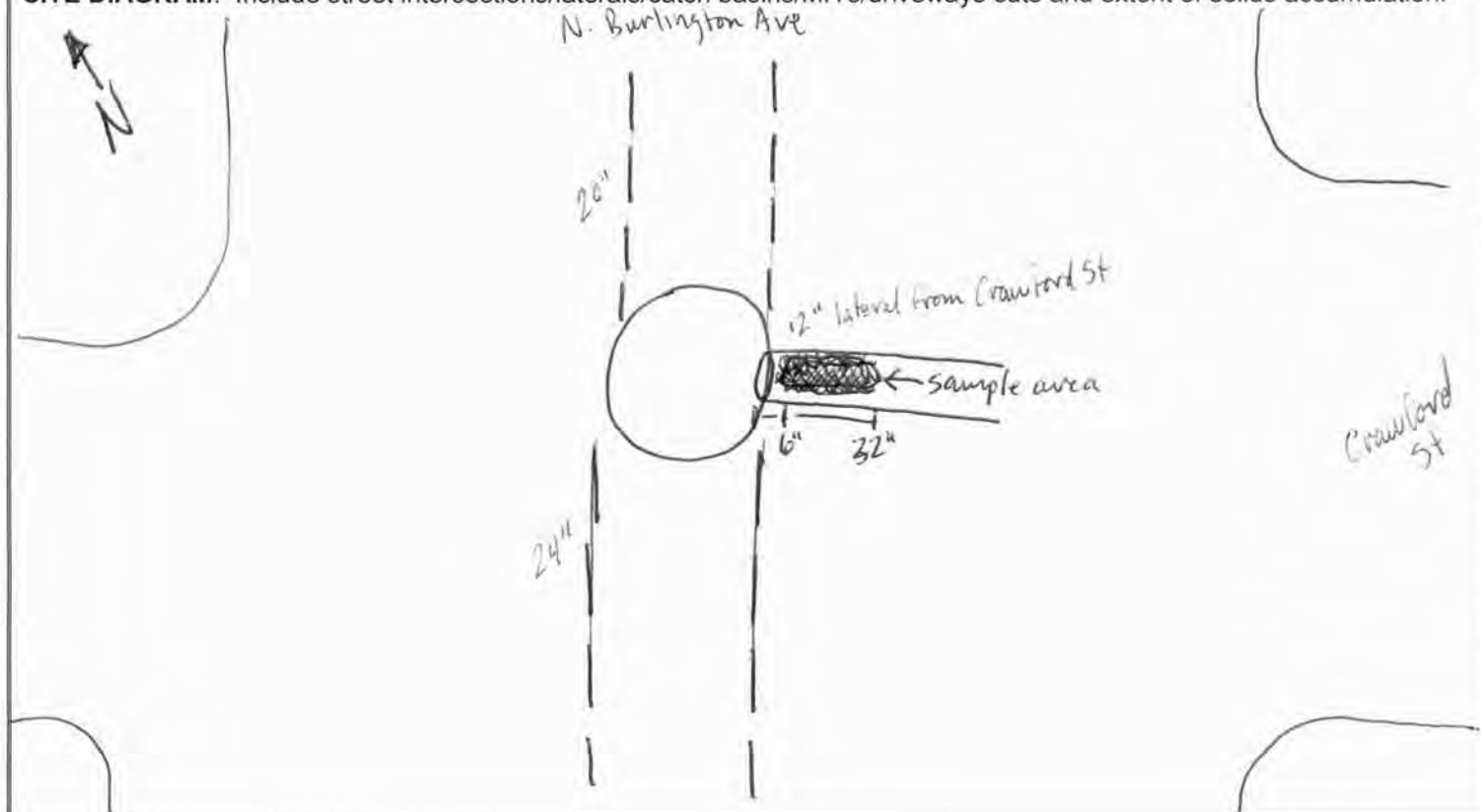
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <i>Portland Harbor In-Line Sed Sample</i>		Project Number: <i>1020.001</i>	
Sampling Team: <i>LAP/WCR/RCB</i>	Date: <i>6/26/08</i>	Arrival Time: <i>1044</i>	Current Weather Conditions/Last Rain: <i>Overcast ~60°F</i>
Basin: <i>52</i>	Node: <i>AAE569</i>		Subbasin: <i>Crawford St East</i>
Sampling Location Description/Address: <i>Sample collected from 12" line coming into AAE569 from Crawford St. East.</i>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Describe any flowing or standing water observed in the line?	<i>Very little in MH AAE569</i>
Does river appear to back up to this location? Describe rate/color/odor of flow:	<i>No</i>
Are sediments observed in the line?	<i>Yes</i>
Are sample-able quantities of sediments present in the line?	<i>Yes</i>
Describe lateral extent of sample-able sediments present in the line:	<i>6"-32" upstream of node in 12" line</i>

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



Date: 6/26/08		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: AAE569	
Sampling Equipment:		<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)			
Equipment Decontamination process:		<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)			
Sample date: 6/26/08	Sample time: 1059	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-52-AAE569-E-0608			
Sample location description: (number of feet from node of entry) 6"-32" up 12" lateral					
Sample collection technique:		ss spoon into ss bucket			
Describe Color of sample:		brown			
Describe Texture/Particle size:		Fine to medium sands			
Describe visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.):		no obvious visual or olfactory evidence of contamination			
Describe depth of solids in area where sample collected:		3.75"			
Describe amount and type of debris in sample:		none			
Amount and type of debris removed from final sample:		none			
Compositing notes: composited in bucket, photo taken, placed in jar.					
Sample Jars Collected (number, size, full or partial)? 4-4oz 1-8oz all full					
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 080841		Duplicate sample collected? Y/ <input checked="" type="checkbox"/> Dupe ID			
Duplicate sample identification # on COC:		<u>                    </u>			
Any deviations from standard procedures: None					

### SECTION 3 - PHOTOGRAPH LOG

Overview of node showing drainage area	
Plan view of sediments inline	
Homogenized sample (sediment in bowl)	
Other?	



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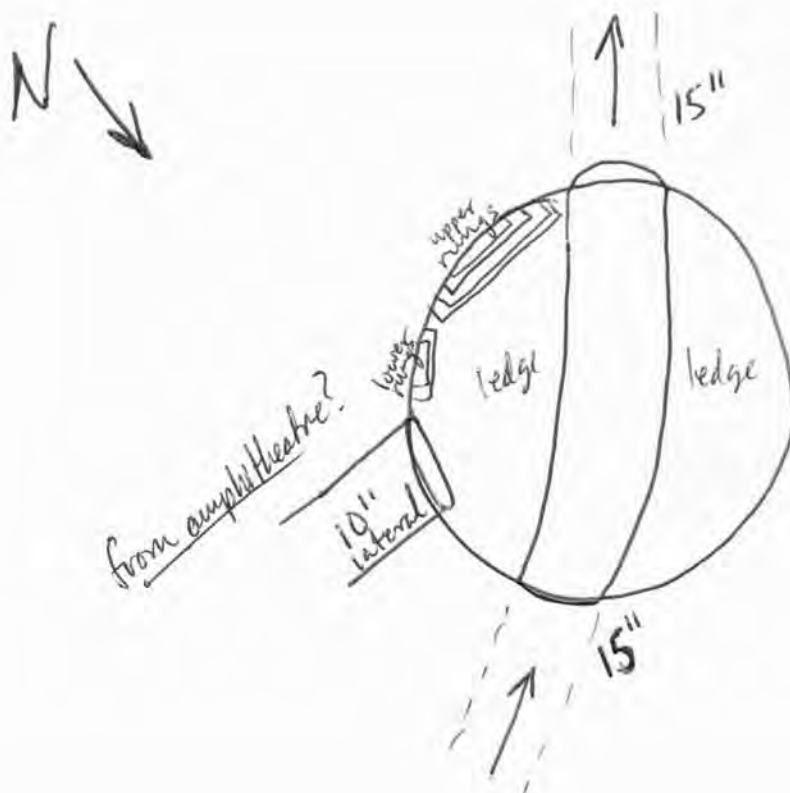
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <i>Portland Harbor In Line Sed Samp</i>		Project Number: <i>1020.001</i>	
Sampling Team: <i>LAP/RUB/WCR/LAS</i>	Date: <i>6/26/08</i>	Arrival Time: <i>1353</i>	Current Weather Conditions/Last Rain: <i>Partly Sunny 64°F</i>
Basin: <i>52</i>	Node: <i>AAE693</i>	Subbasin: <i>Cathedral Park</i>	
Sampling Location Description/Address: <i>Cathedral Park just north east of Crawford.</i>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Describe any flowing or standing water observed in the line?	<i>None</i>
Does river appear to back up to this location? Describe rate/color/odor of flow:	<i>No</i>
Are sediments observed in the line?	<i>No</i>
Are sample-able quantities of sediments present in the line?	<i>No</i>
Describe lateral extent of sample-able sediments present in the line:	<i>None</i>

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



*MH in Cathedral Park.  
No Sample.  
For mapping  
purposes only.*



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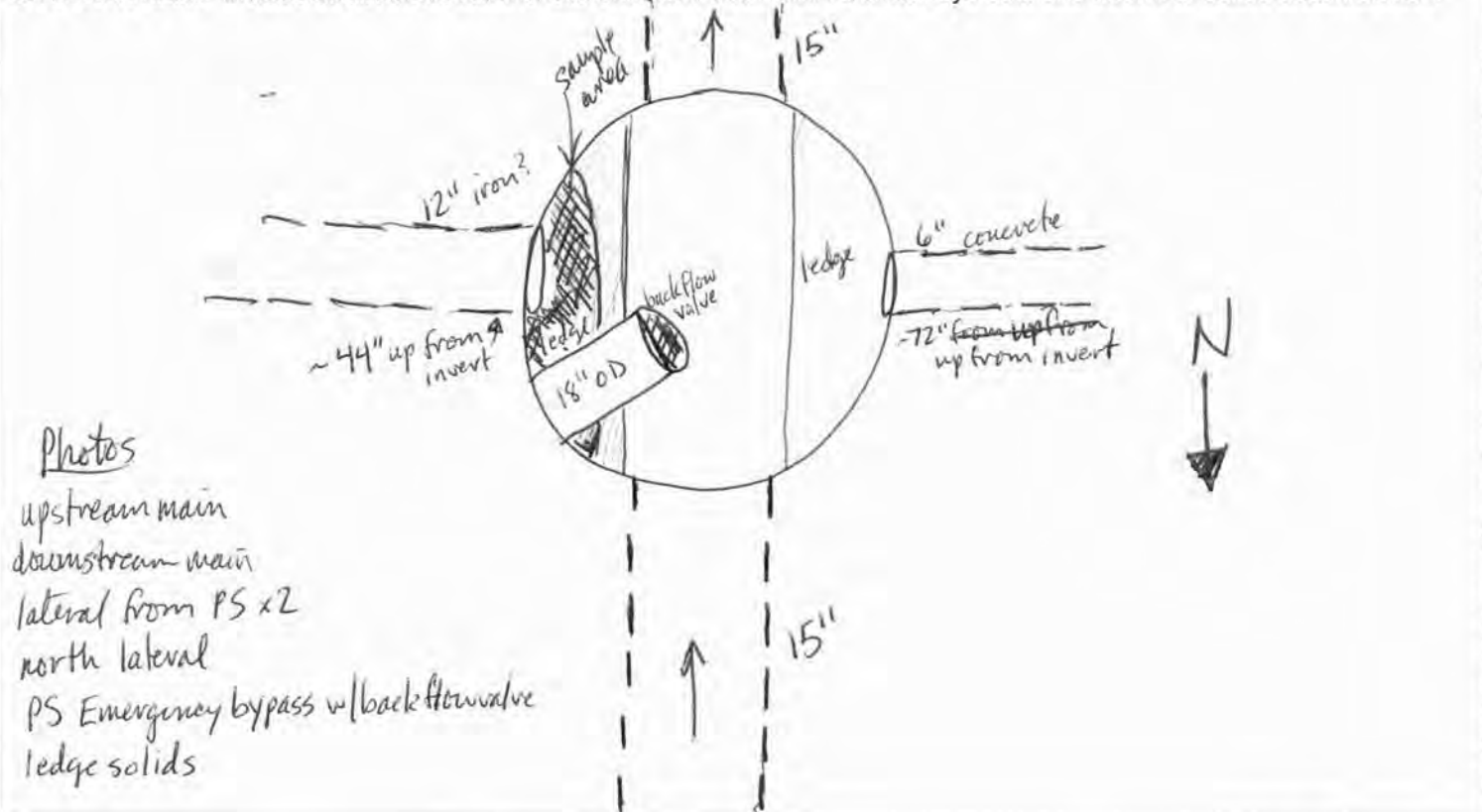
INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: <i>Portland Harbor In Line Sed Sample</i>		Project Number: <i>1020.001</i>	
Sampling Team: <i>LAP/WCK/RUB/LAS</i>	Date: <i>6/26/08</i>	Arrival Time: <i>1426</i>	Current Weather Conditions/Last Rain: <i>Sunny low 70s</i>
Basin: <i>52</i>	Node: <i>AAE513</i>	Subbasin: <i>Lower Cathedral Park</i>	
Sampling Location Description/Address: <i>N Alta Ave &amp; N Bradford.</i>			

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	<i>0.01" standing water</i>
Does river appear to back up to this location? Describe rate/color/odor of flow:	<i>Not normally / maybe during '96 flood</i>
Are sediments observed in the line?	<i>Yes</i>
Are sample-able quantities of sediments present in the line?	<i>Yes</i>
Describe lateral extent of sample-able sediments present in the line:	<i>solids not present in line, but on <sup>led</sup> west east ledge</i>

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



Date: 6/26/08		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: AAE 513	
Sampling Equipment:		<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)			
Equipment Decontamination process:		<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)			
Sample date: 6/26/08	Sample time: 1458	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-52-AAE513-0608			
Sample location description: (number of feet from node of entry) Most solids collected from ledge on west ledge					
Sample collection technique:		ss spoon into ss bucket			
Describe Color of sample:		dark brown/gray			
Describe Texture/Particle size:		70% organics + finesilts, 25% fine to medium sands, 5% coarse sands + gravels			
Describe visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.):			None		
Describe depth of solids in area where sample collected:			1/2" to 2"		
Describe amount and type of debris in sample:			some organic debris, cig butts		
Amount and type of debris removed from final sample:			none		
Compositing notes: composited in ss bucket w/ ss spoon					
Sample Jars Collected (number, size, full or partial)? 4-402 jars 1-802					
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 080842		Duplicate sample collected? Y/N Dupe ID			
Duplicate sample identification # on COC:					
Any deviations from standard procedures: No					

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

## ***September 2008 Catch Basin Sampling***

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



Date: 9/10/2008  
Page: 1 of 1

Collected By: RCB/JXB/LAS

Project Name: PORTLAND HARBOR INLINE SAMP

File Number: 1020.001

Matrix: SEDIMENT

Requested Analyses

General

Metals

Field Comments

OUTFALL 52 CATCH BASIN SAMPLING

WPCL Sample I.D.

Location

Point Sample Code Date Sample Time Sample Type

PCB Aroclors - LL  
TOC  
Total Solids  
Grain Size  
Total Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, Zn)

FO 081100

IL-52-ANES13-0908  
N Burlington & RR Tracks  
52\_4 9/9/08 0925 C

FO 081101

IL-52-ANES15-0908  
N Burlington & Crawford  
52\_5 9/9/08 1010 C

FO 081102

IL-52-AAEG51-0908  
N Pittsburg & RR Tracks  
52\_6 9/9/08 1116 C

FO 081103

IL-52-ANES21-0908  
PIW Parking Lot  
52\_7 9/9/08 1153 C

FO 081104

IL-52-ANES11-0908  
N Alta & RR Tracks  
52\_8 9/9/08 1336 C

FO 081105

IL-52-ANES10-0908  
8675 N Crawford  
52\_9 9/9/08 1415 C

FO 081106

IL-52-ANES09-0908  
N Crawford & St. Johns Br  
52\_10 9/9/08 1449 C

FO 081107

IL-52-ANES10-0908  
N Baltimore & Bradford  
52\_11 9/10/08 0820 C

FO 081108

IL-52-AAEG54-0908  
N Bradford & RR Tracks  
52\_12 9/10/08 0905 C

FO 081109

IL-52-ANES10-0908  
N Bradford & RR Tracks  
52\_12 9/10/08 0905 C

Signature: *Randy C. Belston*

Time: 1035

Signature: *Randy C. Belston*

Time: 1035

Printed Name: Randy C. Belston

Date: 9/10/08

Signature: *Randy C. Belston*

Time: 1035

Received By: 1

Signature: *Randy C. Belston*

Time: 1035

Signature: *Randy C. Belston*

Time: 1035

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Signature: *Randy C. Belston*

Time: 1035

Signature: *Randy C. Belston*

Time: 1035

Printed Name: Randy C. Belston

Date: 9/10/08

Signature: *Randy C. Belston*

Time: 1035

Signature: *Randy C. Belston*

Time: 1035

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Time: 1035

Signature: *Randy C. Belston*

Time: 1035



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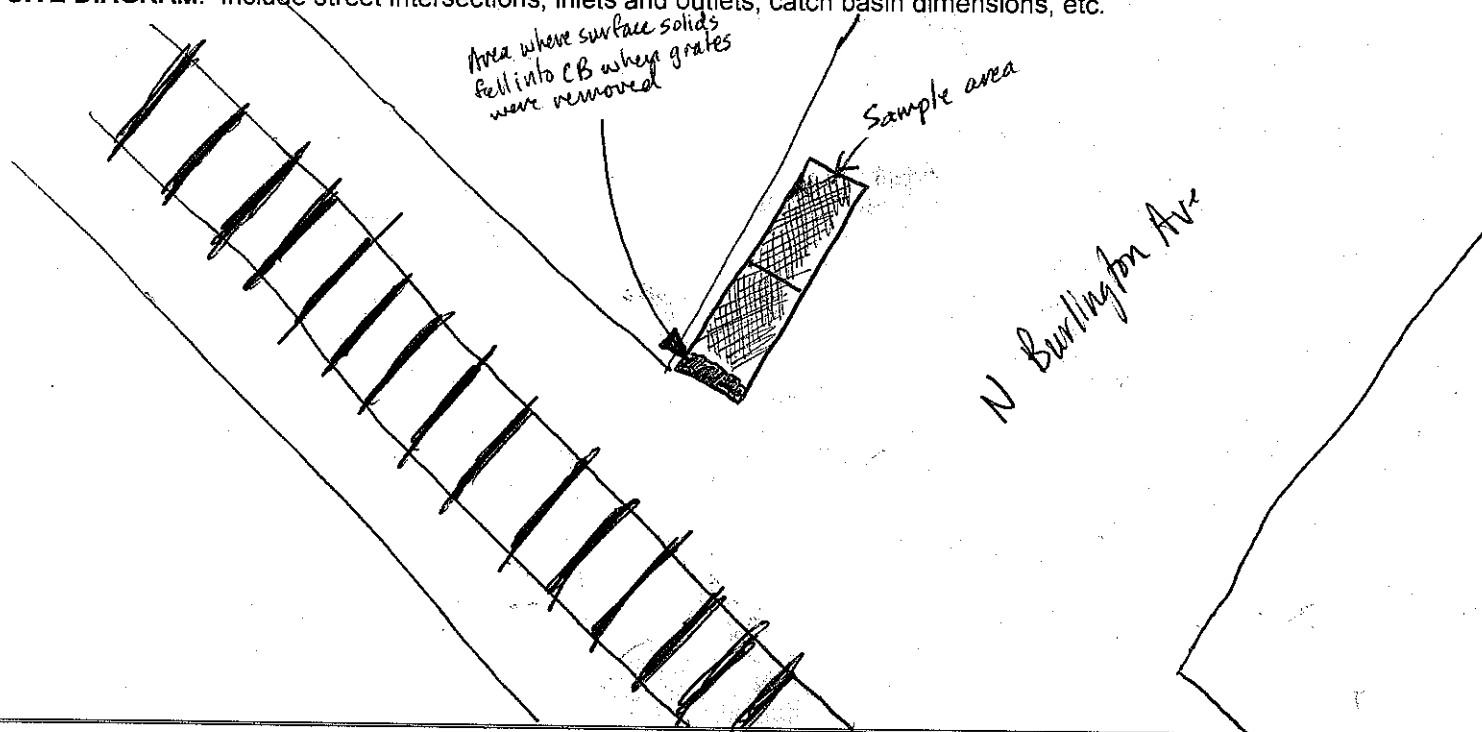
**CATCH BASIN SOLIDS SAMPLING  
FIELD DATA SHEET**

Project Name: <i>Portland Harbor Stormwater - InLine Sample</i>		Project Number: <i>1020.001</i>
Sampling Team: <i>JXB/RCB/LAS</i>	Date: <i>9/9/08</i>	Arrival Time: <i>0915</i>
Basin: <i>52</i>	Node: <i>ANE 813</i>	Address: <i>N. Burlington @ WPCL (RR Tracks)</i>
Current weather and last known rainfall: <i>Sunny, clear 65°</i>		

**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.):	<i>CB is adjacent to a steel plate distributor that loads and unloads large steel plates on and off trucks. CB is also adjacent to Union Pacific RR tracks.</i>
Describe debris and/or clogging around, or in catch basin grate/cover:	<i>Some plastic debris and other trash on CB grate, also some sediments stuck in grate.</i>
Is there standing water in catch basin?	<i>No</i>
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	<i>No</i>
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	<i>Depth is ~ 0.5" to 1.0", but most of CB was closer to 0.5" deep.</i>

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



Date: <u>9/9/08</u>	SECTION 2 - SAMPLE COLLECTION REPORT		Node: <u>ANE 813</u>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <u>09/09/08</u>	Sample time: <u>0925</u>		
Sample Identification Code: <u>IL-52-ANE813-0908</u>	Sample collection technique and if/how overlying water was removed: <u>per SOP 5.01e</u>		
Subsample number and location:	<u>All solids in CB</u>		
Color of sample:	<u>Gray</u>		
Texture/particle size:	<u>Fine silt to large rocks</u>		
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<u>None</u>		
Amount and type of debris in bulk sample:	<u>Some plastic &lt;1%    large rocks/gravel ~10%    organic debris ~5%</u>		
Amount and type of debris removed from final sample:	<u>large rocks and organic debris = 15% of bulk sample removed</u>		
Compositing notes:			
Sample jars collected (number, size, full or partial)? <u>3-4oz    1-8oz</u>			
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 <u>FO 081100</u>	Duplicate sample collected? <u>Y(N)</u> Dupe ID		
Duplicate sample _____ on COC:	<u>N/A</u>		
Any deviations from standard procedures: <u>NO</u>			

### SECTION 3 - PHOTOGRAPH LOG

Overview of CB showing drainage area	✓
Catch basin plan view prior to sampling showing solids	✓
Lateral connections to/from CB	✓
Homogenized sample (sediment in bowl)	✓



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**CATCH BASIN SOLIDS SAMPLING  
FIELD DATA SHEET**

Project Name: *Portland Harbor In-Line Sump*

Project Number: *1020-001*

Sampling Team: *JXB/REB/LAS*

Date: *9/9/08*

Arrival Time: *0950*

Basin: *52*

Node: *ANE815*

Address: *N Burlington & N. Crawford*

Current weather and last known rainfall:

*Clear, Sunny 65°*

**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 cars, neighboring industrial properties*

Describe debris and/or clogging around, or in catch basin grate/cover:

*Cedar bio bag decomposing just upstream of CB. Leaf & sediment debris clogging CB*

Is there standing water in catch basin?

*No*

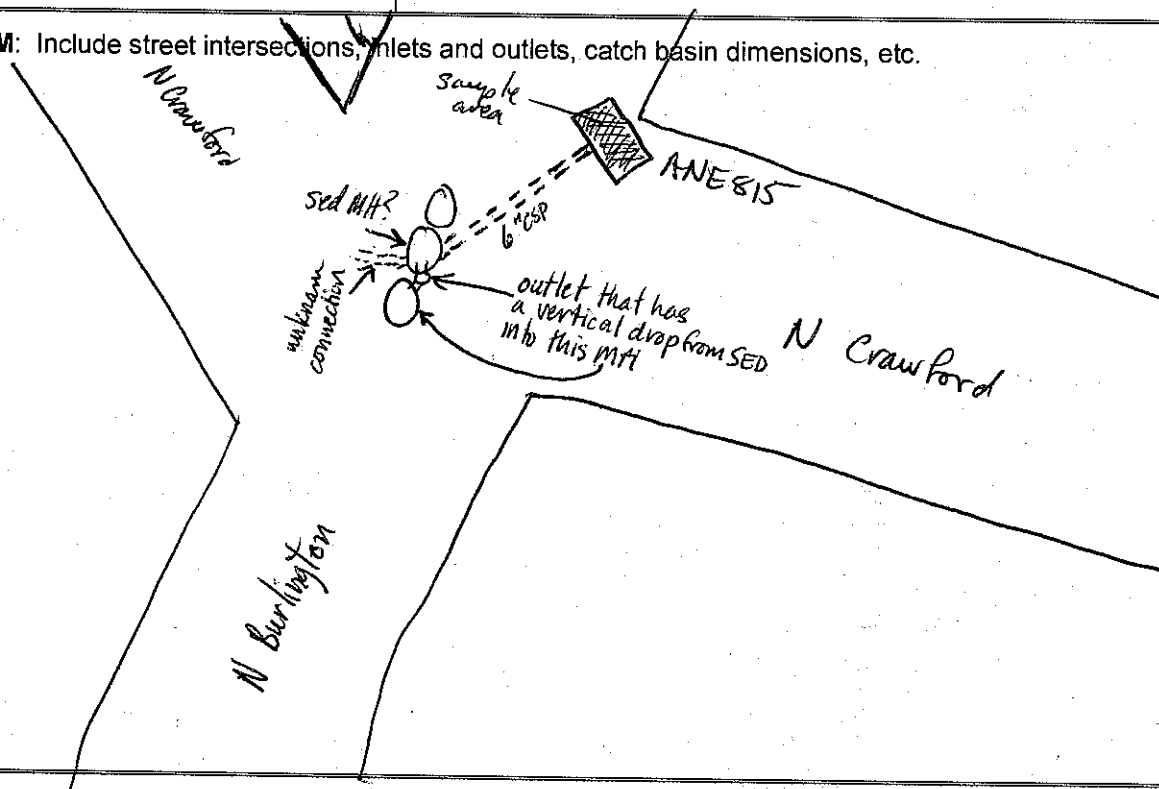
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)

*No*

Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:

*3/4" - 2 3/8" averaging ~1" throughout.*

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



Date: <b>9/9/08</b>	<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <b>ANE815</b>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <b>9/9/08</b>	Sample time: <b>1010</b>		
Sample Identification Code: <b>IL-52-ANE815-0908</b>	Sample collection technique and if/how overlying water was removed: <b>per SOP5.01e</b>		
Subsample number and location:	<b>All CB solids</b>		
Color of sample:	<b>Dark brown</b>		
Texture/particle size:	<b>primarily silts and sands w/ some small gravels and organic debris</b>		
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<b>None</b>		
Amount and type of debris in bulk sample:	<b>10-15% organic debris 1-2% gravels 41% trash</b>		
Amount and type of debris removed from final sample:	<b>2% solids removed from final <sup>bulk</sup> composite sample, primarily consisting of sub-angular gravels &gt; 1" in diameter, plastics, large organic matter &amp; metal wire &amp; nails.</b>		
Compositing notes:			
Sample jars collected (number, size, full or partial)?	<b>3-4oz 1-8oz</b>		
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 <b>FO 081101</b>	Duplicate sample collected? <b>Y(N)</b> Dupe ID		
Duplicate sample identification # on COC:	<b>N/A</b>		
Any deviations from standard procedures:	<b>NO</b>		

### SECTION 3 - PHOTOGRAPH LOG

Overview of CB showing drainage area	✓
Catch basin plan view prior to sampling showing solids	✓
Lateral connections to/from CB	✓
Homogenized sample (sediment in bowl)	✓



# CITY OF PORTLAND ENVIRONMENTAL SERVICES

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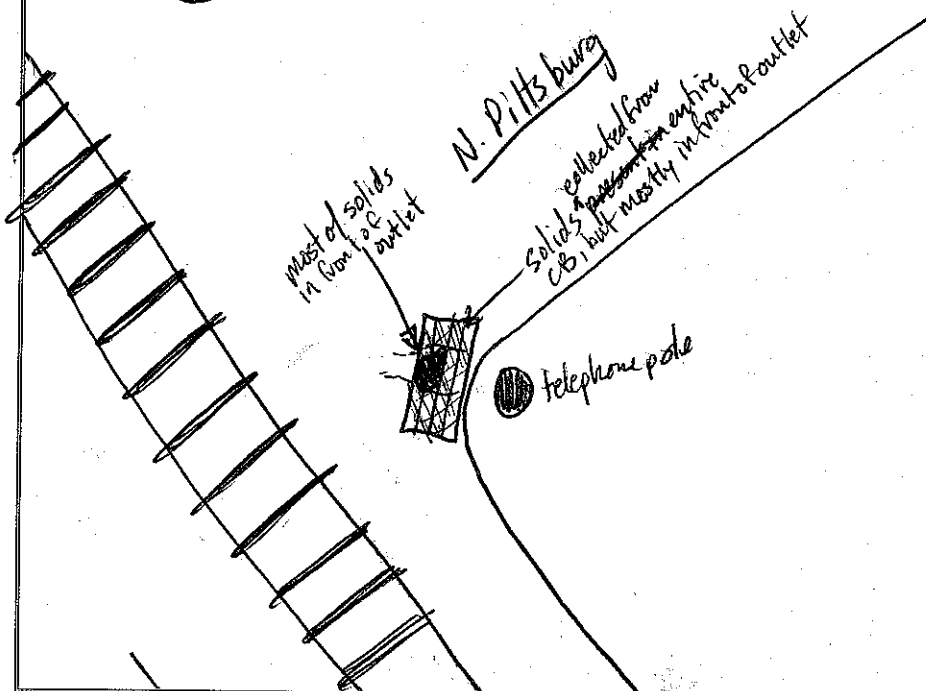
## CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name: <i>Portland Harbor In Line Samp.</i>		Project Number: <i>1020.001</i>
Sampling Team: <i>JXB/RCB/LAS</i>	Date: <i>9/9/08</i>	Arrival Time: <i>1106</i>
Basin: <i>52</i>	Node: <i>AAE 651</i>	Address: <i>N. Pittsburg &amp; RR tracks</i>
Current weather and last known rainfall: <i>clear, sunny 68°F</i>		

### 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.):	<i>Parked vehicles, RR right of way, industrial area.</i>
Describe debris and/or clogging around, or in catch basin grate/cover:	<i>vegetation and sediments caked in and around grate</i>
Is there standing water in catch basin?	<i>NO</i>
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.):	<i>None</i>
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	<i>0 - 3/4" mostly collected in front of outlet pipe as very little sed accumulated in corners</i>

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



Date: <u>9/9/08</u>	SECTION 2 - SAMPLE COLLECTION REPORT		Node: <u>AAE651</u>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <u>9/9/08</u>	Sample time: <u>1116</u>		
Sample Identification Code: <u>IL-52-AAE651-0908</u>	Sample collection technique and if/how overlying water was removed: <u>No water / SS SCOOP + SS bowl</u>		
Subsample number and location:	<u>all solids in CB</u>		
Color of sample:	<u>grayish, reddish brown</u>		
Texture/particle size:	<u>fine silts and sands w/ some gravels + organic debris</u>		
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<u>None</u>		
Amount and type of debris in bulk sample:	<u>20% organics + trash 15% large gravel</u>		
Amount and type of debris removed from final sample:	<u>35% of bulk removed</u>		
Compositing notes:			
Sample jars collected (number, size, full or partial)? <u>2 - 402 Jars</u>			
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).	<u>PCB</u>		
	<u>Total Solids</u>		
	<u>TOC</u>		
	<u>NO GRAIN SIZE COLLECTED</u>		
Lab ID <u>FO 081102</u>	Duplicate sample collected? <input checked="" type="checkbox"/> Y/ <input type="checkbox"/> N Dupe ID		
Duplicate # on COC:			
Any deviations from standard procedures: <u>No</u>			

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



# CITY OF PORTLAND ENVIRONMENTAL SERVICES

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



## CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name: *Portland Harbor In Line*

Project Number: *1020.001*

Sampling Team: *JXB/RCB/LAS*

Date: *9/9/08*

Arrival Time: *1142*

Basin: *52*

Node: *ANE921*

Address: *PIW Parking Lot*

Current weather and last known rainfall:

*clear, sunny 70°F*

### 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.):

*parking lot runoff, (parking lot is adjacent to Peninsula Iron Works)*

Describe debris and/or clogging around, or in catch basin grate/cover:

*lots of vegetation and sediment in and around CB grate*

Is there standing water in catch basin?

*yes, small puddle in <sup>SE</sup> corner ~ 2" deep*

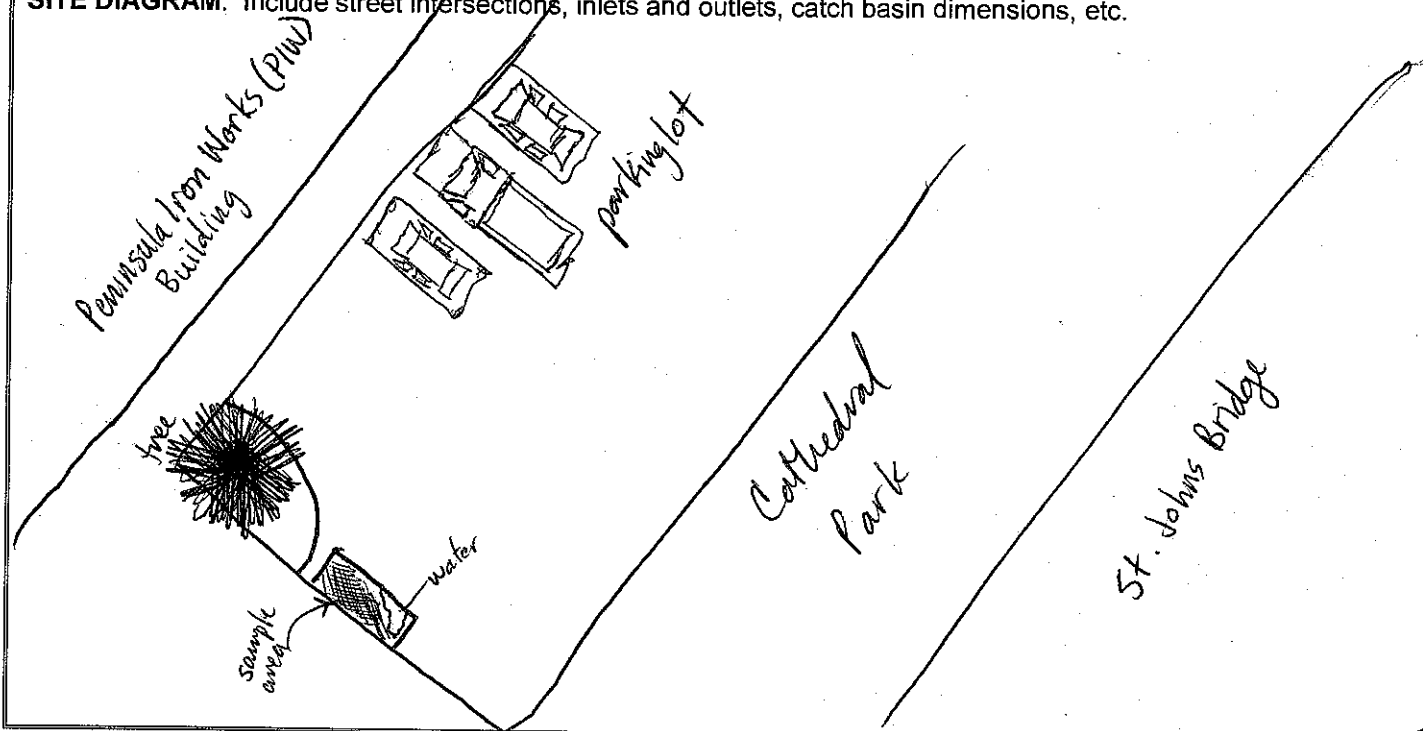
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)

*None*

Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:

*Depth ranges between 1"-5" w/ an average depth of 4"*

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



Date: <b>9/9/08</b>	<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <b>ANE921</b>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <b>9/9/08</b>	Sample time: <b>1153</b>		
Sample Identification Code: <b>1L-52-AAE ANE921-0908</b>	Sample collection technique and if/how overlying water was removed: <i>no overlying water removed. sample collected w/ 55 scoop and bowl.</i>		
Subsample number and location:	<i>Mostly from the middle of the CB.</i>		
Color of sample:	<i>Dark brown</i>		
Texture/particle size:	<i>saturated fine silts and sands w/ some small gravel + coarse sand and abundant organic debris</i>		
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<i>None</i>		
Amount and type of debris in bulk sample:	<i>sample is ~ 5% organics</i>		
Amount and type of debris removed from final sample:	<i>~ 1% removed</i>		
Compositing notes:			
Sample jars collected (number, size, full or partial)? <b>6 - 4oz jars 2 - 8oz jars</b>			
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 <b>FO 081103</b>	Duplicate sample collected? <b>(Y)N</b>		Dupe I <b>FO 081107</b>
Duplicate sample # on COC:			
Any deviations from standard procedures: <b>No</b>			

### SECTION 3 - PHOTOGRAPH LOG

Overview of CB showing drainage area	✓
Catch basin plan view prior to sampling showing solids	✓
Lateral connections to/from CB	✓
Homogenized sample (sediment in bowl)	✓



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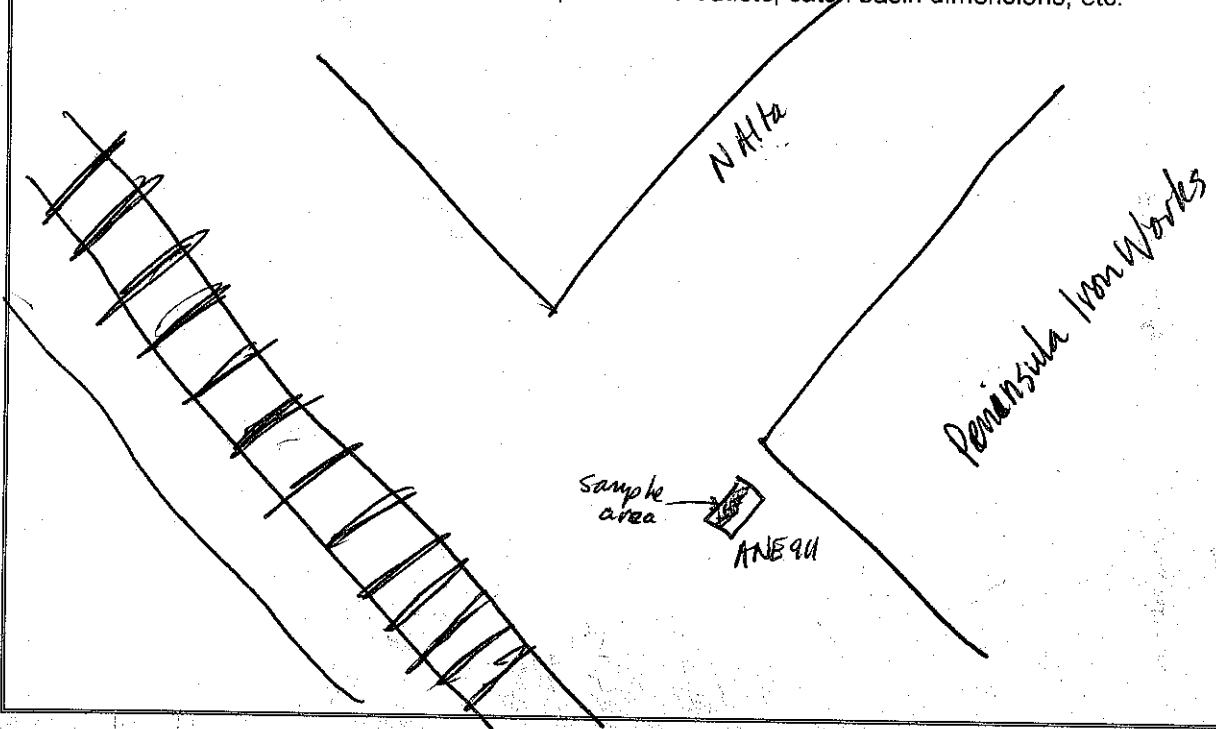
**CATCH BASIN SOLIDS SAMPLING  
FIELD DATA SHEET**

Project Name: <i>Portland Harbor In Line Sump.</i>		Project Number: <i>1020-001</i>
Sampling Team: <i>JXB/REB/LAS</i>	Date: <i>9/9/08</i>	Arrival Time: <i>1326</i>
Basin: <i>52</i>	Node: <i>ANE911</i>	Address: <i>N Alta &amp; RR tracks</i>
Current weather and last known rainfall:		

**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.):	<i>Lots of steel stored outside in the area. Parked vehicles</i>
Describe debris and/or clogging around, or in catch basin grate/cover:	<i>Some sediment &amp; gravel wedged in a few of the slots in the grate</i>
Is there standing water in catch basin?	<i>No</i>
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.):	<i>Sediments are orange, brown in color, potential from steel rust runoff</i>
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	<i>1/2" - 3" in depth, averaging 1.5" throughout.</i>

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



Date: <b>9/9/08</b>	SECTION 2 - SAMPLE COLLECTION REPORT		Node: <b>ANE911</b>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <b>9/9/08</b>	Sample time: <b>1336</b>		
Sample Identification Code: <b>1L-52-ANE911-D908</b>	Sample collection technique and if/how overlying water was removed: <b>ss spoon/bowl no water</b>		
Subsample number and location:	<b>sampled across entire floor of CB.</b>		
Color of sample:	<b>orange to dark brown w/ some</b>		
Texture/particle size:	<b>Fine silts, sands, w some gravels</b>		
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<b>Orange color likely due to iron rust from steel plates and metal debris in the area.</b>		
Amount and type of debris in bulk sample:	<b>Lots of metal shavings, bolts, nuts, screws in CB sample</b>		
Amount and type of debris removed from final sample:	<b>Less than 1% metal debris</b>		
Compositing notes:			
Sample jars collected (number, size, full or partial)? <b>4-403 jars 1-802 jar</b>			
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).	<b>Extra jar collected for consultant per LAB.</b>		
Lab ID <b>FO 081104</b>	Duplicate sample collected? <input checked="" type="checkbox"/> Dupe ID		
Duplicate _____ in COC:			
Any deviations from standard procedures:			

### SECTION 3 - PHOTOGRAPH LOG

Overview of CB showing drainage area	✓
Catch basin plan view prior to sampling showing solids	✓
Lateral connections to/from CB	✓
Homogenized sample (sediment in bowl)	✓



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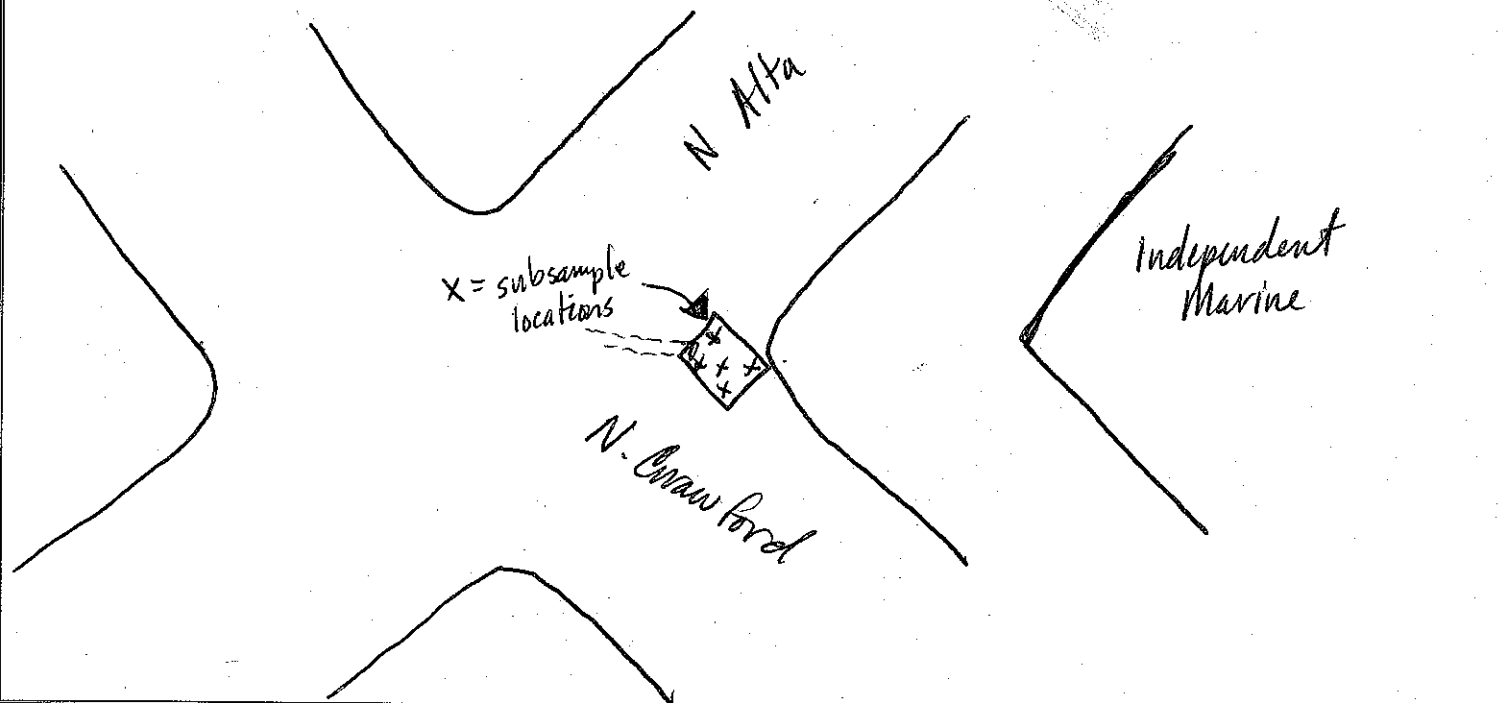
CATCH BASIN SOLIDS SAMPLING  
FIELD DATA SHEET

Project Name: <i>Portland Harbor In-line Sump</i>		Project Number: <i>1020.001</i>
Sampling Team: <i>JXB/RCB/LAS</i>	Date: <i>9/9/08</i>	Arrival Time: <i>1304</i>
Basin: <i>52</i>	Node: <i>UNKCBI</i>	Address: <i>NE corner of N Alta &amp; N Crawford 8675 N. Crawford St.</i>
Current weather and last known rainfall: <i>Clear, sunny 75°</i>		

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.):	<i>Independent Marine grinds ship propellers outside in an uncovered area. Parked vehicles</i>
Describe debris and/or clogging around, or in catch basin grate/cover:	<i>Grate mostly clear of debris</i>
Is there standing water in catch basin?	<i>No</i>
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	<i>No odor</i>
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	<i>1-2 1/2"</i>

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



Date: <b>9/9/08</b>	<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <b>UNKCB1</b>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <b>9/9/08</b>	Sample time: <b>1415</b>		
Sample Identification Code: <b>IL-52-UNKCB1-0908</b> <b>8675 N CRAWFORD</b>	Sample collection technique and if/how overlying water was removed:		
Subsample number and location:	<b>5 subsamples: each corner + middle</b>		
Color of sample:	<b>Dark gray/black</b>		
Texture/particle size:	<b>Fine silts w/ med to coarse sands</b>		
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<b>metal flakes visible in sample</b> <b>very small</b>		
Amount and type of debris in bulk sample:	<b>21% organic debris, abundant tiny metal flakes</b>		
Amount and type of debris removed from final sample:	<b>21% organic debris removed</b>		
Compositing notes:			
Sample jars collected (number, size, full or partial)? <b>4-4oz jars* 1-8oz jar</b>			
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).			
	<b>* one extra jar for consultant per LAS</b>		
Lab ID <b>FO 081105</b>	Duplicate sample collected? <b>Y/N</b> Dupe ID		
Duplicate sample identification # on COC:			
Any deviations from standard procedures:			

### SECTION 3 - PHOTOGRAPH LOG

Overview of CB showing drainage area	✓
Catch basin plan view prior to sampling showing solids	✓
Lateral connections to/from CB	✓
Homogenized sample (sediment in bowl)	✓



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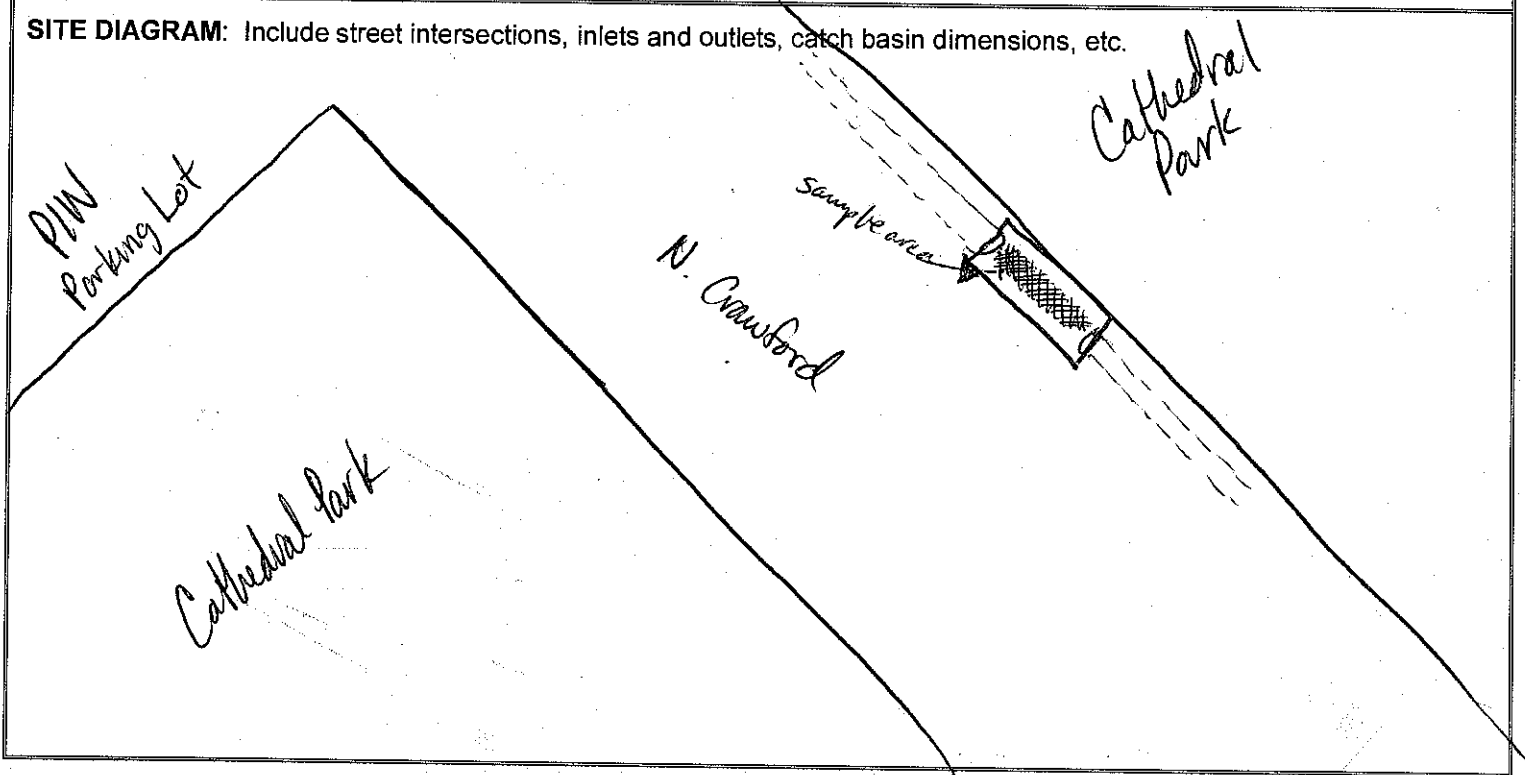
CATCH BASIN SOLIDS SAMPLING  
FIELD DATA SHEET

Project Name: <i>Portland Harbor In Line Sump</i>		Project Number: <i>1020.001</i>
Sampling Team: <i>DXB/REB/LAS</i>	Date: <i>9/9/08</i>	Arrival Time: <i>1440</i>
Basin: <i>52</i>	Node: <i>AAE 673</i> <sup>REB</sup> <sub>ANZ 152</sub>	Address: <i>N Crawford under St Johns Bridge</i>
Current weather and last known rainfall: <i>sunny clear 82°</i>		

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.):	<i>Gravel road row. no curbs. Runoff from Independent Marine enters this CB.</i>
Describe debris and/or clogging around, or in catch basin grate/cover:	<i>Lots of sediment built up around CB and in grate.</i>
Is there standing water in catch basin?	<i>NO</i>
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.):	<i>None</i>
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	<i>0.1" - 0.5"</i>

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



Date: <u>9/9/08</u>	<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>ANZ152</u> <u>AAE673</u>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <u>9/9/08</u>	Sample time: <u>1449</u>		
Sample Identification Code:	Sample collection technique and if/how overlying water was removed: <u>no water</u>		
Subsample number and location:	<u>all CB solids</u>		
Color of sample:	<u>Dark brown</u>		
Texture/particle size:			
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<u>decomposing organic odor but no obvious signs of contamination</u>		
Amount and type of debris in bulk sample:	<u>50% organic debris</u>		
Amount and type of debris removed from final sample:	<u>21% removed (organic)</u>		
Compositing notes:			
Sample jars collected (number, size, full or partial)?			
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 <u>FO 081106</u>	Duplicate sample collected? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Dupe ID		
Duplicate sample identification # on COC:			
Any deviations from standard procedures: <u>No</u>			

### SECTION 3 - PHOTOGRAPH LOG

Overview of CB showing drainage area	✓
Catch basin plan view prior to sampling showing solids	✓
Lateral connections to/from CB	✓
Homogenized sample (sediment in bowl)	✓



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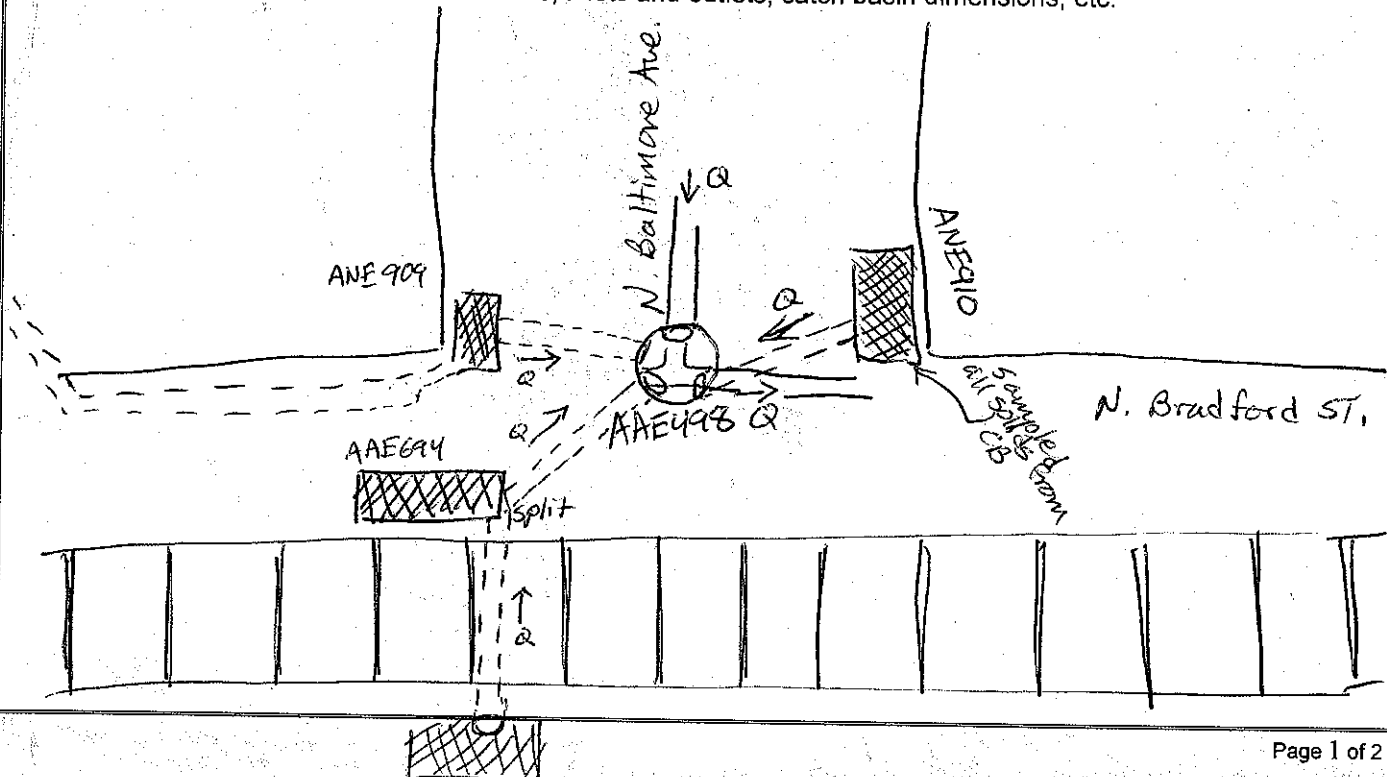
**CATCH BASIN SOLIDS SAMPLING  
FIELD DATA SHEET**

Project Name: <i>Portland Harbor Inline Sump.</i>		Project Number: <i>1020.001</i>
Sampling Team: <i>JXB/RCB</i>	Date: <i>9/10/08</i>	Arrival Time: <i>0815</i>
Basin: <i>52</i>	Node: <i>ANE910</i>	Address: <i>N. Baltimore Ave &amp; Bradford - ECB</i>
Current weather and last known rainfall: <i>Clear, cool 58°F</i>		

**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.):	<i>CB is downstream of industrial &amp; residential areas, adjacent to Moonstruck <sup>Corporate</sup> Headquarters. CB is also perpendicular to Union Pacific Rail Road tracks.</i>
Describe debris and/or clogging around, or in catch basin grate/cover:	<i>Area around CB is fairly clean of JXB. Organic leaf litter &amp; sediments stuck in grate (40%) <sup>plugged</sup></i>
Is there standing water in catch basin?	<i>No</i>
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	<i>No</i>
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	<i>Depth is ~0.1" to 0.3" with an average depth of approx. 0.1"</i>

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



Date: <u>9/10/08</u>	<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>ANE910</u>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <u>9/10/08</u>	Sample time: <u>0820</u>		
Sample Identification Code:	Sample collection technique and if/how overlying water was removed:		
<u>IL-52-ANE910-0908</u>	<u>per SOP 5.01e</u>		
Subsample number and location:	<u>All CB solids</u>		
Color of sample:	<u>Gray</u>		
Texture/particle size:	<u>Primarily fine silts &amp; medium to coarse sands</u>		
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<u>w/ large percentage of organic leaf debris</u>		
	<u>None</u>		
Amount and type of debris in bulk sample:	<u>60% organic debris 20% silts &amp; 20% medium to coarse sands</u>		
Amount and type of debris removed from final sample:	<u>Removed approx 50% of organic leaf litter from bulk solid sample (~50% of bulk sample)</u>		
Compositing notes:			
Sample jars collected (number, size, full or partial)? <u>2-402</u>			
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).	<u>Did not collect grain size - only PCBs, TOC</u>		
	<u>&amp; percent solids were collected</u>		
	<u>(total)</u>		
Lab ID <u>FO 081108</u>	Duplicate sample collected? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Dupe ID		
Duplicate sample identification # on COC:			
Any deviations from standard procedures: <u>NO</u>			

### SECTION 3 - PHOTOGRAPH LOG

Overview of CB showing drainage area	✓
Catch basin plan view prior to sampling showing solids	✓
Lateral connections to/from CB	✓
Homogenized sample (sediment in bowl)	✓

52-12



# CITY OF PORTLAND ENVIRONMENTAL SERVICES

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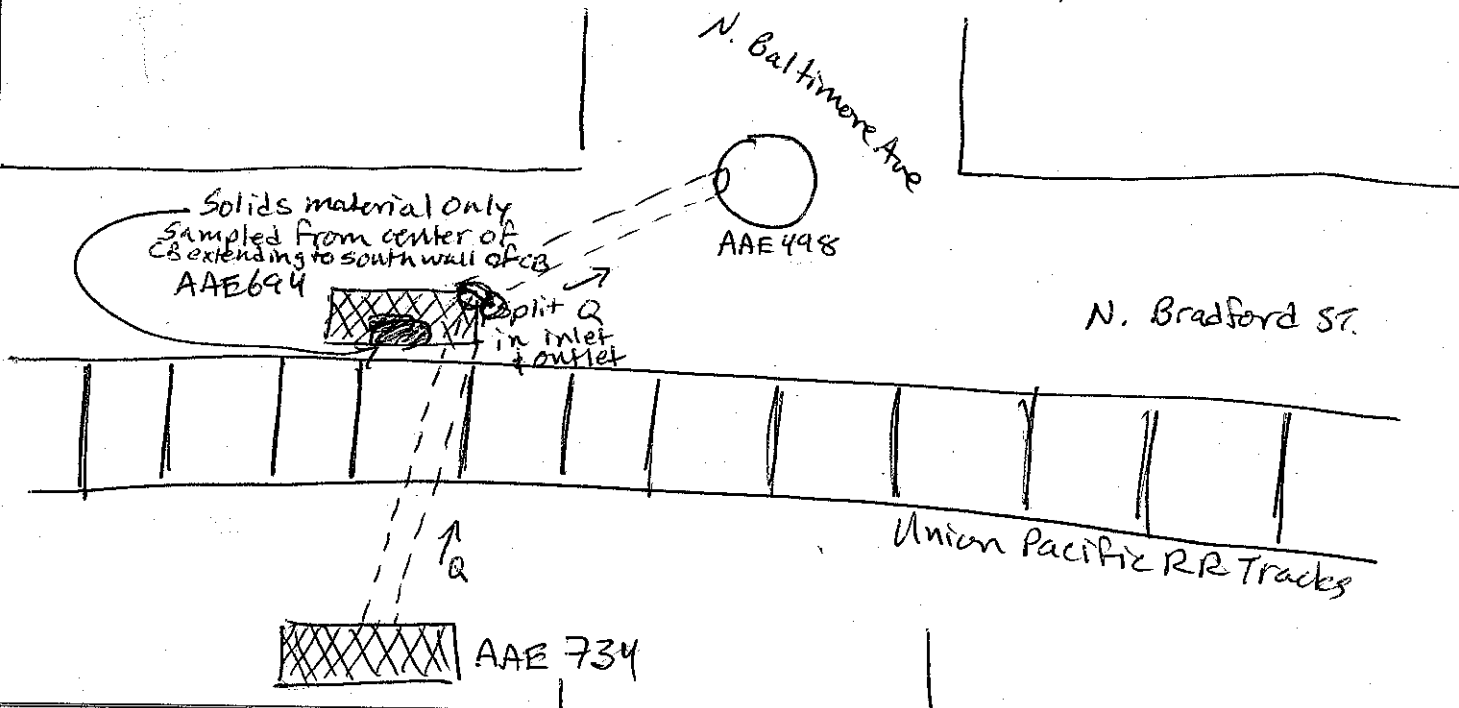
## CATCH BASIN SOLIDS SAMPLING FIELD DATA SHEET

Project Name: <i>Portland Harbor Inline Samp.</i>		Project Number: <i>1020.001</i>
Sampling Team: <i>JXB/RCB</i>	Date: <i>9/10/08</i>	Arrival Time: <i>0900</i>
Basin: <i>52</i>	Node: <i>AAE694</i>	Address: <i>RR Tracks @ N. Baltimore &amp; Bradford</i>
Current weather and last known rainfall: <i>Clear cool &amp; 58°F</i>		

### 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.):	<i>CB is adjacent to RR tracks (Union Pacific) intercepting drainage from RR tracks &amp; other heavy industrial areas (Toyota, etc.).</i>
Describe debris and/or clogging around, or in catch basin grate/cover:	<i>Coarse gravels near CB drainage area. CB grate is free of debris &amp; sediments.</i>
Is there standing water in catch basin?	<i>No</i>
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.):	<i>No</i>
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	<i>Depth of solids ranges between 0.0"-3.0". A majority of the solids in the CB are cemented coarse (3/4 minus) gravels &amp; fine silts &amp; sands</i>

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



Date: <u>9/10/08</u>	<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>AAE694</u>
Sampling Equipment:	<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> OTHER (DESCRIBE)		
Equipment decontamination procedure:	<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> OTHER (DESCRIBE)		
Sample date: <u>9/10/08</u>	Sample time: <u>0905</u>		
Sample Identification Code: <u>IL-52-AAE694-0908</u>	Sample collection technique and if/how overlying water was removed: <u>Per SOP 5.01 e. Collected solids from center of CB extend</u>		
Subsample number and location:	<u>Center of CB extending to south wall of CB</u>		
Color of sample:	<u>Gray</u>		
Texture/particle size:	<u>Fine silts &amp; sands w/ coarse gravels</u>		
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	<u>None</u>		
Amount and type of debris in bulk sample:	<u>~70% fine silts &amp; sands ~30% coarse gravels, metals &amp; rubber.</u>		
Amount and type of debris removed from final sample:	<u>Removed approx. 5% of bulk sample, primarily consisting of coarse <sup>minus</sup> 3/4 gravels &amp; rubber chunks.</u>		
Compositing notes:			
Sample jars collected (number, size, full or partial)? <u>4-402 1-802</u>			
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 <u>FO 081109</u>	Duplicate sample collected? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Dupe ID		
Duplicate sample identification # on COC:			
Any deviations from standard procedures: <u>No</u>			

### SECTION 3 - PHOTOGRAPH LOG

Overview of CB showing drainage area	✓
Catch basin plan view prior to sampling showing solids	✓
Lateral connections to/from CB	✓
Homogenized sample (sediment in bowl)	✓



Page 1 of     

Project Portland Harbor <sup>RCB</sup> Stormwater InLine Sump  
Location Basin 52  
Subject Catch Basin Sed Sump

Project No.       
Date 9/9/08  
By JKB, RCB, LAS

0900: Arrived on site at N Burlington & RR tracks to inspect CBs. Referred to ArcGIS maps and located ANE 813. Took photo. Also located and inspected a CB in grass just west of RR tracks and determined it to be in Basin 50.

0915: Prepared to sample ANE 813 by removing CB grates. Some solids from the surface of the grate fell into the CB during grate removal, but will not be collected for the composite sample. Sediments range from fine silt to coarse (1"+) gravel.

0925 Sample collected from entire floor of CB <sup>w/ ss spoon</sup> and composited in SS bowl. Large rocks removed. 3-4oz jars, 1-8oz jar collected.

0949 offsite.

0950 On site at ANE 815, located at the corner of N Burlington & N. Crawford. Two photos of site and CB prior to removing the grate

1006 Grate removed

1010 Sample collected from entire floor of CB w/ ss scoop & placed in SS bowl for compositing. 3-4oz, 1-8oz jar filled.

1025 Investigated outlet from ANE 815 to determine which of the 3 clustered Mts in the intersection of N. Burlington & N Crawford its flow goes in to. Poured water into ANE 815 and found that it was connected to the middle Mt, which we previously thought was abandoned and filled in place but now appears to be a SED Mt. This Mt has an outlet w/ a

Attachments

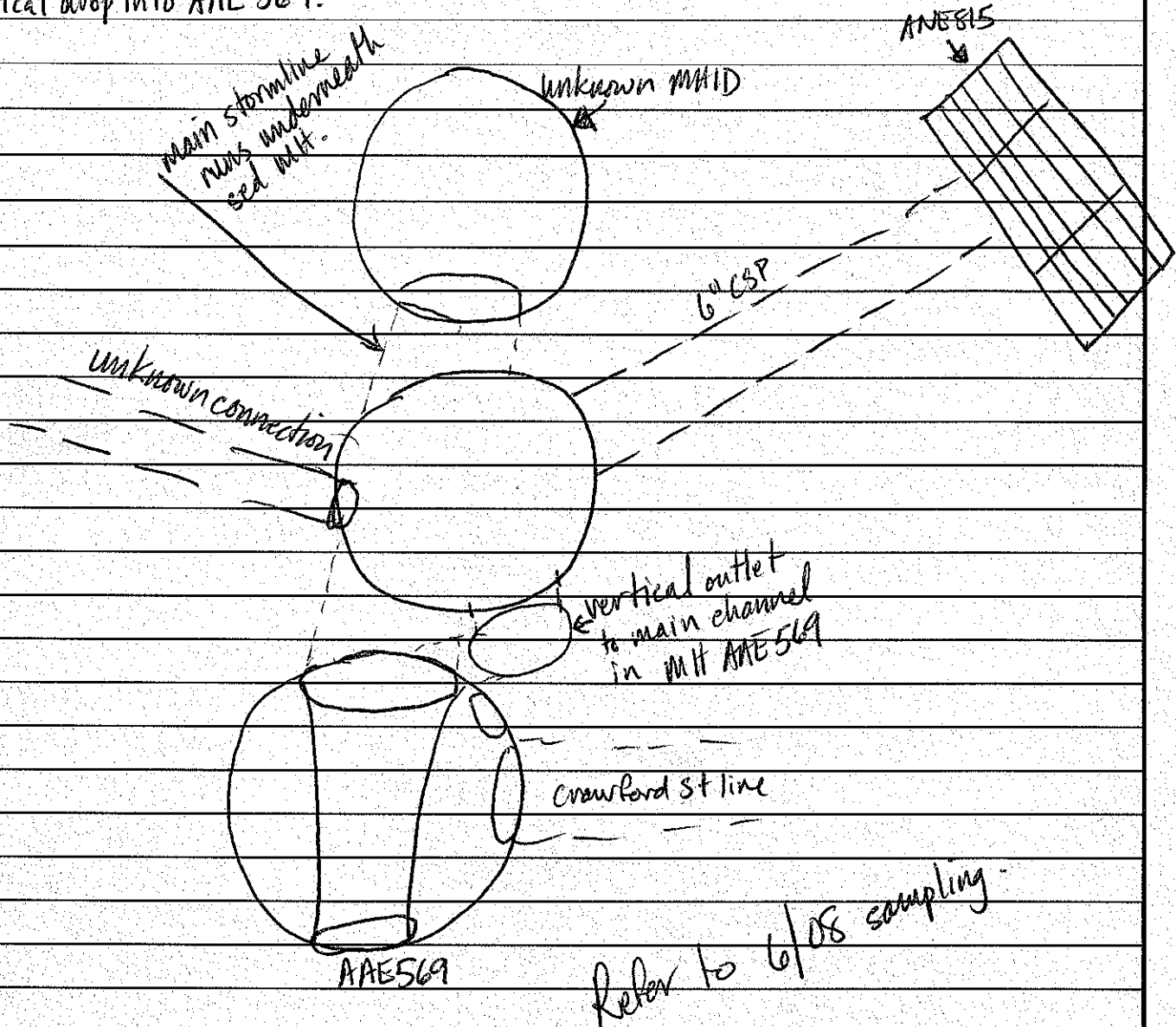


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Project Portland Harbor In Line  
Location Basin 52  
Subject Catch Basin Solids Sampling

Project No. 1020.001  
Date 9/9/08  
By JXB/REB/LAS

vertical drop into AAE 569.





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Project <u>Portland Harbor In Line</u>	Project No. <u>1020.001</u>
Location <u>Basin 52</u>	Date <u>9/9/08</u>
Subject <u>catch basin solid samp</u>	By <u>RCB/JXB/LAS</u>

*RCB*

1106 Arrived at CB AAE 651. CB grate stuck, used tripod and winch to remove. CB located at NE corner of N. Pittsburg and RR tracks.

1116 Sample collected from AAE 651. Limited sediment collected from this location. 0-3/4" of sed in CB floor, but most of the sediment present is in front of the outlet pipe. Enough sediment to fill 2-4oz jars. No grain size analysis from this location. Sample had ~35% organics/trash/large rocks which were removed prior to filling jars.

1138 Off site.

1142 Arrived at ANE 921. Lots of vegetation and sediment in and around CB grate. Took photos. Removed CB grate. Some standing water in SE corner of CB, approx 2" deep. ~~CB~~ CB has lots of sediment ~~predominately~~ in the middle and west ends of the CB, and less in the SE end where the water has collected.

1153- Collected sample + DUP.

1211 Broke for lunch.

1304 Arrived on site at the <sup>NE</sup>~~SE~~ corner of N Crawford and N Alta in front of Independent Marine, 8675 N Crawford ~~Street~~. No node number known because it is not shown on the map. Just prior to sample collection we were asked to leave the site so Independent Marine could load and unload a truck. We will check out ANE 911 and return later.

Attachments



Page 4 of     

Project Portland Harbor In Line  
Location Basin 52  
Subject catch basin solids samp.

Project No. 1020.001  
Date 9/9/08  
By PCB/JXB/LAS

1326 Arrived at ANE911 located on the NW side of Peninsula Iron Works (PIW) near the RR tracks. Took photos. Removed grate w tripod & winch during sampling. JXB

1336 ~~Starting~~<sup>JXB</sup> Started collecting sample. Abundant metal debris → filings, drilling cuttings, bolts, screws, nuts. Also some chunks of what appears to be cement & bentonite in CB. Sample collected successfully. One extra jar collected for consultant (not present) per LAS.

1411 Arrived back at 8675 N. Crawford. While we were gone, Independent Marine Employees discharged water in to the CB during propeller grinding operations. LAS directed them to stop and notified SPCR

1415 Sample collected from 4 corners and middle of CB, sampling the total depth at each subsample location.

1440 Arrived at AAE673 at N. Crawford under St Johns Bridge. Took photos. Seds in CB are wet from recent runoff from Independent Marine (see notes above).

1449. Sample collected @ AAE673. Not much sediment here, most of material in CB is organic debris. Extra jar filled for consultant per LAS.

1507. Offsite to WPL.

Attachments



Page 1 of 2

Project PORTLAND HARBOR INLINE SAMP.

Project No. 1080.001

Location BASIN 52

Date 9/10/08

Subject CATCH BASIN SED. SAMP.

By JXB/RCB

0815 - Arrived on site at N. Baltimore Ave & Bradford St, near Union Pacific RR Tracks, to inspect CBs. Referenced ArcGIS Mobile Mapper & located CB ANE910 on east corner of N. Baltimore. Took photo of CB grate & drainage area.

0820 - Prepared to sample CB ANE910. Removed CB grate. Grate was partially clogged w/ minor organic debris. Depth of solids material in floor of CB ranged between 0.1" to 0.3" w/ an average depth of approx. 0.1". Solids material primarily consisted of fine silts to medium/coarse sands & a large percentage of organic debris. Collected <sup>all</sup> solids material w/ a stainless spoon & placed solids in stainless bowl. Determined that solids material was primarily 60% organics & leaf litter. Removed organic material & filled 2-4oz sample jars.

0835 - Arrived on site at CB ANE909 (west CB) located at N. Baltimore & Bradford St. (perpendicular to Union Pacific RR Tracks). Inspected CB. CB grate was free of debris & sediment. Removed grate. Depth of solids material in floor of CB ranged between 0.1" to 1.0". Began to sample ANE909. ~~After~~ During initial sampling of CB it was determined that solids material was primarily organic debris (making up ~98% of bulk material). As a result sampleable quantities of solids material were not present. Did not sample CB ANE909.

0900 - Arrived on site at CB AAE694 located adjacent to RR tracks on N. Bradford St. Took a photo of CB & drainage area.

Attachments



Page 2 of 2

Project PORTLAND HARBOR INLINE SAMP.

Project No. 1070.001

Location BASIN 52

Date 9/10/08

Subject CATCH BASIN SED. SAMP

By JXB/RCB

CB AAE694 (cont.) - Took photo of CB & drainage area. CB grate was free of debris & sediment. Removed grate.

0905 - Prepared to sample CB AAE694. Depth of solids material in floor of CB was between 0.0" to 3.0" w/ an average depth of approx. 3.0". Attempted to sample solids material in CB using stainless spoon. Solids are cemented in CB (primarily on the CB corners). Able to remove solids material at an average total depth of 3.0" from the center of the CB, extending to the south wall of the CB.

Solids material primarily consisted of fine silts & sands w/ coarse ( $\frac{3}{4}$  minus) gravels. Coarse gravels made up approx. 30% of the material in the bulk solids sample. Removed coarse gravels & large metal & rubber chunks from bulk sample (accounting for ~5% of bulk sample). Composited bulk material in stainless steel bowl & filled 4-4oz & 1-8oz sample jars.

0927 - Left Basin 52 for WPCL

Attachments

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## ***2010 Sediment Trap Sampling***

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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: 6/17/2010

Page: 1 of 1

Collected By: AJA PTB

Project Name: PORTLAND HARBOR STORMWATER SAMP

File Number: 1020.005

Matrix: SEDIMENT/WATER

Basin 52 Sediment Trap Chain-of-custody

Sediment traps installed: 2/2/2010

Sediment traps removed: 6/16/2010

\* 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.

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	Organics						General		Metals	Comments
						PCB Congeners (All 209)	PCB Aroclors (Low-level)	PAH+Phthalates	SVOCs	Grain Size	TOC	TS	Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn) + Hg		
FO105694	ST-52-AAE498-0610 N BALTIMORE & BRADFORD	52_ST1	6/17/10	943	C										Analyses added per PHA-6/21/10 (no Mn)
FO105695	ST-52-AAE513-0610 N BRADFORD & ALTA	52_ST2	6/17/10	1026	C										
FO105696	ST-52-AAE700-0610 N PITTSBURG, SW OF RR TRACKS STANDARD BOTTLE	52_ST3	6/16/10	1548	C										
FO105697	ST-52-AAE700-0610 N PITTSBURG, SW OF RR TRACKS SIFT SED TRAP	52_ST3	6/17/10	1038	C										
FO105698	ST-52-AAE516-0610 8675 N CRAWFORD ST	52_ST4	6/17/10	1142	C										
FO105702	Duplicate	Dup	6/17/10		C										
FO105699	SIFT Equipment Blank	EQBLANK	6/17/10	1230	G										

Relinquished By: 1. Signature: <i>Pete Bryant</i> Printed Name: Peter Bryant Received By: <i>[Signature]</i> Signature: <i>[Signature]</i>	Time: 1252 Date: 6/17/10	Relinquished By: 2. Signature: <i>[Signature]</i> Printed Name: <i>[Signature]</i> Received By: <i>[Signature]</i> Signature: <i>[Signature]</i>	Time: 1252 Date: 6/17/10	Relinquished By: 3. Signature: <i>[Signature]</i> Printed Name: <i>[Signature]</i> Received By: <i>[Signature]</i> Signature: <i>[Signature]</i>	Time: <i>[Signature]</i> Date: <i>[Signature]</i>	Relinquished By: 4. Signature: <i>[Signature]</i> Printed Name: <i>[Signature]</i> Received By: <i>[Signature]</i> Signature: <i>[Signature]</i>	Time: <i>[Signature]</i> Date: <i>[Signature]</i>
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FO105694-1020.005 - Portland Harbor Stormwater Sampling - Portland Harbor Stormwater Basin 52 Sed Trap COCs (6-16-10) - 6/17/10



Project Name: Portland Harbor Stormwater Samp.	Project No.: 1020.005	Date: 2/2/10	By: <i>JSB ECH PTB</i>
Site Address: <i>N BALTIMORE + BRADFORD</i>	Sample Pt Code: <i>52-ST1</i>	Basin: 52	Hansen ID: <i>AAE498</i>



Pt. Code		SECTION 2 - MONTHLY FIELD CHECK INFORMATION		Hansen ID
52-ST1		SIFT Solids		ANE494
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)?		Archived ID
3/5/10	Primary US Bottle - Trace Secondary DS Bottle - ~0.5" Bottle - Bottle - avg.	Final Removal? <input checked="" type="checkbox"/> Y/N		
Comments: On-site to conduct first check of SIFT following the install date of 2/2/10 for the FY09-10 storm season. This will be the first check of all of the SIFT type sediment traps in Basin S2. SIFT was installed & the inlet above the weir of the trap was un-obstructed. Pipe was wetted - no standing water. Small accumulation of leaves on trap housing. Re-installed SIFT at an upward 18° angle. Primary Chamber - Trace accumulation of solids, primarily along the bottom of the chamber's invert. DS Bottle - Secondary Chamber - Total area of captured solids was on average 20.5" in avg. depth by ~3.0" in width - along the bottom invert of the chamber. Trace solids deposited on back filter screen. Solids were primarily fines/silt.				52-ST1 2/2/10 - 3/5/10 1117 41.5g
Photos Taken? <input checked="" type="checkbox"/> Y/N		Describe: Drainage catchment area - 1495.jpg Archived solids in primary & secondary chambers - 1496.jpg & 1497.jpg		True weight of bottle 140.7
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)?		Archived ID
4/6/2010	Primary US Bottle - 1.0" Secondary DS Bottle - 0.75" Bottle - Bottle - (average)	Final Removal? <input checked="" type="checkbox"/> Y/N		
Comments: On-site for 2nd check. Entrant notes presence of ample coarse material in primary. Leafy debris and misc. plastics on silt housing, yet none in chamber. Accumulation in primary is exclusively coarse material. Secondary accumulation is distributed throughout entire bottom of cylinder. Re-installed SIFT at an 18° angle. Primary US Bottle - See comments above. Discarded primary coarse solids, not representative. Secondary DS Bottle - Accumulation of fine, sands distributed throughout entire cylinder bottom. Vetted fines adhering to secondary screen.				4/6/10 1011 52-ST1 131.0g
Photos Taken? <input checked="" type="checkbox"/> Y/N		Describe: 0001 Primary & Secondary chamber 0002 Coarse material in primary		
Date:		Estimated sed. depth per bottle (% by volume & inches):		Archived ID
6-16-10		Primary US Bottle - Trace Secondary DS Bottle - 0.4" Bottle - Bottle - Fine gravels Bottle - (avg)		
By: PTB ASA		Final Removal? <input checked="" type="checkbox"/> Y/N		
Comments: On-site for removal per customer request. 0.25" water in pipe, flowing slowly. SIFT is free from debris, some leaf build up around housing plastic also present. Primary has only a few fine gravel pieces, these will be discarded. US Bottle - Secondary Accumulation of fines and silt along screen. Invert has accumulation of fines, sand + silt, sloping from about 0.25" at the u/s end to about 0.5" at the back, d/s end.				4/16/10 1015 52-ST1 100.8g
Photos Taken? <input checked="" type="checkbox"/> Y/N		Describe: 3 - 2 overview, 1 close-up of Secondary chamber.		

Pt. Code:		SECTION 2 – MONTHLY FIELD CHECK INFORMATION		Hansen ID:
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;"> Holding Sticker </div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;"> Holding Sticker </div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;"> Holding Sticker </div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				

Pt. Code:		SECTION 2 – MONTHLY FIELD CHECK INFORMATION		Hansen ID:
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 50px; height: 50px; display: flex; align-items: center; justify-content: center;"> Holding Sticker </div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 50px; height: 50px; display: flex; align-items: center; justify-content: center;"> Holding Sticker </div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				

Pt. Code:		SECTION 3 – COMPOSITE SAMPLE		Hansen ID:
Sample ID:	FO 105694	Duplicate sample collected at this site? Y/N	DUPLICATE ID:	
affix FO number sticker				
Duplicate Sample ID on COC:		Any deviations from standard operating procedures? Y/N		
affix FO number sticker		Describe:		
Comments:				



CITY OF PORTLAND  
**ENVIRONMENTAL SERVICES**

Field Operations  
6543 N. Burlington Ave  
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**INLINE SEDIMENT TRAP FIELD DATA SHEET**

Project Name: Portland Harbor Stormwater Samp.	Project No.: 1020.005	Date: 2/2/10	By: ECH, JXB, ATB
Site Address: NEAR ST JOHNS N BRADFORD & ALTA, PUMP STATION	Sample Pt Code: 52-ST2	Basin: 52	Hansen ID: AAE513

**SECTION 1 - INSTALLATION INFORMATION**

Traffic control and/or site access concerns:

No TC required. Site access limited to either approaching alongside tracks from S through Cathedral Park or parking at the end of ALTA and carrying equipment over the tracks. \* This location has a sanitary, emergency bypass lateral that enters MH directly above main inlet. **SHOULD NOT BE ACCESSED DURING RAIN.**

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

Base flow @ 0.1 in. and 0.4 fps  
River does not appear to back up to here

Describe sediments in pipe if present (depth, sampleable quantities, lateral extent, etc.):

Trace fine sediments in invert are not ample enough to sample

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

SIFT is installed upstream of MH Chamber in a 15" pipe, 8 in. from EOP to MH chamber & 2 ft. from center of MH Chamber (node). Upstream angle of 16°

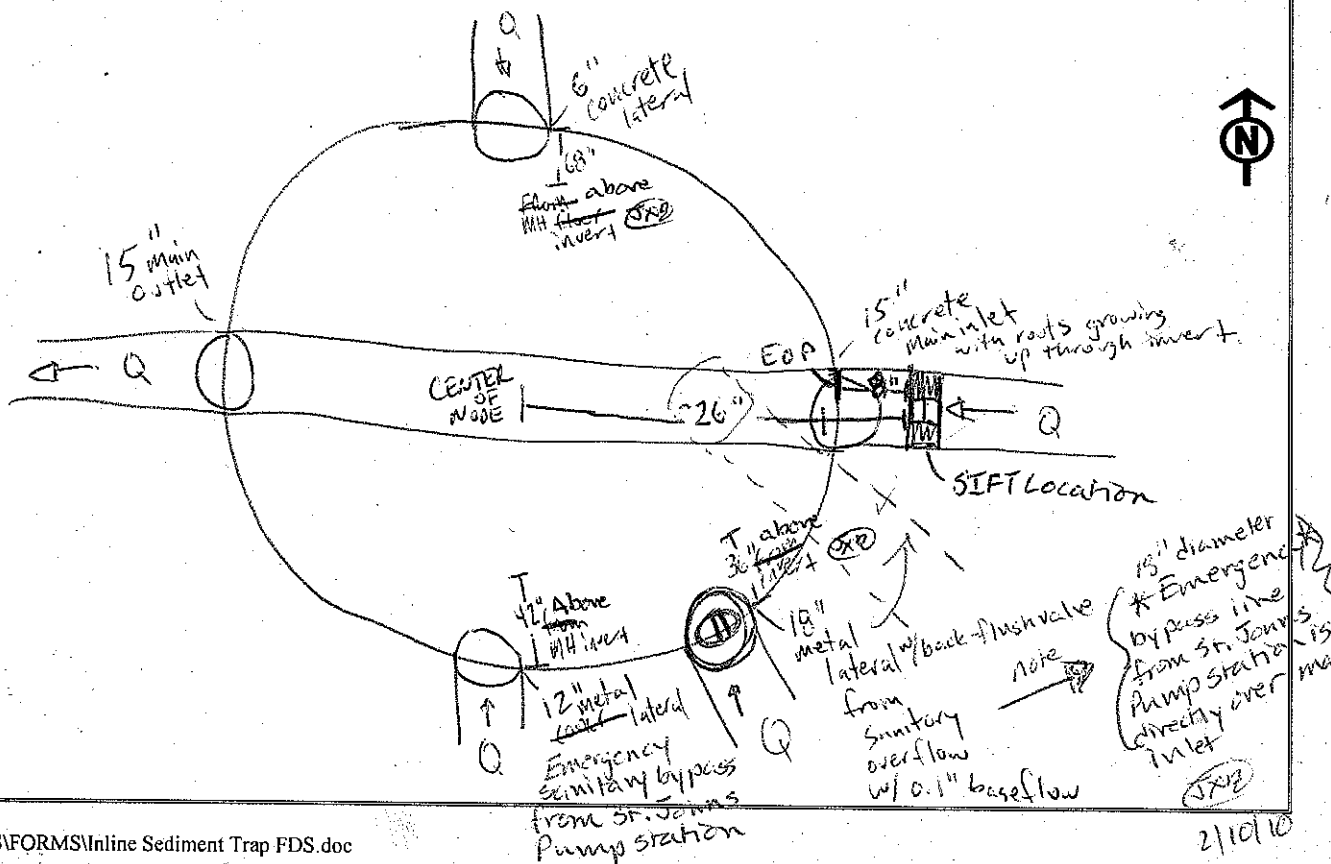
Sed trap bottles installed on:  
UPSTREAM

Pipe diameter (inches): 15

Distance from MH node (feet): ~2'

**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):



Pt. Code:		SECTION 2 - MONTHLY FIELD CHECK INFORMATION		Hansen ID
52-ST2		SIFT Solids		AAE513
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)?		Archived ID
3/5/10	Primary US-Bottle - Trace Secondary DS-Bottle - ~0.25" Bottle - avg.	Final Removal? <input checked="" type="checkbox"/> Y/N		
By: JAB MSS/MAW	Comments: First interim check of SIFT. Trap inlet above weir was free of obstruction. Leaf debris & plastics collected on trap housing. Pipe was wetted - <u>no</u> standing water in main pipe or in SIFT. Re-installed SIFT type sediment trap at an upward 16° angle. Primary Chamber - Trace amounts of solids present, primarily fine silts. Secondary Chamber - Total area of captured solids was on average ~0.25" in avg. depth by 3.0" in the bottom third of the chamber. Trace solids accumulated on back of filter screen. Captured solids were primarily fine silts.			52-ST2 2/2/10 - 3/5/10 1044 36.3g
Describe:		Tare weight of jar (t) lid		
Overview of drainage catchment area - 1492.jpg Collected archived solids in primary & secondary chambers - 1494.jpg		188.7g		
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)?		Archived ID
4/6/2010	Primary US-Bottle - Trace Secondary DS-Bottle - See below Bottle -	Final Removal? <input checked="" type="checkbox"/> Y/N		
By: JWM, PTB, MJS	Comments: Entrant notes presence of leafy debris on SIFT base, yet no obstructions to trap inlet above weir. Approx. 0.5" flowing water in pipe. Re-installed sift at ~16° angle. Primary US-Bottle - Trace solids accumulation Secondary DS-Bottle - Approx. 0.5" water in secondary, drained through screen. Solids (fines, sand) 0.25" on invert of cylinder and 1/8" of fine adhering to screen.			4/6/10 1050 52-ST2 80.2g
Photos Taken? <input checked="" type="checkbox"/> Y/N		0004 primary and secondary chambers		
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)?		Archived ID
6/16/10	Primary US-Bottle - 1/8" sed Secondary DS-Bottle - ~0.8" Bottle - (avg)	Final Removal? <input checked="" type="checkbox"/> Y/N		
By: PTB, AJA	Comments: on site for final removal per cust. request. Leaf and plastic around band, but not impacting SIFT. Pipe is wetted, but no flow. Rail Road tie replacement within the last week → strong creosote odor. Primary US-Bottle - Fine silts and sand on invert, about 1/8". Some pine needles and organics were excluded. Collected seds into composite jar. Secondary DS-Bottle - Fine sands and silts, Varying in depth from 3/4" to 1" (front to back). 1/8" fines along face (screen).			6/16/10 1105 52-ST2 142.3g
Photos Taken? <input checked="" type="checkbox"/> Y/N		76 - overview 77 - closeup of secondary chamber 78 - Photo & mold		
Describe:				

Pt. Code		SECTION 2 – MONTHLY FIELD CHECK INFORMATION		Hansen ID:
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		Holding Sticker
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		Holding Sticker
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		Holding Sticker
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				

Pt. Code	SECTION 2 – MONTHLY FIELD CHECK INFORMATION			Hansen ID
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID
By:	US Bottle - Bottle -	DS Bottle - Bottle -	Final Removal? Y/N	Holding Sticker
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID
By:	US Bottle - Bottle -	DS Bottle - Bottle -	Final Removal? Y/N	Holding Sticker
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				

Pt. Code	SECTION 3 – COMPOSITE SAMPLE		Hansen ID
52-512	Sample ID: F0105695 affix FO number sticker	Duplicate sample collected at this site? Y/N	AAE513
Duplicate Sample ID on COC: affix FO number sticker		Any deviations from standard operating procedures? Y/N	
		Describe:	
Comments:			



CITY OF PORTLAND  
**ENVIRONMENTAL SERVICES**

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



**INLINE SEDIMENT TRAP FIELD DATA SHEET**

Project Name: Portland Harbor Stormwater Sump.	Project No.: 1020.005	Date: 2/2/10	By: JXB, ECH, PTB
Site Address: N Pittsburgh SW of RR Tracks	Sample Pt Code: 52-ST3	Basin: 52	Hansen ID: AAE700

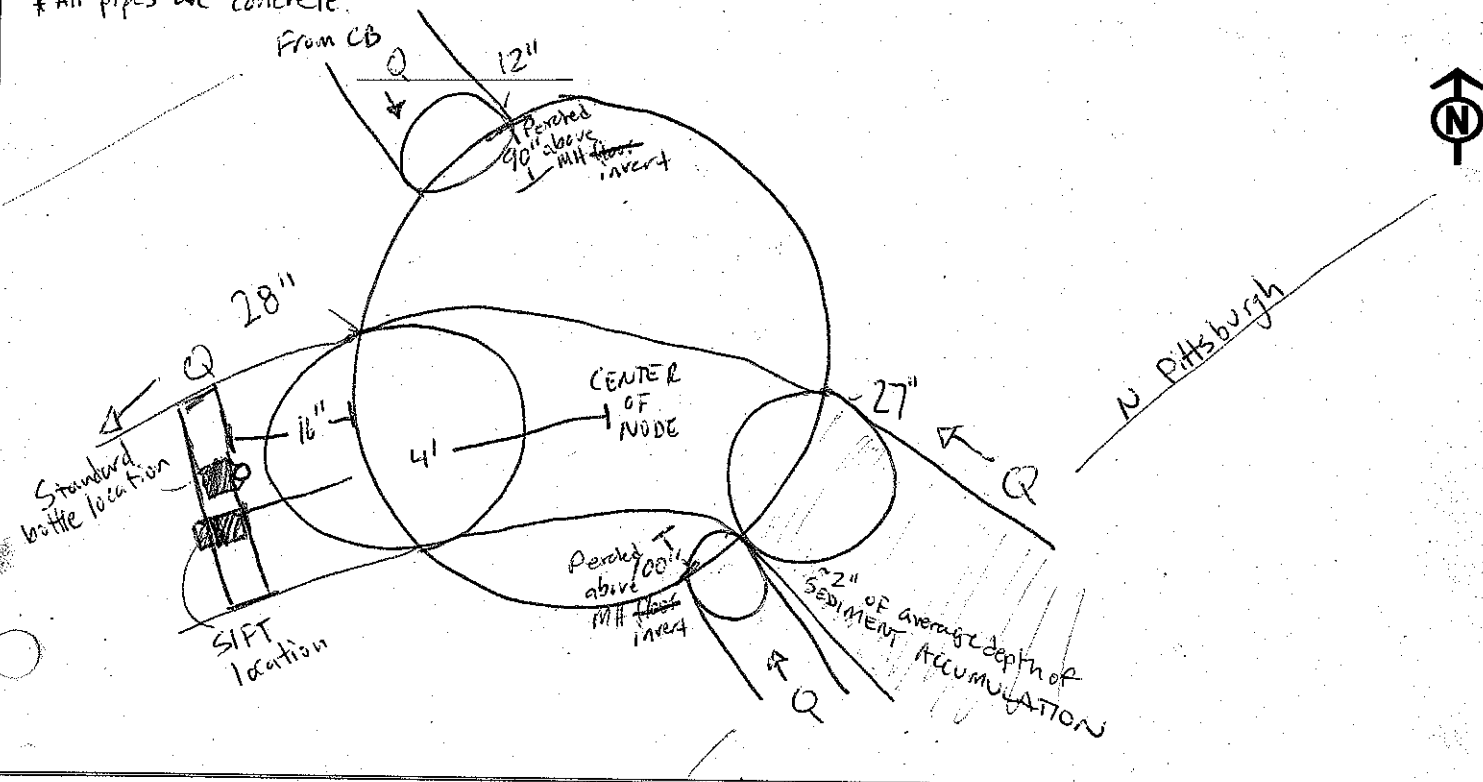
**SECTION 1 - INSTALLATION INFORMATION**

Traffic control and/or site access concerns: Low traffic street between park and WPC. MH is located ~30 ft. from RR tracks.	Describe flow conditions and depth and/or any standing water at time of install (does river appear to back up into this line intermittently?): Base flow @ 0.1" and 3/4 fps. River does not appear to back up here.
--	--

Describe sediments in pipe if present (depth, sampleable quantities, lateral extent, etc.): * Avg. depth of 2" in upstream line (80% fine sands/silts, 20% angular per sized gravels) extends as far up pipe as can be seen.	Sed trap bottles installed on: DOWNSTREAM
Sediment trap location(s) (pipe size, distance from center of node, proximity to laterals, etc.): Band is installed 16" ds of outlet EOD and 4' ds of center of node in a 28" pipe, immediately upstream of a seam in the pipe that is beginning to separate. The SIFT is on the left side of the band-facing downstream with an upward angle of 18° and due to the band is pitched slightly. The standard bottle is on the right side when facing downstream.	Pipe diameter (inches): 28
	Distance from MH node (feet): 4

**SED TRAP SITE DIAGRAM** Center of sift is 6.5 in. from invert. Top of bottle is 10.5 in. above invert.  
(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):

\* All pipes are concrete.



Pt. Code: 52-ST3		SECTION 2 - MONTHLY FIELD CHECK INFORMATION		Hansen ID: AA700
Date: 3/5/10	Estimated sed. depth per bottle (% by volume & inches): Primary US-Bottle - ~1/16"    Secondary DS-Bottle - ~1/4" Bottle -                      Bottle -	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)? <i>Sed. from primary &amp; secondary composited</i>	Archived ID:	
By: JXB MJS/mau		Final Removal? <input checked="" type="checkbox"/> Y/N		
<p>Comments: SIFT &amp; standard sed trap were intact. Main pipe was wetted - no standing water present. Inlets to both traps were unobstructed. Reinstalled SIFT at an approximate 220° upward angle.</p> <p>Primary chamber - Trace amounts of solids accumulated in chamber, primarily deposited along the bottom of the chamber's invert.</p> <p>US-Bottle - <i>skid</i></p> <p>Secondary chamber - An accumulation of ~1/4" of solids in average depth by ~4" in width along the bottom invert of the chamber w/ trace accumulation of solids on face of back filter screen. Captured solids were primarily fine sands &amp; silts.</p> <p>DS-Bottle - Entrant removed sed. trap bottle for visual observations. Captured stormwater was only ~2.5" in height - bottle was <u>not</u> completely full. Trace accumulation of solids present in bottle.</p>				
<p>Photos Taken? <input checked="" type="checkbox"/> Y/N Drainage overview - 1480.jpg    Primary chamber w/solids - 1481.jpg Captured solids in secondary chamber - 1482.jpg</p> <p>Describe: Primary &amp; secondary chambers - 1483.jpg</p>				
Date: 4/6/2010	Estimated sed. depth per bottle (% by volume & inches): Primary US-Bottle - <del>none</del> Secondary DS-Bottle - ~0.3" Bottle - <i>very minimal</i> Bottle - <i>(ave.)</i>	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)? <i>Sed. from secondary; primary composited</i>	Archived ID:	
By: JTM, PTB, MJS		Final Removal? <input checked="" type="checkbox"/> Y/N		
<p>Comments: Entrant notes presence of leafy debris on sift base and ~2" of flowing water in pipe. Reinstalled sift at an approximate 18° angle.</p> <p>Primary US-Bottle - <i>JTM</i> Primary is <del>free of</del> any accumulation; has very minimal fines in invert of chamber.</p> <p>Secondary - Very fine silts, ~0.3" deep on average w/ very fine wetted organics deposited on the screen.</p> <p>DS-Bottle - Entrant removed bottle, bottle is full mostly w/ water and a trace of sediment. Reinstalled bottle.</p>				
<p>Photos Taken? <input checked="" type="checkbox"/> Y/N No photo taken of bottle</p> <p>Describe: 0008 secondary chamber</p>				
Date: 6/16/10	Estimated sed. depth per bottle (% by volume & inches): Primary US-Bottle - ~1/8"    Secondary DS-Bottle - ~3/4-1 1/4" Bottle - <i>Layer fine silt</i> Bottle - <i>finest sand</i>	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)?	Archived ID:	
By: PTB AJA		Final Removal? <input checked="" type="checkbox"/> Y/N		
<p>Comments: On site for removal of SIFT and sediment trap. Entrant notes iron bacteria present. No obstructions of bottle opening. Debris around housings, but not on any openings. 0.25" water in pipe, flowing ~0.5 ft/s.</p> <p>Primary US-Bottle - Thin layer of very fine silts w/ some sand. About 1/8" thick.</p> <p>Secondary - Thick layer of fine sand and silt, about 3/4" thick toward front and 1 1/4" thick at back. Very thin layer of fines on screen face.</p> <p>DS-Bottle - Bottle removed, full of water, very little sed. accumulated around outside edge of bottom of bottle. ~1/4 to 1/2" depth.</p>				
<p>Photos Taken? <input checked="" type="checkbox"/> Y/N 83 - overview                      85 - mold</p> <p>Describe: 84 - close up of secondary chamber</p>				

Pt. Code		SECTION 2 – MONTHLY FIELD CHECK INFORMATION		Hansen ID:
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;">Holding Sticker</div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;">Holding Sticker</div>
Comments:				
Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;">Holding Sticker</div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				

Pt. Code	SECTION 2 – MONTHLY FIELD CHECK INFORMATION			Hansen ID:
Date:	Estimated sed. depth per bottle (% by volume & inches):		Bottles removed/replaced? Y/N If removed which one(s)?	Archived ID:
By:	US Bottle - Bottle -	DS Bottle - Bottle -	Final Removal? Y/N	Holding Sticker
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):		Bottles removed/replaced? Y/N If removed which one(s)?	Archived ID:
By:	US Bottle - Bottle -	DS Bottle - Bottle -	Final Removal? Y/N	Holding Sticker
Comments:				
Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				

Pt. Code	SECTION 3 – COMPOSITE SAMPLE		Hansen ID:
52-SB3	Sample ID: SIFT: FO105697 STANDARD: FO105696 affix FO number sticker	Duplicate sample collected at this site? <u>Y/N</u>	DUPLICATE ID:
Duplicate Sample ID on COC: affix FO number sticker		Any deviations from standard operating procedures? <u>Y/NA</u> Describe:	
Comments: Two samples submitted at this site with one of them collected using a SIFT sed trap and the other with a standard sed trap.			



Pt. Code: 52-ST4		SECTION 2 - MONTHLY FIELD CHECK INFORMATION		Hansen ID: AAFS16
Date: 3/5/10	Estimated sed. depth per bottle (% by volume & inches): Primary US-Bottle - 0.5" Secondary DS-Bottle - 1.5"	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N Composites If removed which one(s)? Solids from primary & secondary chambers		Archived ID:
By: JXB MJS1MAW	Bottle - Bottle -	Final Removal? <input checked="" type="checkbox"/> Y/N		
Comments: SIFT was intact. Inlet opening of the trap, above the weir, was unobstructed. Significant build up of leaf debris & plastics around trap housing. There was a significant accumulation of captured solids in both of the trap chambers. Reinstalled trap at an ~24° upward angle. US-Bottle - Primary chamber - Accumulation of fine-to-medium sands deposited in bottom of chamber invert was ~0.5" in average depth by ~2.0" in total width. DS-Bottle - Secondary chamber - Solids accumulated in chamber were primarily fine sands & silt. Average depth of solids deposited in chamber was ~1.5" by ~3.0" in total width along the bottom invert of the chamber w/ fine silt adhered to the face of the back filter screen.				52-ST4 2/2/10 - 3/5/10 1007 287.4g
Photos Taken? <input checked="" type="checkbox"/> Y/N				
Describe: Overview of drainage area - 1434.jpg Debris adhered to SIFT housing - 1436.jpg Captured solids in primary chamber - 1490.jpg Captured solids in secondary chamber - 1491.jpg				
Date: 4/6/2010	Estimated sed. depth per bottle (% by volume & inches): Primary US-Bottle - <0.1" Secondary DS-Bottle - ave. 2.0"	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N Composites If removed which one(s)? material from primary & secondary into a second jar.		Time weight of jar(t) lid 139.9
By: JTM, PTB MTS	Bottle - Bottle -	Final Removal? Y/N		Archived ID:
Comments: Entrant notes leafy debris, trash on silt base, yet nothing obstructing inlet above primary chamber weir. Reinstalled silt at an approximate 18° angle. Installed at an ~22° angle originally.				52-ST4 4/6/10 463.9g * THESE SOLIDS WERE COLLECTED IN A SEPARATE SECOND JAR APART FROM THE FIRST MONTHLY CHECK SOLIDS. PTB 4/6/10
Primary US-Bottle - Small coarse gravels, organics Secondary DS-Bottle - Ample fine, sands accumulated sloping upwards towards screen w/ average depth of 2.0". Drained standing water prior to compositing				
Photos Taken? <input checked="" type="checkbox"/> Y/N 0005 primary; secondary (w/water) chambers				
Describe: 0006; 0007 close-up of full 802 jar.				
Date: 6/16/10	Estimated sed. depth per bottle (% by volume & inches): Primary US-Bottle - Small amt sand Secondary DS-Bottle - 1 to 1.5" invert	Bottles removed/replaced? <input checked="" type="checkbox"/> Y/N If removed which one(s)?		Archived ID:
By: PTB AJA	Bottle - Bottle -	Final Removal? <input checked="" type="checkbox"/> Y/N		
Comments: On site to remove SIFT per customer request. Considerable debris on and around band, not affecting SIFT opening. Pipe is walled, but not flowing. Primary US-Bottle - Small accumulation of sands in invert against screen. Collected into jar. Secondary DS-Bottle - Nice accumulation of sands silts and fines. Approx. 1" at front (u/s) to about 1.5" at back. Very fine silt accumulation along screen face.				52-ST4 6/16/10 1150 253.1g * THESE SOLIDS WERE COLLECTED IN A SEPARATE JAR FROM MONTHLY CHECKS 1 & 2 SINCE THEY WERE FULL.
Photos Taken? <input checked="" type="checkbox"/> Y/N				
Describe: 79 - overview 80 - closeup of Secondary				

Pt. Code:		SECTION 2 – MONTHLY FIELD CHECK INFORMATION		Hansen ID:
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;"> Holding Sticker </div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;"> Holding Sticker </div>
Comments:				
Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 10px auto; text-align: center; line-height: 60px;"> Holding Sticker </div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				

Pt. Code:		SECTION 2 – MONTHLY FIELD CHECK INFORMATION		Hansen ID:
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 50px; height: 50px; margin: 10px auto; text-align: center; line-height: 50px;">Holding Sticker</div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				
Date:	Estimated sed. depth per bottle (% by volume & inches):	Bottles removed/replaced? Y/N If removed which one(s)?		Archived ID:
By:	US Bottle -      DS Bottle - Bottle -      Bottle -	Final Removal? Y/N		<div style="border: 1px solid black; border-radius: 50%; width: 50px; height: 50px; margin: 10px auto; text-align: center; line-height: 50px;">Holding Sticker</div>
Comments:				
US Bottle -				
DS Bottle -				
Photos Taken? Y/N				
Describe:				

Pt. Code:		SECTION 3 – COMPOSITE SAMPLE		Hansen ID:
Sample ID:	FO105698	Duplicate sample collected at this site? <input checked="" type="radio"/> Y <input type="radio"/> N	DUPLICATE ID: DUP	
affix FO number sticker				
Duplicate Sample ID on COC:	FO105702	Any deviations from standard operating procedures? <input checked="" type="radio"/> Y <input type="radio"/> N		
affix FO number sticker		Describe:		
Comments: <del>PTB</del> <del>Field</del> An Equipment Blank on the SIFT was also conducted and submitted on this chain.				



Page 1 of 2

Project PORTLAND HARBOR STORMWATER SAMP  
Location Basin 52  
Subject SIFT installs

Project No. 1020-005  
Date 2/2/10  
By PTB, JXB, ECH

0942-Arrive on-site AAE700. Set-up TC and entry equipment. Top-side observations indicate some sediment accumulation.

During set-up a Parks Bureau employee informed us there was routine <sup>glyphosate</sup> ~~glyosphate~~ application scheduled at the WPCL (adjacent to this site). We agreed they would not apply at this time to avoid potential air borne contamination of sampling equipment prior to installation.

0958-Entrant confirms pipe sizes and takes photos (1372.jpg Upstream, 1373.jpg downstream).

1054-Completed installation. (1374.jpg) Photo of finished installation of SIFT & standard bottle set side-by-side in-situ (1375.jpg)

1106-Arrive on-site at AAE516. Set up TC & entry equipment. This <sup>node</sup> ~~pipe~~ has <sup>perched</sup> ~~an~~ lateral that can become <sup>very</sup> active with <sup>sanitary</sup> ~~sanitary~~ flow during storm events. This site should not be visited during rainy conditions. Inlet photo (1376), downstream photo (1377) Sediment in lateral inlet (1378).

1158-Completed installation of single SIFT in downstream outlet of AAE516. Photo in-situ (1379).

1315 - Arrive on-site at AAE513, to install a Screened Inline Flow-through (SIFT) sediment trap. This node has a perched 18" diameter sanitary overflow lateral w/ back-flush valve from St. Johns Pump Station. Visits to this site during storm events should not occur due to increased potential for sanitary overflows from pump station & subsequent engulfment of entrant. Inlet photo (1380.jpg), downstream outlet (1381.jpg), <sup>Sanitary</sup> overflow lateral (1388.jpg), Intrusion of roots into inlet (1386.jpg).

Attachments 1418 - Completed installation of a single SIFT in upstream inlet at node AAE513(52-ST2). Photo in-situ (1390.jpg) of SIFT



Page 2 of 2

Project Portland Harbor Stormwater Sump.

Project No. 1020.005

Location Basin 52

Date 2/2/10

Subject SIFT Install

By PTB/JXB/ECH

1434- Arrive on site at AA498 to install one SIFT sediment trap. Multiple perched CB laterals. Visits during storm events should not be conducted at this site due to cascading flow from laterals onto entrants. Photos taken at 52-ST1 include: inlet photo (1391.jpg), downstream outlet (1392.jpg), and abandoned, dead-end inlet from the west (1393.jpg).

1511- Completed installation of single SIFT in downstream end of manhole vault (~7" upstream from outlet main pipe EOP) photo in-situ (1394.jpg) of SIFT.

due to small outlet pipe diameter.

JXB

2/10/10

Attachments



Page 1 of 2

Project Portland Harbor Stormwater Camp

Project No. 1020.005

Location Basin OES2

Date 3/5/10

Subject Daily Notes

By JXB/mjs/MAW

0909 - Arrive on-site at AAE 700 (52-ST3) located at N. Pittsburgh, just southwest of R&R tracks. This will be the first check of all of the SIFTs in Basin 52 for the FY09-10 storm season. Traps were installed on 2/2/10

Site 52-ST3 was installed w/a SIFT and a standard sediment trap for a side-by-side comparison of traps for analytical purposes. Both trap types were <sup>intact</sup> in-tucked upon CSE & <sup>were</sup> unobstructed. Main pipe was wetted - no standing water. Standard sed. trap bottle was capped & removed for visual observations, and then re-installed. Collected captured solids from SIFT & archived in a 8 oz dark amber sediment jar (0940). [52-ST3 Photos 1480.jpg - 1487.jpg]

0958 - On-site at AAE516 (52-ST4) located at 8675 N. Crawford St. SIFT was <sup>intact</sup> in-tucked & the inlet opening of the trap was unobstructed. Significant leaf debris & plastics adhered to trap housing. Removed <sup>debris & solids</sup> captured solids from SIFT & placed into an archived 8 oz sediment jar. Large quantity of solids, primarily fine to medium sands & silts captured in both chambers of trap. Re-installed SIFT at <sup>24°</sup> 16° us angle. [52-ST4 Photos Debris on trap housing - 1486.jpg Catchment area - 1484.jpg Collected solids from both chambers - 1490.jpg - 1491.jpg]

1038 - On-site at AAE513 (52-ST2) located at N. Bradford & Alta - near St. Johns pump station. SIFT was <sup>intact</sup> in-tucked & unobstructed. There was a build up of leaf debris and plastics on trap housing. Cleared debris. Main pipe was wetted - no standing water. Captured solids in SIFT are primarily fine silts. Archived captured solids in an 8 oz sediment jar (1044). Re-installed SIFT at 16° us angle. [52-ST2 Photos overview of catchment area 1492.jpg Collected Archived Solids in primary & secondary chambers 1494.jpg]

1111 - On-site at AAE498 (52-ST1) located at N. Baltimore & Bradford. SIFT was <sup>intact</sup> in-tucked & inlet opening of primary chamber was unobstructed. Minor build up

Attachments

Page 2 of 2

Project Portland Harbor Stormwater Sump

Project No. 1020.005

Location Basin of SZ

Date 3/5/10

Subject Daily Notes

By JXB / MJS / MAW

1111 - S2-ST1 (cont.) of leaf debris on trap housing. Main pipe was wetted - no standing water. Removed captured solids from SIFT & archived in a 3 oz sediment jar (1117). Collected solids were primarily fine silts.

Re-installed SIFT at an upward  $18^\circ$  US angle

[52-ST1 Photos      Drainage catchment area 1495.jpg      Archived solids in primary & secondary chambers 1496.jpg & 1497.jpg]

3/31/10

12/18- Weighed each <sup>of</sup> Basin 52 archived sediment jars back at the WPCL to ascertain the amount of solids captured by each SIFT.

3/5/10

	Total weight of jar (+) Lid (+) captured solids (g)	Tare weight of Jar (+) Lid (g)	Total weight of captured solids (g)	
52-ST1	232.2g	190.7	=	41.5 ✓

$$52 - 5T2 \quad 225.5g \quad - \quad 188.7 \quad = \quad 36.8 \quad \checkmark$$
$$52-573 \quad 218.9 \text{ g} - 190.2 = 28.7 \text{ v}$$
$$52\text{-STY} \quad 477.3g \quad - \quad 189.9 \quad = \quad 287.4 \quad \checkmark$$

## Attachments



Page 1 of 2

Project Portland Harbor Stormwater Sump.

Project No. 1020.005

Location N. Portland

Date 4/6/2010

Subject SIFT checks

By JTM, PTB, MJS

- 0959 Arrive on site at 52-ST1 after approximately 0.1" of rain this morning. Minimal curb/lateral EOP flow into node AAE498.
- 1006 Entrant measured 1.2" of flowing water in pipe. Ample large<sup>coarse</sup> gravel in primary chamber. Took photo of primary gravel and secondary chamber material. Called TXB to determine fate of coarse material in primary - no fine in primary, exclusively coarse material.
- 1011 Composited fines, sands from secondary into composite jar. After consulting w/TXB, discarded primary solids since <sup>their</sup> size is not usually included for inline samples. Re-installed silt @ ~18° angle.
- 1035 Departed site.
- 1040 Arrive @ 52-ST2. Entrant notes leafy debris around SIFT base,
- 1045 no obstructions to trap inlet above weir. Approx. 0.5" flowing water in pipe.
- 1050 Trace solids in primary, 0.5" water in secondary. Scraped bottom to drain water.
- 1050 Composited solids from secondary into composite jar as well as trace solids from primary.
- 1109 Reinstalled silt @ ~16° angle. Departed site.
- 1111 Arrive @ 52-ST4. Entrant notes presence of leafy debris, trash on base.
- 1117 Composited small gravels from primary and fines from secondary into a second 8oz. jar. This jar is nearly full.
- 1127 Reinstalled silt, departed site.
- 1137 Arrive at 52-ST3. Entrant notes leafy debris, 7.0" flowing water.
- 1141 Composited fine silts from secondary and minimal accumulation from primary.
- 1150 Removed bottle adjacent to SIFT. Bottle is full, mostly w/ turbid water and a trace amount of solids.
- 1158 Reinstalled SIFT @ ~18° angle. Departed site.
- 1239 Weighed composite jars, recorded weights on jars. (See Page 2)

Attachments

SITE	WEIGHT OF JAR+LID +SEDS (g)	WEIGHT OF JAR+LID (g)	TOTAL COLLECTED SEDS (g)	WEIGHT PREVIOUSLY COLLECTED SEDS (g)	WEIGHT COLLECTED THIS MONTH (g)
52-ST1	363.2	190.7	172.5	41.5	131.0
52-ST2	305.7	188.7	117.0	36.8	80.2
52-ST3	295.5	190.2	105.3	28.7	76.6
52-ST4	676.3	212.4	463.9	—	463.9



Page 1 of 2

Project Portland Harbor Stormwater Sump  
Location N. Baltimore + Bradford basin 52  
Subject 52-ST1 Daily field notes

Project No. 1020.005  
Date 6-16-10  
By PTB AJA

1000 On site at 52-ST1 for removal of  
sed SIFT per customer request.

Weather has been cold and rainy for all  
of June. SIFT should have seen ample  
flow in recent weeks.

1015 SIFT removed. Three photos taken.  
Collected accumulated sed from secondary chamber  
into composite jar. ~~Discarded~~ (A) Discarded fine gravels  
from primary chamber.

Removed all equipment from manhole

1048 Departed site.

1058 On site at ~~ST1~~ 52-ST2 for removal of  
sed SIFT

1115 Removed SIFT, Processed collected material from  
both chambers. Removed all gear from node

NOTE: Moby film observed on surface of archived sed prior to addition of this  
month's accumulation.

1133 Departed site.

Attachments



Page 2 of 2

Project PDX Harbor Sediment Samp

Project No. 1020.005

Location Basin 52

Date 6-16-10

Subject 52-ST4, ST3 daily notes

By PTB, AJA

1140 Arrive at 52-ST4, 8675 N. Crawford St.  
To remove silt per customer request.

\* using new jar because previous jars are full \*

1150 Removed sed trap, processed material into new jar. Removed all equipment from node.

1205 departed site.

1208 Arrival at 52-ST3

1215 Entrant notes lots of sediment in line with some kind of film or mold on it. Photo taken. Removed sed trap and all other equipment per customer request. NOTE: Archived seeds in jar had moldy film on surface prior to addition of this month's accumulation.

1305 Depart site.

Portland Harbor Sampling - EID 1020.00S

Date: 6/16/10

[illegible]



CITY OF PORTLAND  
**ENVIRONMENTAL SERVICES**

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



**INLINE SEDIMENT TRAP SAMPLE PROCESSING DATA SHEET**

Project Name: Portland Harbor Stormwater Sample

Project Number: 1020.005

Sample Processing Conducted By:

Sample Pt. Code:

Removal Date:

Processing Date:

ASA, PTB

SZ-ST1

6/16/10

6/17/10

Basin: SZ

Hansen ID: AAE498

Subbasin: NA

Sediment Trap Location Description/Address:

N Baltimore + Bradford. SIFT located 18" downstream of center of node.

**SEDIMENT TRAP PROCESSING/FILTRATION NOTES**

Filter Equipment/Method:

Portland Harbor, 90-millimeter (mm) stainless steel filter support w/conical glass microfiltration system  
[Field Operations (FO) Standard Operating Procedure (SOP) 5.01b & Evaluation of Microfiltration  
Equipment for Phthalates Technical Memorandum - September 18, 2007]

Filter brand, grade, porosity in micrometers ( $\mu$ m) and material (e.g., Fisher Scientific, qualitative P2, 1-5  $\mu$ m cellulose filter paper):

SIFT

Sediment Trap Bottle ID: SZ-ST1

Sediment Trap Bottle ID: -

Total Est. Depth of Accumulated Sed in Bottle (inches): 464.0g  
PRE-HOMOGENIZATION

Total Est. Depth of Accumulated Sed in Bottle (inches):

Sample Processing Start  
Time: 0930

Sample Processing End  
Time: 0943

Sample Processing Start  
Time:

Sample Processing End  
Time:

Number of Filters Used:

Number of Filters Used:

Est. total volume of Ultra Pure  
DI used to remobilize adhered  
stormwater solids within bottle in  
milliliters (mL):

Est. total volume of Ultra Pure  
DI used to remobilize adhered  
stormwater solids within bottle in  
milliliters (mL):

Tare Weight [empty jar in grams (g)]: 190.7g  
POST HOMOGENIZATION weight of sed in jar w/ lid (g): 463.8g  
Dewatered/Filtered Sed. Weight (g): 273.1g

Tare Weight [jar and filtered sed. from Bottle 1 in grams (g)]:

Dewatered/Filtered Sed. Weight (g):

Sample Processing Notes/Comments:

Homogenized composite sub-samples  
in the archive collection jar using a  
decontaminated stainless steel spatula.

Sample Processing Notes/Comments:

Visual Description of Final Composite Sample: Very dark gray<sup>fine</sup> sandy silts. Moist.

COC Time (time composite jar is  
capped): 0943

Total Dewatered/Filtered Sed. Weight in  
grams (g): 273.1g

Sample Jars Collected (number, size, full or  
partial): 3/4 Partial 8 oz. jar

Sample ID: FO105694  
affix FO number

Duplicate sample collected? Y/N DUPLICATE ID

Duplicate Sample ID on COC:  
affix FO number sticker

Any deviations from standard operating procedures? Y/NA  
Describe:



Page 1 of 1

Project Portland Harbor Stormwater Sump Project No. 1020.005  
Location WPCL Date 6/16/10  
Subject Standard Sed Trap Processing Notes By PTB, ASA

1437 Set up filter apparatus for filtration of the standard sediment bottle from site 52-ST3. This bottle was deployed alongside a SIFT sediment trap for comparability.

1449 Took photo and began processing. ~~Weight of bottle with water and sed~~ Weight of UPDI bottle prior to processing = 302.2g 1<sup>st</sup> Filter applied. Began pouring off supernate onto filter. Notable anaerobic decomposing odor. Trace recoverable solids and very few coarse organic particulates.

1505 2<sup>nd</sup> filter applied. Resumed filtration with 1/3 of water/supernate remaining in bottle.

1512 2<sup>nd</sup> filter has recoverable solids 1/8" in depth very dark brown ~~Tare weight~~ fine silts with some coarse organic wood fragments. Scraped off filter and added to composite jar.

Weight of jar + lid + 2<sup>nd</sup> filter sed = 198.6g

Tare weight = - 190.4g

Weight of sed from 2<sup>nd</sup> filter = 8.2g

1515 3<sup>rd</sup> filter applied. Weighed UPDI bottle prior to rinsing inside of bottle = 297.5g. Resumed filtration.

1524 3<sup>rd</sup> filter has recoverable solids of very fine silts with some organic particulates. Solids added to composite jar. weight of jar + lid + 3<sup>rd</sup> filter sed = 204.1g

Tare weight = - 190.4g  
2<sup>nd</sup> filter sed = 8.2g

1532 4<sup>th</sup> filter applied. Resumed filtration.

1543 4<sup>th</sup> filter has recoverable solids of fine sands with silt and <sup>3<sup>rd</sup> filter sed</sup> some coarse organic particles (mostly wood). Solids added to composite jar.

~~1543~~ Weight of jar + lid + ALL sed = 207.1g

Attachments Weight of UPDI bottle post rinsing = 135.5g Tare weight = - 190.4g

297.5g - 135.5g = 162 mL of UPDI water used

Per sed = 13.7g  
4<sup>th</sup> filter sed = 3g



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**ENVIRONMENTAL SERVICES**

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



**INLINE SEDIMENT TRAP SAMPLE PROCESSING DATA SHEET**

Project Name: Portland Harbor Stormwater Sample

Project Number: 1020.005

Sample Processing Conducted By:

Sample Pt. Code:

Removal Date:

Processing Date:

ASA, PTB

SZ-STZ

6/16/10

6/17/10

Basin: SZ

Hansen ID: AAE513

Subbasin: NA

Sediment Trap Location Description/Address:

W Bradford & Alta Near St Johns Pump Station SIFT located 8" upstream from EOP in MA chamber.

**SEDIMENT TRAP PROCESSING/FILTRATION NOTES**

Filter Equipment/Method:

Portland Harbor 90-millimeter (mm) stainless-steel filter support w/conical glass microfiltration system  
[Field Operations (EO) Standard Operating Procedure (SOP) 5-01b & Evaluation of Microfiltration  
Equipment for Phthalates Technical Memorandum - September 18, 2007]

Filter brand, grade, porosity in micrometers ( $\mu$ m) and material (e.g., Fisher Scientific, qualitative P2, 1-5  $\mu$ m cellulose filter paper):

<sup>SIFT</sup>  
Sediment Trap Bottle ID: SZ-STZ

Sediment Trap Bottle ID: -

Total <sup>Weight</sup> Est. Depth of Accumulated Sed in Bottle (inches): 448.0g  
PRE-HOMOGENIZATION

Total Est. Depth of Accumulated Sed in Bottle (inches):

Sample Processing Start  
Time: 1020

Sample Processing End  
Time: 1026

Sample Processing Start  
Time:

Sample Processing End  
Time:

Number of Filters Used:

Number of Filters Used:

Est. total volume of Ultra Pure  
DI used to remobilize adhered  
stormwater solids within bottle in  
milliliters (mL):

Est. total volume of Ultra Pure  
DI used to remobilize adhered  
stormwater solids within bottle in  
milliliters (mL):

Tare Weight [empty jar in grams (g)]: 188.7g  
POST HOMOGENIZATION weight of sds in jar w/ lid (g): 447.6g  
Dewatered/Filtered Sed. Weight (g): 258.9g

Tare Weight [jar and filtered sed. from Bottle1 in grams (g)]:

Dewatered/Filtered Sed. Weight (g):

Sample Processing Notes/Comments:

Homogenized composite sub-samples in  
archive jar using decontaminated stainless  
steel spoon.

Sample Processing Notes/Comments:

Visual Description of Final Composite Sample: Very dark brown sandy silt. Moist.

COC Time (time composite jar is  
capped): 1026

Total Dewatered/Filtered Sed. Weight in  
grams (g): 258.9g

Sample Jars Collected (number, size, full or  
partial): 3/4 Full 8 oz jar

Sample ID: FO105695  
affix FO number

Duplicate sample collected? Y (N) DUPLICATE ID

Duplicate Sample ID on COC:  
affix FO number sticker

Any deviations from standard operating procedures? Y (NA)  
Describe:



CITY OF PORTLAND  
**ENVIRONMENTAL SERVICES**

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



**INLINE SEDIMENT TRAP SAMPLE PROCESSING DATA SHEET**

Project Name: Portland Harbor Stormwater Sample

Project Number: 1020.005

Sample Processing Conducted By:

ASA, PTB

Sample Pt. Code:

52-ST3

Removal Date:

6/16/10

Processing Date:

6/16/10

Basin: SZ

Hansen ID: AAE700

Subbasin: NA

Sediment Trap Location Description/Address:

N. Pittsburgh SW of RR Tracks. SIFT + standard traps located in-pipe 16" downstream of EOP in MH chamber.

**SEDIMENT TRAP PROCESSING/FILTRATION NOTES**

Filter Equipment/Method:

Portland Harbor, 90-millimeter (mm) stainless steel filter support w/conical glass microfiltration system  
[Field Operations (FO) Standard Operating Procedure (SOP) 5.01b & Evaluation of Microfiltration  
Equipment for Phthalates Technical Memorandum – September 18, 2007].

Filter brand, grade, porosity in micrometers (µm) and material (e.g., Fisher Scientific, qualitative P2, 1-5 µm cellulose filter paper):

Fisher Scientific, qualitative P5, 5-10 µm cellulose filter paper

Sediment Trap Bottle ID: 52-ST3 - \*STANDARD BOTTLE

Sediment Trap Bottle ID: 52-ST3 - \*SIFT

Total Est. Depth of Accumulated Sed in Bottle (inches): 0.25

Total Est. <sup>Weight</sup>Depth of Accumulated Sed in Bottle (inches): 457.3  
<sub>PRE-HOMOGENIZATION</sub>

Sample Processing Start  
Time: 1449

Sample Processing End  
Time: 1543

Sample Processing Start  
Time: 1035

Sample Processing End  
Time: 1038

Number of Filters Used: 4

Number of Filters Used:

Est. total volume of Ultra Pure  
DI used to remobilize adhered  
stormwater solids within bottle in  
milliliters (mL): 162

Est. total volume of Ultra Pure  
DI used to remobilize adhered  
stormwater solids within bottle in  
milliliters (mL): ---

Tare Weight [empty jar in grams (g)]: 190.4g  
<sub>w/lid</sub>

Tare Weight [jar and <sup>lid</sup>filtered sed. from Bottle in grams (g)]: 190.2

Dewatered/Filtered Sed. Weight (g): 16.7g

<sub>POST-HOMOGENIZATION</sub> Weight of seeds in jar w/ lid (g): 457.1  
Dewatered/Filtered Sed. Weight (g): 266.9

Sample Processing Notes/Comments:

Liquid has strong anaerobic decomposing odor.  
Filtrate water is a pale yellow/brown

Sample Processing Notes/Comments:

Homogenized composite sub-samples in archive jar using deconvex stainless steel spoon.

**STANDARD BOTTLE**

Visual Description of Final Composite Sample: Dark brown with fines and sands with some coarse organics

COC Time (time composite jar is capped): 1548

Total Dewatered/Filtered Sed. Weight in grams (g): 16.7g

Sample Jars Collected (number, size, full or partial): Partial 8 oz. jar

Sample ID FO105696  
affix FO num:

Duplicate sample collected? Y ☒ N ☐ DUPLICATE ID

Duplicate Sample ID on COC:  
affix FO number sticker

Any deviations from standard operating procedures? Y ☒ N ☐  
Describe:

SIFT

VISUAL DESCRIPTION OF FINAL COMPOSITE SAMPLE: Very dark brown  
COC TIME: 1038 wet silt.

DATE: 6/17/10  
PPL: ASA, PTB  
PDS NAME: POX HARBOR  
STORMWATER  
SAMP

TOTAL WEIGHT OF SEDS IN GRAMS: 266.9g

SAMPLE JARS COLLECTED: 7/8 Full 8 oz jar

SAMPLE ID: FO105697



CITY OF PORTLAND  
**ENVIRONMENTAL SERVICES**

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



**INLINE SEDIMENT TRAP SAMPLE PROCESSING DATA SHEET**

Project Name: Portland Harbor Stormwater Sample

Project Number: 1020.005

Sample Processing Conducted By:

ASA, PTR

Sample Pt. Code:

S2-ST4

Removal Date:

6/16/10

Processing Date:

6/17/10

Basin: S2

Hansen ID: AAEST16

Subbasin: NA

Sediment Trap Location Description/Address:

8675 N Crawford St / SIFT located 2 feet <sup>up</sup> downstream of center of node.

**SEDIMENT TRAP PROCESSING/FILTRATION NOTES**

Filter Equipment/Method:

Portland Harbor, 90-millimeter (mm) stainless steel filter support w/conical glass microfiltration system  
Field Operations (FO) Standard Operating Procedure (SOP) 5.01b & Evaluation of Microfiltration  
Equipment for Phthalates Technical Memorandum - September 18, 2007

Filter brand, grade, porosity in micrometers ( $\mu$ m) and material (e.g., Fisher Scientific, qualitative P2, 1.5  $\mu$ m cellulose filter paper).

SIFT

Sediment Trap Bottle ID: S2-ST4

Sediment Trap Bottle ID:

Total ~~Est.~~ <sup>weight</sup> Depth of Accumulated Sed in Bottle (inches): 4.43  
PRE-HOMOGENIZATION

Total Est. Depth of Accumulated Sed in Bottle (inches):

Sample Processing Start Time: 1042

Sample Processing End Time: 1142

Sample Processing Start Time:

Sample Processing End Time:

Number of Filters Used: PRE-HOMOGENIZATION  
SED WEIGHTS (g) POST SED WEIGHTS

Number of Filters Used:

Est. total volume of Ultra Pure DI used to remobilize adhered stormwater solids within bottle in milliliters (mL):  
JAR 1: 287.4 SED IN BOWL 1370g  
JAR 2: 463.9 JAR 4: 532.8 312.1g  
JAR 3: 253.1 JAR 5: 505.0 314.4g  
EMPTY BOWL: 380.4 JAR 6: 500.9 317.9g

Est. total volume of Ultra Pure DI used to remobilize adhered stormwater solids within bottle in milliliters (mL):

Tare Weight [empty jar in grams (g)]: SEE ABOVE  
POST-HOMOGENIZATION Weight of sed in vial (g):  
Dewatered/Filtered Sed. Weight (g):

Tare Weight [jar and filtered sed. from Bottle 1 in grams (g)]:

Dewatered/Filtered Sed. Weight (g):

Sample Processing Notes/Comments: Total solids have been collected into three separate jars over the duration of deployment. Contents were combined and homogenized in a deconned bowl then redistributed into three clean sample jars.

Sample Processing Notes/Comments:

Visual Description of Final Composite Sample: Dark brown very sandy silt with <3% organic particles. Moist.

COC Time (time composite jar is capped): 1142

Total Dewatered/Filtered Sed. Weight in grams (g): 974.4g

Sample Jars Collected (number, size, full or partial): 3 7/8 full 8oz. jars

Sample ID: FO105698  
affix FO number:

Duplicate sample collected? Y N DUPLICATE ID  
DUP

Duplicate Sample ID on COC:

affix FO number sticker: FO105702

Any deviations from standard operating procedures? Y N

Describe:



Page 1 of 2

Project Portland Harbor Stormwater Sump  
Location WPCCL  
Subject SIFT Composite homogenization/processing

Project No. 1020.005  
Date 6/17/10  
By ASA, PRB

0930 Homogenizing all solids collected into archive jars throughout deployment prior to submittal. Beginning with S2-ST1. Took photo after homogenization. Used a decontaminated stainless steel spatula (w/ soap, tap, DI, Acetone, Methanol, WPI) to homogenize the composite sub-samples in the archive collection jar.

0943 Capped composite jar. Ready for submittal.

at S2-ST2 PRB 6/22/10  
1020 Began homogenization. ~~At S2-ST2~~ Strong anaerobic decomposition odor.

1026 Capped composite jar.

at S2-ST3 SIFT PRB 6/22/10  
1035 Began homogenization. Strong anaerobic decomposition odor.

1038 Capped composite jar.

1042 S2-ST4 was collected into three separate jars over the duration of the SIFT deployment. Contents of all 3 jars combined into a deconned stainless steel bowl and homogenized. The first jar collected with solids from 2/2/10 - 3/5/10 has an orange jelly like substance congealed on the surface of the sediment. Upon removal substance is remarkably cohesive.

Homogenized using stainless steel spoon. Weighed seds in bowl = 1,370g

1142 Scooped composite from bowl into 3 8 oz. jars as with each scoop into a different jar, to have them all be equal in amount.

Weight of bowl after scooping into jars = 389.4g

Jars labeled 4, 5 & 6 that composite was added to.

Jar 4 Tare = 190.7g w/ seds = 532.8g Sed weight = 342.1g

Jar 5 Tare = 190.6g w/ seds = 505.0g Sed weight = 314.4g

Jar 6 Tare = 191.0g w/ seds = 508.9g Sed weight = 317.9g

Total weight = 974.4g

Attachments



Page 2 of 2

Project Portland Harbor Stormwater Sample

Project No. 1020-005

Location WPCL

Date 6/17/10

Subject SIFT Composite homogenization/processing

By ASA, PTB

1203 Prepared for SIFT equipment blank.

1230 Performed equipment blank on disconnected stainless steel SIFT sediment trap using UPDI water ran through the SIFT. Blank to be performed on PCB congeners and Total Metals per customer request.

Attachments

## ***September 2010 Inline Solids Sampling***

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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: 9/21/10  
Page: 1 of 1  
Collected By: ASA, PTB

Project Name: PORTLAND HARBOR INLINE SAMP

File Number: 1020.001

Matrix: SEDIMENT

Requested Analyses

Basin 52 Inline

WPCL Sample I.D. Location Point Sample Sample Sample  
Code Date Time Type

FO105870

FO105871

FO105872

IL-52-SJB2-0910  
DISCHARGE TO AAEG85  
IL-52-ANE911-0910  
N ALTA & RR TRACKS  
IL-52-SJB1-0910  
ODOT-SJB-WQMH

52\_13 9/7/10 1145 C  
52\_8 9/7/10 1214 C  
52\_14 9/8/10 1001 C

PCB Aroclors - LL  
PCB Congeners (All 209)  
TOC

Total Solids

Organics

General

Metals

Field Comments

FO105873

DUPLICATE

DUP 9/7/10

C

Relinquished By: 1. Signature: [Signature] Time: 1633

Printed Name: Andrew Arnsborg Date: 9/8/10  
Received By: 1. Signature: [Signature] Time: [Blank]  
Printed Name: [Blank] Date: [Blank]

Relinquished By: 2. Signature: [Blank] Time: [Blank]

Printed Name: [Blank] Date: [Blank]  
Received By: 2. Signature: [Blank] Time: [Blank]  
Printed Name: [Blank] Date: [Blank]

Relinquished By: 3. Signature: [Blank] Time: [Blank]

Printed Name: [Blank] Date: [Blank]  
Received By: 3. Signature: [Blank] Time: [Blank]  
Printed Name: [Blank] Date: [Blank]

Relinquished By: 4. Signature: [Blank] Time: [Blank]

Printed Name: [Blank] Date: [Blank]  
Received By: 4. Signature: [Blank] Time: [Blank]  
Printed Name: [Blank] Date: [Blank]



Page 1 of 1

Project PORTLAND HARBOR INLINE SAMP  
Location BASIN 52  
Subject St. Johns Bridge Drainage Sampling

Project No. 1020.001  
Date 9/7/10  
By PTB, MJS, JJM

1129 Arrive on-site SJB2, ODOT Mt discharging to AAE685. Top-side observations show water has pooled due to overnight and scattered showers. Water level appears low enough to still be able to get representative sample.

1145 Sample collected & jars filled. Site given point code S2-13 with location code IL-S2-SJB2-0910. Duplicate collected here.

1200 Arrive on-site CB AVE911.

1214 Collected sample. Given code S2-8, same as previously collected samples from this CB.

Attachments



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Portland, OR 97203-5452



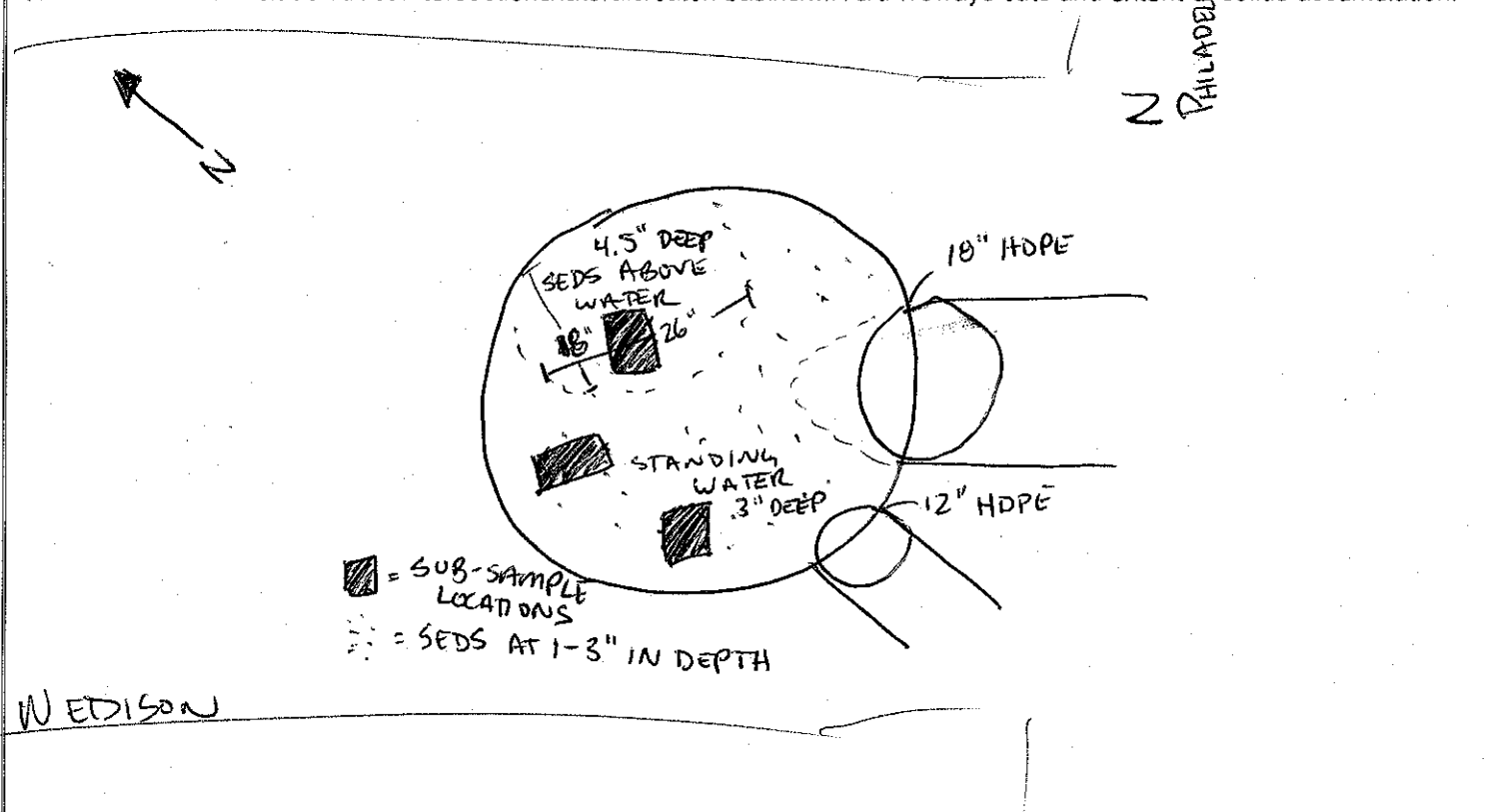
## INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: <u>PORTLAND HARBOR INLINE Samp</u>		Project Number: <u>1020.001</u>	
Sampling Team: <u>JM, MSS, PTR</u>	Date: <u>9/7/10</u>	Arrival Time: <u>1129</u>	Current Weather Conditions/Last Rain: <u>overcast / A couple hours ago overnight</u>
Basin: <u>52</u>	Node: <u>ODOT MH discharging to AAEGOS</u>		Subbasin: <u>NA</u>
Sampling Location Description/Address: <u>N EDISON STREET AT N PHILADELPHIA AVE</u>			

### SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	<u>standing water at 3" at its deepest. sheen on water's surface</u>
Does river appear to back up to this location? Describe rate/color/odor of flow:	<u>No</u>
Are sediments observed in the line?	<u>Yes</u>
Are sample-able quantities of sediments present in the line?	<u>Yes</u>
Describe lateral extent of sample-able sediments present in the line:	<u>SEDS ABOVE WATERL 4.5" DEEP x 26" LONG x 18" WIDE. SEDS DISTRIBUTED ACROSS MH</u>

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



Date: 9/7/10		SECTION 2 - SAMPLE COLLECTION REPORT		Node: odor mH discharging to AREBS	
Sampling Equipment:		<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)			
Equipment Decontamination process:		<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)			
Sample date: 9/7/10	Sample time: 1145	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-52-SJB2-0910			
Sample location description: (number of feet from node of entry) 3 SUB-SAMPLES FROM MH CHAMBER					
Sample collection technique:		Per SOP 5.01a			
Describe Color of sample:		Brownish gray.			
Describe Texture/Particle size:		70% Sands, 20% coarse gravel, 5% fines, 5% angular gravels			
Describe visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.):		Sheen on water's surface Decomposed hydrocarbon odor			
Describe depth of solids in area where sample collected:		Ranged from 1"-4.5"			
Describe amount and type of debris in sample:		< 1% glass & plastic			
Amount and type of debris removed from final sample:		None			
Compositing notes: Homogenized sample in collection bucket					
Sample Jars Collected (number, size, full or partial)? 5 full 4oz. jars (3 for analysis, 2 for archive)					
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).					
FO105870					
Lab ID		Duplicate sample collected? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		Dupe ID	
Duplicate sample identification # on COC:		FO105873			
Any deviations from standard procedures:		None			

## SECTION 3 - PHOTOGRAPH LOG

Overview of node showing drainage area	6
Plan view of sediments inline	Photos 1 & 2 of Berm on NE half 3 from W half
Homogenized sample (sediment in bowl)	4 & 5
Other?	



Page 1 of 1

Project PORTLAND HARBOR INLINE SAMP  
Location Basin 52  
Subject St. Johns Bridge Drainage Sampling

Project No. 1020.001  
Date 9/8/10  
By AJA, PTB

0940 Arrive on-site SJB1, St. Johns Bridge Water Quality Manhole,  
at N Philadelphia Ave & N Willamette Blvd. Attempt to access MH yesterday  
thwarted by parked car on MH lid. MH is clear today. Top-side suggests  
no standing water & sample-able solids. Will do entry.

1001 Collected sample from SJB1. Homogenized sample of 9 sub-samples.  
Filled jars & gave point code 52-14.

Attachments



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



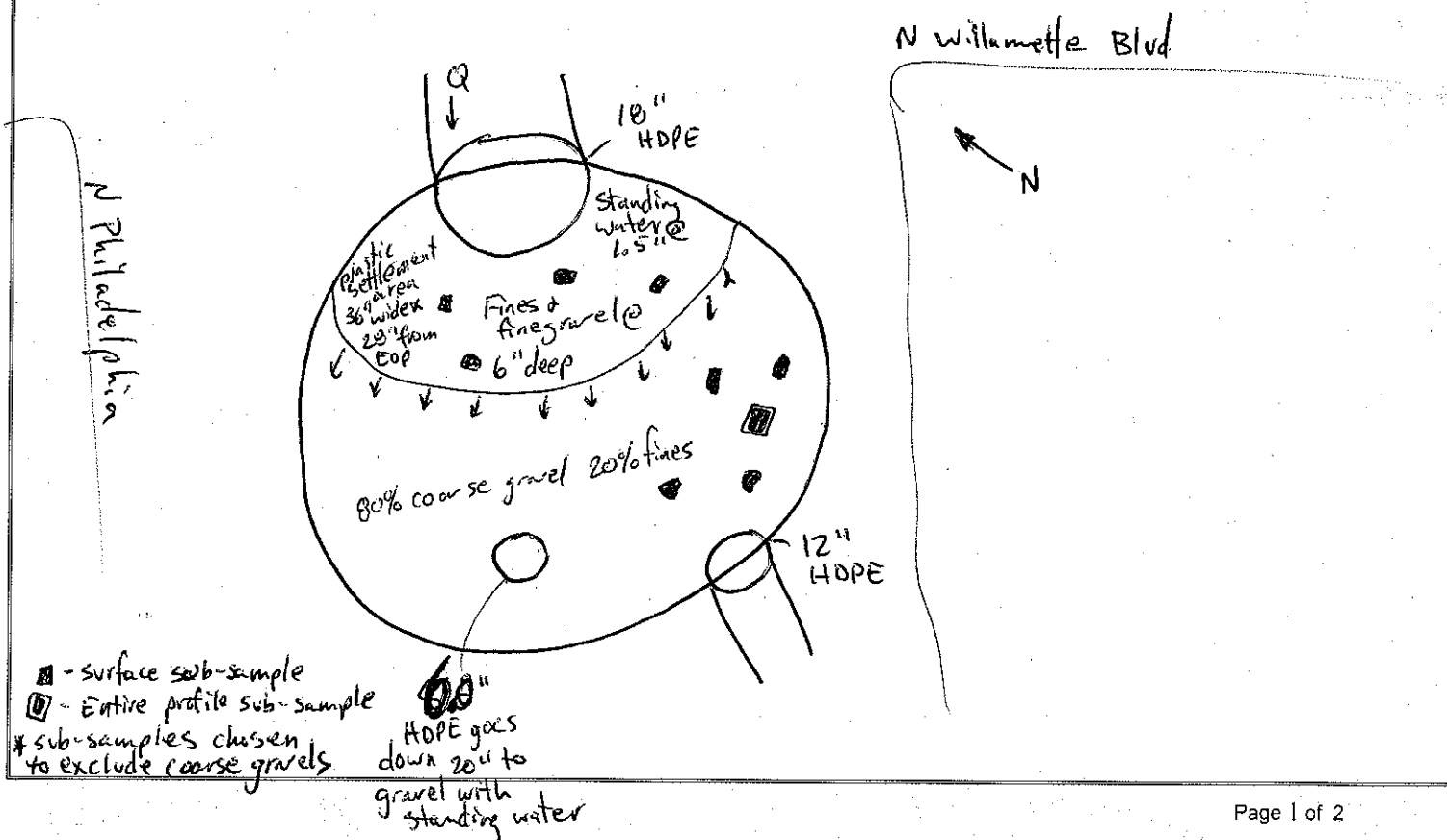
## INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: <u>Portland Harbor Inline Samp</u>		Project Number: <u>1020.001</u>	
Sampling Team: <u>ASA, PTB</u>	Date: <u>9/8/10</u>	Arrival Time: <u>0940</u>	Current Weather Conditions/Last Rain: <u>Sunny / Yesterday afternoon ~0.25in</u>
Basin: <u>52</u>	Node: <u>ODOT SJB WQ MH</u>		Subbasin: <u>NA</u>
Sampling Location Description/Address: <u>N Philadelphia Ave &amp; N Willamette Blvd under St. Johns Bridge</u>			

### SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	<u>Standing water in settlement area 1.5" deep</u>
Does river appear to back up to this location? Describe rate/color/odor of flow:	<u>No</u>
Are sediments observed in the line?	<u>Yes</u>
Are sample-able quantities of sediments present in the line?	<u>Yes</u>
Describe lateral extent of sample-able sediments present in the line:	<u>Entire MH floor has seds. Settlement area has seds ~6" deep and rest of MH floor has seds ~5" deep.</u>

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



52-14

Date: 9/8/10		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: ODOT SJB WQM+1	
Sampling Equipment:		<input checked="" type="checkbox"/> Stainless steel spoon & stainless steel bucket <input type="checkbox"/> Other (Describe)			
Equipment Decontamination process:		<input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Other (Describe)			
Sample date: 9/8/10	Sample time: 1001	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-52-SJB-0910			
Sample location description: (number of feet from node of entry) 9 sub-samples. 4 from settling area & 5 from chamber.					
Sample collection technique:		Per SOP 5.01a			
Describe Color of sample:		Brown			
Describe Texture/Particle size:		90% sand, 5% fine gravel, 5% fines			
Describe visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.):		None			
Describe depth of solids in area where sample collected:		Range from 5-6"			
Describe amount and type of debris in sample:		< 1% paper, plastic & organics			
Amount and type of debris removed from final sample:		None			
Compositing notes: Homogenized sample in collection bucket					
Sample Jars Collected (number, size, full or partial)? 5 full 4 oz. 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: FO105872		Duplicate sample collected? <input checked="" type="checkbox"/> Dupe ID			
Duplicate sample identification # on COC:					
Any deviations from standard procedures: None					

<b>SECTION 3 - PHOTOGRAPH LOG</b>	
Overview of node showing drainage area	52
Plan view of sediments inline	48-50
Homogenized sample (sediment in bowl)	51
Other?	

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## ***2011 Surface Soil Sampling***

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Water Pollution Control Laboratory  
 6543 N. Burlington Ave.  
 Portland, Oregon 97203-4552  
 Sample Custodian: (503) 823-5696  
 General Lab: (503) 823-5681



**City of Portland**  
**Chain-of-Custody**

Bureau of Environmental Services



Date: 1/6/11  
 Work Order #: W11A060  
 Collected By: FO

Client Name: Director's Office Matrix: Soil  
 Project Name: Portland Harbor

**Requested Analyses**

Lab Number	Special Instructions:			Sample		Sample Type	TOC	Totals Metals (Cr, Cu, Pb, Ni, Zn)	PCB Aroclors	# of Containers	Remarks
	Location ID	Sample Date	Sample Time								
01	52_15	1/6/2011	1400			C	•	•	•	5	Area 1
02	52_16	1/6/2011	1435			C	•	•	•		Area 2
03	52_17	1/6/2011	1330			C	•	•	•		Area 3
04	52_18	1/6/2011	1200			C	•	•	•		Area 4
05	52_19	1/6/2011	1230			C	•	•	•		Area 5
06	52_20	1/6/2011	1258			C	•	•	•		Area 6
07	52_21	1/6/2011	1518			C	•	•	•		Area 7
08	52_22	1/6/2011	1535			C	•	•	•		Area 9
09	DUP	1/6/2011				C	•	•	•		
10	52_23	1/6/2011	1500			C					Area 8 TO BE ARCHIVED

Relinquished By: Peter Bryant Date: 1/6/11 Signature: [Signature] Printed Name: Peter Bryant  
 Relinquished By: Wadeuric Tirk Date: 1/6/11 Signature: [Signature] Printed Name: Wadeuric Tirk  
 Received By: [Signature] Date: 1/6/11 Signature: [Signature] Printed Name: [Signature]



Page 1 of 2

Project PORTLAND HARBOR  
Location BASIN 52  
Subject Surface Soil Sampling Around ANE911.

Project No.             
Date 1/6/11  
By MJS, PTB

1105 Met with Andrew Davidson, GSI who lived us out on sample location areas, including an additional spot near CB ANE911.

1135 Began sampling of 52-18. Cleared away coarse Rk gravel prior to collection into composite bowl.

1200 Began homogenization and filled sample jars for 52-18

1210 Began sampling 52-19

1230 Homogenized samples and filled jars for 52-19.

1245 Began sampling 52-20

1258 Homogenized samples and filled jars for 52-20.

1310 Began sampling 52-15

1330 Homogenized samples & filled jars. 52-17.

1340 Began sampling 52-15.

1400 Homogenized samples & filled jars. 52-15.

1405 Began sampling 52-16

1435 Homogenized samples & filled sample jars and duplicate.

1445 Began sampling 52-23.

1500 Homogenized samples & filled jars.

Attachments



Page 2 of 2

Project PORTLAND HARBOR  
Location Basin 52  
Subject Surface soil sampling near AVE911

Project No.             
Date 1/6/11  
By MJS, PTB

1510 Began sampling 52-21.

1518 Homogenized sample & filled jars.

1526 Began sampling 52-22. Site added by Andrew Davidson while on-site. This site is NW of CB AVE911 At base of N Alta between composites 52-21 & 52-20. See ~~the~~ SITE DIAGRAM on FDS for more detail.

1535 Completed collection, homogenized sample & filled jars.

1545 Returned to WPCL

Attachments



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



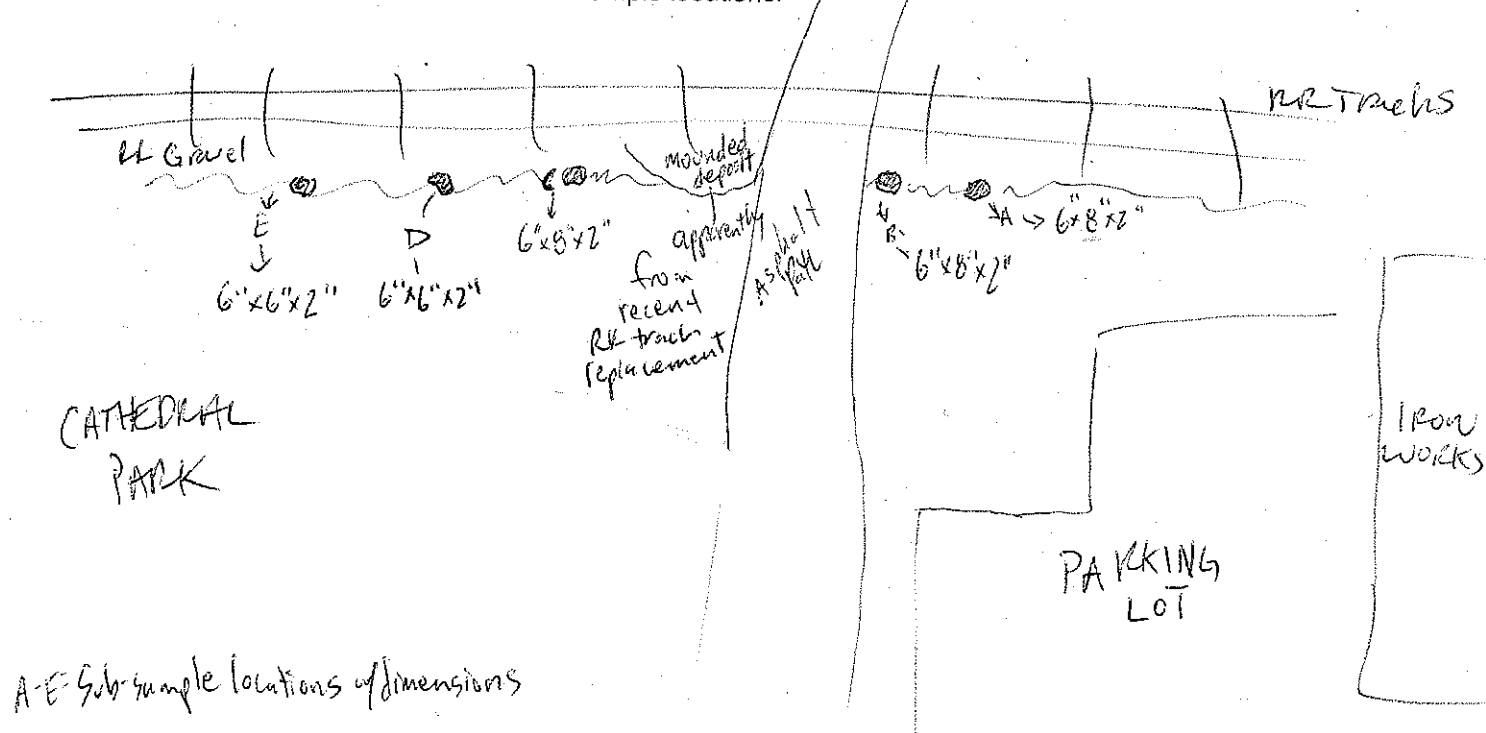
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>Portland Harbor</u>			Sample ID: <u>W11A060-01</u>	
Sampling Team: <u>MSS, PTB</u>	Date: <u>1/6/11</u>	Arrival Time: <u>1340</u>	Point Code: <u>52-15</u>	
Basin: <u>52</u>	Node: <u>AREA 1</u>		Address: <u>NE of RR Tracks adjacent to Cathedral Park</u>	
Current weather: <u>Overcast</u>				
Date and time of last known rainfall: <u>Last night</u>				

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No		If present, water is: Flowing or Standing Depth of water = _____ in Rate of flow = _____ fps		
Does river back up to this location? Yes or No		If river is backed up: Water Color		Water Odor
		<input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear		<input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____
Are sediments observed in the line? Yes or No		Are recoverable quantities of sediments present in the line? Yes or No		
If sediments present: Avg Depth of sed = _____ in Sed Depth Range = _____ in. to _____ in.				
Estimated dimensions of sediment deposit: _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen				

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>AREA 1</u>		Point Code: <u>52-15</u>	
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)							
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)							
Sample date: <u>1/6/11</u>		Sample time: <u>1340-1400</u>		Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite - Area 1 - NE of RR Tracks adjacent to Cathedral Park</u>			
Sample location: <u>NA</u> <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line				If from line, segment is From Node _____ To Node _____			
Sample collection technique: <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>Per SOP 5.01a</u>							
Visual and olfactory observations: <u>NONE</u> <input type="checkbox"/> Odor _____ <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Discoloration _____				Color of sample <input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____			
Sample composition/particle size distribution (estimated percentages):		Silt/Clay <u>65</u> Sand <u>10</u> Fine Gravel <u>10</u> Coarse Gravel <u>15</u> Debris _____ Decomposed Organics _____ Other (describe) _____					
If present, type of debris in sample <input type="checkbox"/> Wood <input type="checkbox"/> Large rocks <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Organics <input type="checkbox"/> Paper				Removed debris? <input type="checkbox"/> Yes (Type & Amount) <input type="checkbox"/> No			
Compositing notes <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe) <u>Per SOP 5.01a</u>							
Sample Jars Collected (number, size, full or partial)? <u>4 full 4oz. jars <del>100%</del> 1 full 8 oz jar</u>							
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).  <u>* 1 4oz. Archive</u> <u>* 1 8oz. Archive</u>		Jar Size		Amount Full		Target Analyses	
<b>W11A060-01</b> Portland Harbor 52_15 Sampled: 01/06/11 14:00 Field Data Sheet		Duplicate sample collected? Y/ <u>N</u>					
		n COC:    Dup ID Here					

### SECTION 3 - PHOTOGRAPH LOG

Overview of node showing drainage area	Filename(s): <u>52-15 Area 1 Overview looking S 010611</u>
Plan view of sediments inline	Filename: _____
Homogenized sample (sediment in bowl)	Filename: <u>52-15 Area 1 Homogenized composite 010611</u>
Other?	Filename(s): <u>Sub-sample A sampling photo</u>



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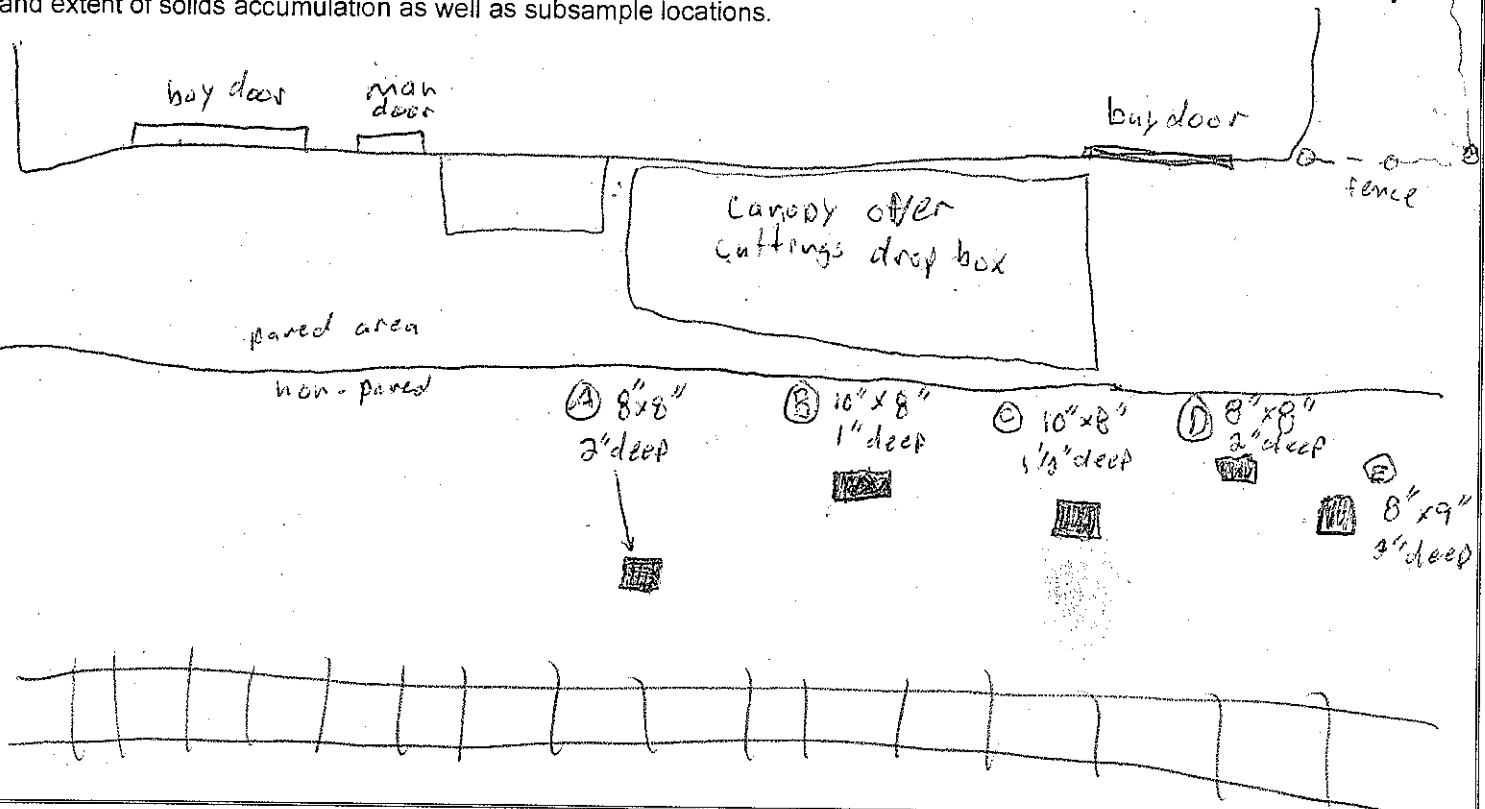
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>Portland Harbor</u>			Sample ID: <u>W11A060-02</u>
Sampling Team: <u>MJS, PTB</u>	Date: <u>1/6/11</u>	Arrival Time: <u>12:15</u> <u>1415</u>	Point Code: <u>52-16</u>
Basin: <u>52</u>	Node: <u>Area 2</u>	Address: <u>NE of RR tracks behind</u>	
Current weather: <u>Overcast, cool</u> <u>6618 N Alt</u>			
Date and time of last known rainfall: <u>yesterday evening</u>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No	If present, water is: Flowing or Standing Depth of water = _____ in Rate of flow = _____ fps		
Does river back up to this location? Yes or No	If river is backed up:	Water Color <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear	Water Odor <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____
Are sediments observed in the line? Yes or No	Are recoverable quantities of sediments present in the line? Yes or No		
If sediments present: Avg Depth of seds = _____ in Sed Depth Range = _____ in. to _____ in.			
Estimated dimensions of sediment deposit: _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen			

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>Area 2</u>		Point Code: <u>52-16</u>			
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)									
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)									
Sample date: <u>1/6/11</u>		Sample time: <u>1415 - 1435</u>		Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite - Area 2 - NE of RL-trucks behind building at 6618 N Alta</u>					
Sample location: <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line <span style="margin-left: 150px;"><u>n/a</u></span>				If from line, segment is From Node _____ To Node _____ <span style="margin-left: 150px;"><u>n/a</u></span>					
Sample collection technique: <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>S.O1a</u>									
Visual and olfactory observations: <u>NONE</u>				<input type="checkbox"/> Odor _____ <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Discoloration _____					
				Color of sample <input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____					
Sample composition/particle size distribution (estimated percentages):				Silt/Clay <u>55</u> Sand <u>15</u> Fine Gravel <u>10</u> Coarse Gravel <u>20</u> Debris _____ Decomposed Organics _____    Other (describe) _____					
If present, type of debris in sample				<input type="checkbox"/> Wood <input type="checkbox"/> Large rocks <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Organics <input type="checkbox"/> Paper					
				Removed debris? <input checked="" type="checkbox"/> Yes (Type & Amount) <input type="checkbox"/> No <span style="margin-left: 100px;"><u>coarse gravel</u></span>					
Compositing notes <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe) <u>S.O1a</u>									
Sample Jars Collected (number, size, full or partial)? <u>4-4oz, 1-8oz, full</u>									
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).  <u>1-4oz for archive</u> <u>1-8oz for archive</u>				Jar Size		Amount Full		Target Analyses	
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <b>W11A060-02</b>            Portland Harbor            52-16            Sampled: 01/06/11 14:35            Field Data Sheet         </div> <div style="border: 1px solid black; padding: 5px;">           Duplicate sample collected? <input checked="" type="checkbox"/> Y/N            COC: _____ Dup ID Here _____         </div>				<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <b>W11A060-09</b>            Portland Harbor            DUP            Sampled: 01/06/11 00:00            Field Data Sheet         </div>					

SECTION 3 - PHOTOGRAPH LOG	
Overview of node showing drainage area	Filename(s): <u>52-16 Area 2 Overview looking E 010611</u>
Plan view of sediments inline	Filename: _____
Homogenized sample (sediment in bowl)	Filename: <u>52-16 Area 2 Homogenized composite 010611</u>
Other?	Filename(s): <u>Sub-sample B sampling photo</u>



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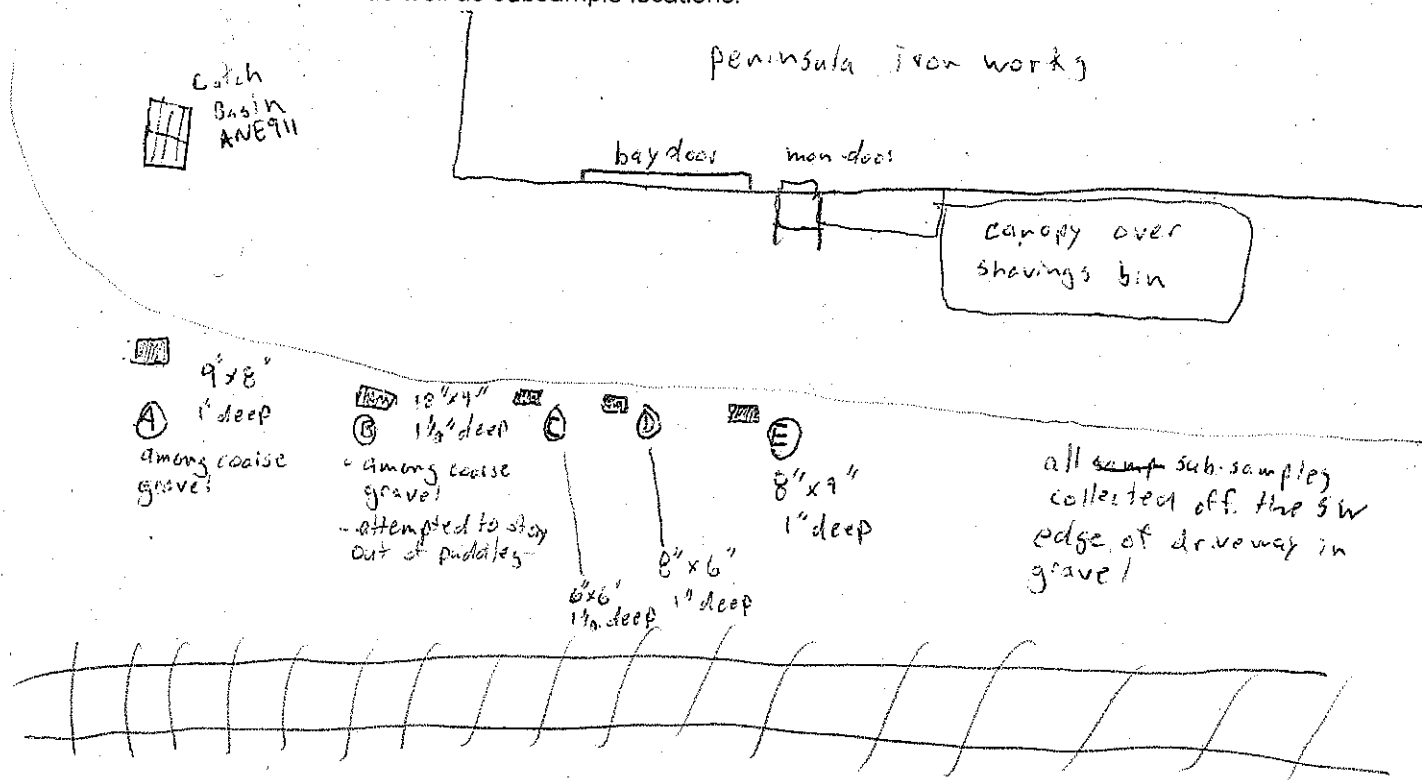
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>Portland Harbor</u>			Sample ID: <u>W11A060-03</u>	
Sampling Team: <u>MSS, PTB</u>	Date: <u>11/6/11</u>	Arrival Time: <u>1310</u>	Point Code: <u>52-17</u>	
Basin: <u>52</u>	Node: <u>Area 3</u>		Address: <u>NE of RR tracks behind bldg at 6618 N Alta Rd</u>	
Current weather: <u>cool, overcast</u>				
Date and time of last known rainfall: <u>last night</u>				

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No	If present, water is: Flowing or Standing Depth of water = _____ in Rate of flow = _____ fps			
Does river back up to this location? Yes or No	If river is backed up:	Water Color <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear	Water Odor <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____	
Are sediments observed in the line? Yes or No	Are recoverable quantities of sediments present in the line? Yes or No			
If sediments present: Avg Depth of seds = _____ in Sed Depth Range = _____ in. to _____ in.				
Estimated dimensions of sediment deposit: _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen				

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>Area 3</u>		Point Code: <u>52-17</u>			
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)									
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)									
Sample date: <u>1/6/11</u>		Sample time: <u>1310 - 1330</u>		Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite - Area 3 - NE of RR Tracks behind building at 6618 NAlf</u>					
Sample location: <u>NA</u> <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line				If from line, segment is From Node _____ To Node _____ <u>NA</u>					
Sample collection technique: <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>SOP 5.01a</u>									
Visual and olfactory observations: <u>NONE</u>				<input type="checkbox"/> Odor _____ <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Discoloration _____					
								<input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____	
Sample composition/particle size distribution (estimated percentages):				Silt/Clay <u>55</u> Sand <u>5</u> Fine Gravel <u>20</u> Coarse Gravel <u>20</u> Debris _____ Decomposed Organics _____    Other (describe) _____					
If present, type of debris in sample				<input type="checkbox"/> Wood <input checked="" type="checkbox"/> Large rocks <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Organics <input type="checkbox"/> Paper					
				Removed debris? <input checked="" type="checkbox"/> Yes (Type & Amount) <u>large gravel</u> <input type="checkbox"/> No					
Compositing notes <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe) <u>5.01a</u>									
Sample Jars Collected (number, size, full or partial)? <u>4-4oz, 1-8oz all Full</u>									
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).  <u>1-4oz for</u> <u>1-8oz archived</u>				Jar Size		Amount Full		Target Analyses	
<div style="border: 1px solid black; padding: 5px;"> <b>W11A060-03</b>            Portland Harbor            52.17            Sampled: 01/06/11 13:30            Field Data Sheet         </div>				Duplicate sample collected? <u>Y</u> (N)					
				COC: _____ Dup ID Here _____					

### SECTION 3 - PHOTOGRAPH LOG

Overview of node showing drainage area	Filename(s): <u>Overview looking NW</u> <u>Overview looking SE</u>
Plan view of sediments inline	Filename: _____
Homogenized sample (sediment in bowl)	Filename: <u>52-17 Area 3 Homogenized composite 010611</u>
Other?	Filename(s): <u>Sub-sample sampling photos</u>



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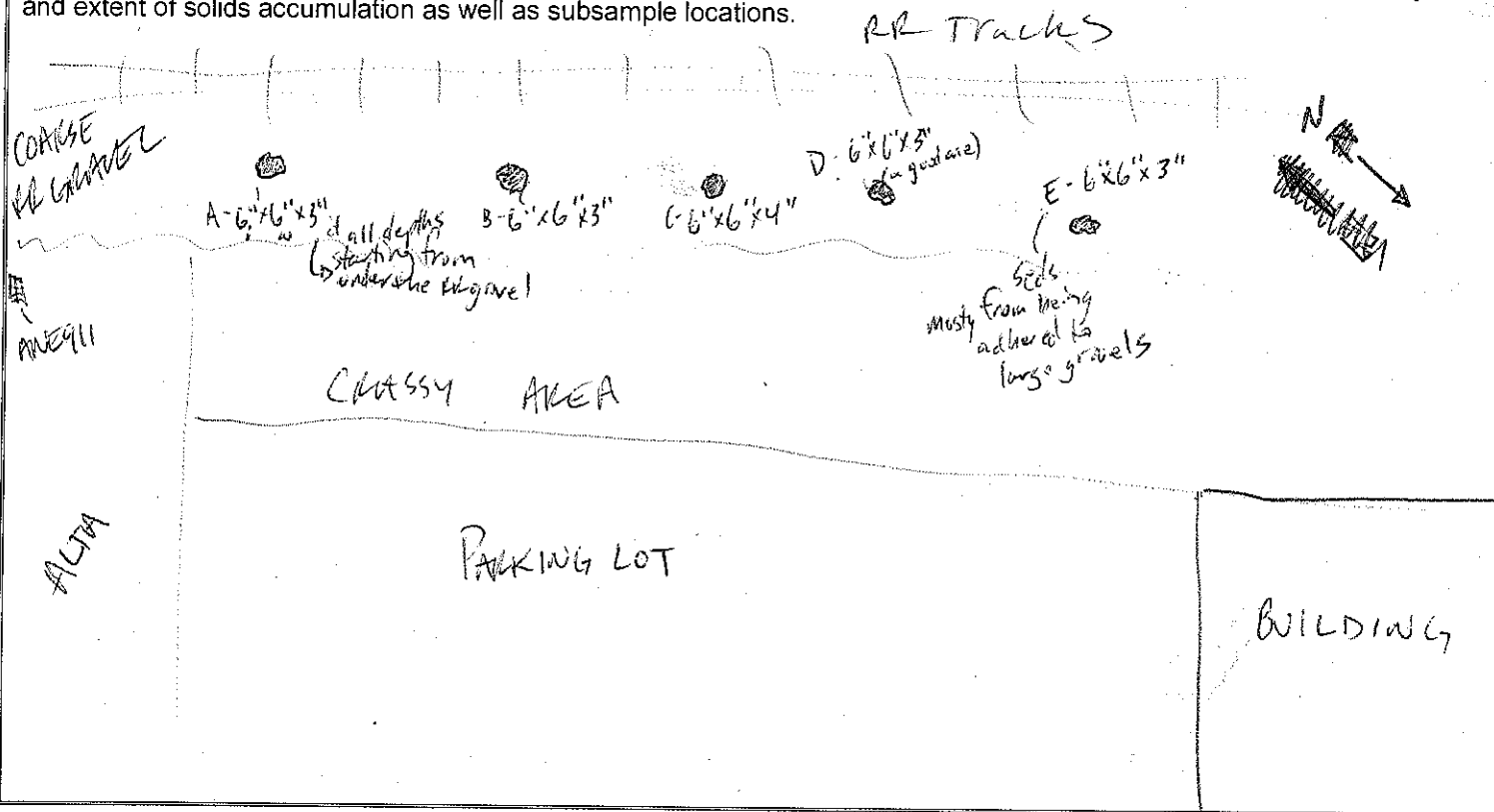
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>PORTLAND HARBOR</u>		Sample ID: <u>W11A060-04</u>	
Sampling Team: <u>MSS, PTB</u>	Date: <u>1/6/11</u>	Arrival Time: <u>1135</u>	Point Code: <u>52-18</u>
Basin: <u>52</u>	Node: <u>AREA 4</u>	Address: <u>NE of RR Tracks behind 6600 N Baltimore Ave</u>	
Current weather: <u>cloudy</u>			
Date and time of last known rainfall: <u>Last night.</u>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No <u>NA</u>	If present, water is: <u>NA</u> Flowing or Standing	Depth of water = _____ in	Rate of flow = _____ fps
Does river back up to this location? Yes or No <u>NA</u>	If river is backed up: <u>NA</u>	Water Color <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear	Water Odor <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____
Are sediments observed in the line? <u>Yes</u> or No	Are recoverable quantities of sediments present in the line? <u>Yes</u> or No		
If sediments present: <u>NA</u> Avg Depth of seds = _____ in Sed Depth Range = _____ in. to _____ in.			
Estimated dimensions of sediment deposit: <u>NA</u> _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen			

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>Area 4</u> <u>NA</u>	Point Code: <u>52-18</u>
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)					
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)					
Sample date: <u>1/6/11</u>	Sample time: <u>1200</u>	Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite - Area 4 - NE of RR Tracks behind 6600 N Baltimore Ave</u>			
Sample location: <u>NA - SEE SITE DIAGRAM</u> <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line		If from line, segment is From Node <u>NA</u> To Node _____			
Sample collection technique: <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>Per SOP 5.01a → removed overlying large angular RR gravels prior to collecting scoops.</u> <u>removed all large gravels collected into composite bowl.</u>					
Visual and olfactory observations: <u>NONE</u>		<input type="checkbox"/> Odor _____ <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Discoloration _____ Color of sample <input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____			
Sample composition/particle size distribution (estimated percentages):		Silt/Clay <u>15</u> Sand <u>5</u> Fine Gravel <u>5</u> Coarse Gravel <u>75</u> Debris _____ Decomposed Organics _____ Other (describe) _____			
If present, type of debris in sample		<input type="checkbox"/> Wood <input type="checkbox"/> Large rocks <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Organics <input type="checkbox"/> Paper Removed debris? <input type="checkbox"/> Yes (Type & Amount) <input type="checkbox"/> No			
Compositing notes <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe) <u>Per SOP 5.01a</u>					
Sample Jars Collected (number, size, full or partial)? <u>4 full 4 oz. jars. 1 full 8 oz. jar</u>					
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).  <u>* 1 4oz jar + 1 8oz. jar</u> <u>to be archived</u>		Jar Size	Amount Full	Target Analyses	
<b>W11A060-04</b> Portland Harbor 52_18 Sampled: 01/06/11 12:00 Field Data Sheet		Duplicate sample collected? <u>Y/N</u> COC: <u>Dup ID Here</u>			

### SECTION 3 - PHOTOGRAPH LOG

Overview of node showing drainage area	Filename(s): <u>52-18 Area 4 Overview 010611</u> <u>52-18 Area 4 Overview looking Northwest 010611</u>
Plan view of sediments inline	Filename: _____
Homogenized sample (sediment in bowl)	Filename: <u>52-18 Area 4 Homogenized composite</u>
Other?	Filename(s): <u>Sampling photos</u>



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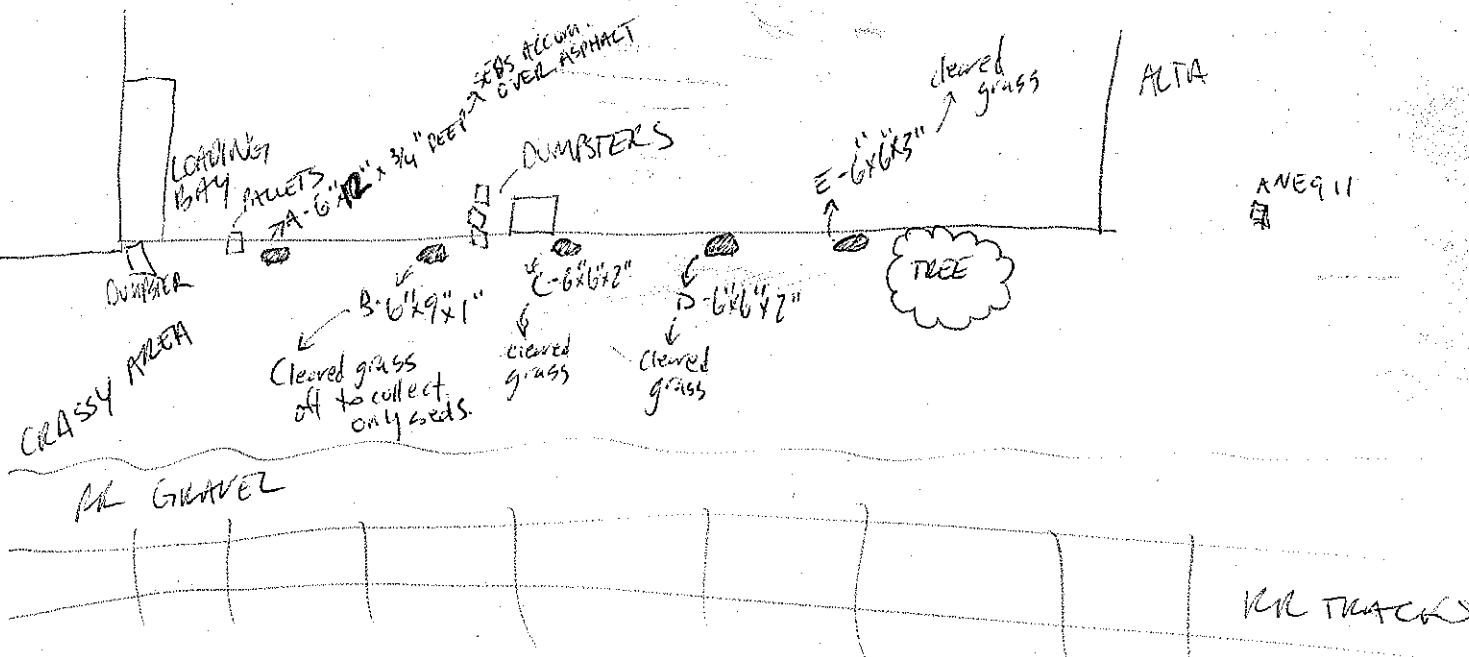
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>PORTLAND HARBOR</u>		Sample ID: <u>W11A060-05</u>	
Sampling Team: <u>MSG, PTB</u>	Date: <u>1/6/11</u>	Arrival Time: <u>1210</u>	Point Code: <u>52-19</u>
Basin: <u>52</u>	Node: <u>AREA 5</u>	Address: <u>SW EDGE OF PARKING LOT ADJACENT TO 6600 N SALTMAR AVE</u>	
Current weather: <u>OVERCAST</u>			
Date and time of last known rainfall: <u>LAST NIGHT</u>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No	If present, water is: Flowing or Standing Depth of water = _____ in Rate of flow = _____ fps		
Does river back up to this location? Yes or No	If river is backed up:	Water Color <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear	Water Odor <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____
Are sediments observed in the line? Yes or No	Are recoverable quantities of sediments present in the line? Yes or No		
If sediments present: Avg Depth of seds = _____ in Sed Depth Range = _____ in. to _____ in.			
Estimated dimensions of sediment deposit: _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen			

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>AREA 5</u>		Point Code: <u>52-19</u>			
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)									
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)									
Sample date: <u>1/6/11</u>		Sample time: <u>1230</u>		Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite - Area 5 - Swedge of parking lot adjacent to 6600</u>					
Sample location: <u>NA</u> <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line				<u>NA</u> If from line, segment is From Node _____ To Node _____					
Sample collection technique: <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>per SOP 5.01a -</u>									
Visual and olfactory observations: <u>None</u>				<input type="checkbox"/> Odor _____ <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Discoloration _____					
				<input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____					
Sample composition/particle size distribution (estimated percentages):				Silt/Clay <u>70</u> Sand <u>10</u> Fine Gravel <u>5</u> Coarse Gravel <u>10</u> Debris _____ Decomposed Organics <u>5</u> Other (describe) _____					
If present, type of debris in sample				<input type="checkbox"/> Wood <input type="checkbox"/> Large rocks <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Organics <input type="checkbox"/> Paper					
				Removed debris? <input checked="" type="checkbox"/> Yes (Type & Amount) <u>Coarse gravel</u> <input type="checkbox"/> No					
Compositing notes <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe) <u>per SOP 5.01a</u>									
Sample Jars Collected (number, size, full or partial)? <u>4 full 4 oz. jars &amp; 1 full 8 oz. jar.</u>									
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).  <u>* 1 Jar (4oz.) Archived</u> <u>1 8oz. jar archived</u>				<b>Jar Size</b>		<b>Amount Full</b>		<b>Target Analyses</b>	
<b>W11A060-05</b> Portland Harbor 52_19 Sampled: 01/06/11 12:30 Field Data Sheet				Duplicate sample collected? <input checked="" type="checkbox"/> <u>Y</u>					
				OC: _____ Dup ID Here _____					

### SECTION 3 - PHOTOGRAPH LOG

Overview of node showing drainage area	Filename(s): <u>52-19 Area 5 Overview 010611</u> <u>52-19 Area 5 looking NW from Sub-sample D 010611</u>
Plan view of sediments inline	Filename: _____
Homogenized sample (sediment in bowl)	Filename: <u>52-19 Area 5 Homogenized composite with label 010611</u>
Other?	Filename(s): <u>Sub-sample sampling photos</u>



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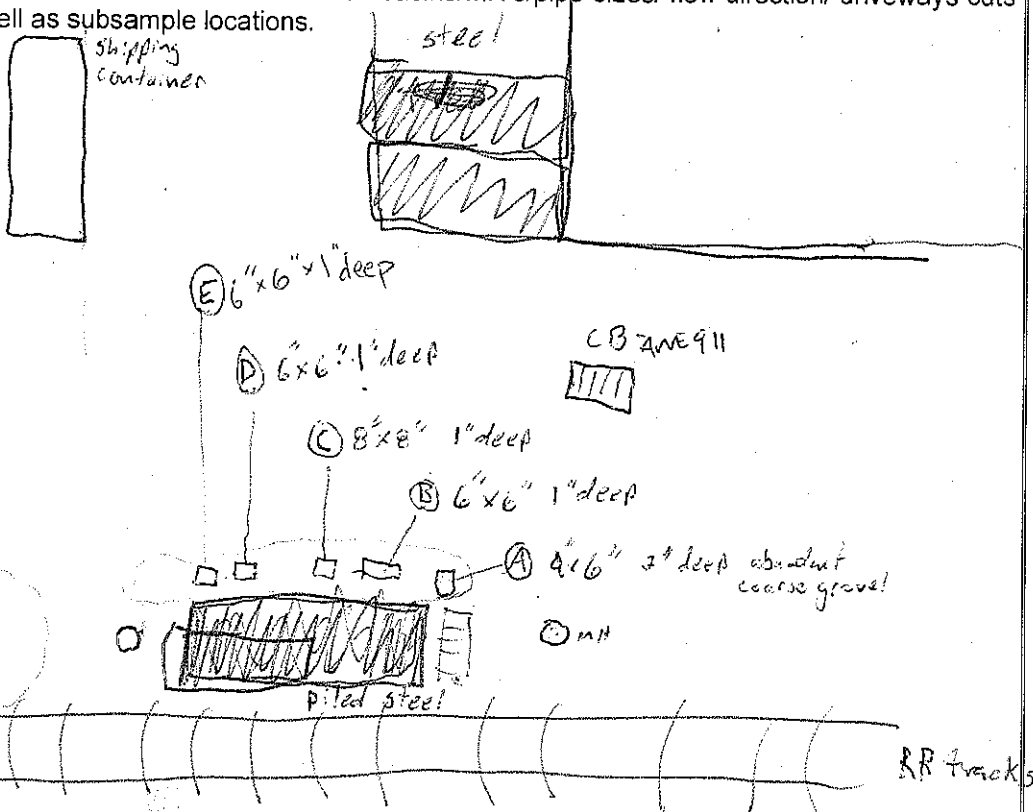
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>Portland Harbor</u>		Sample ID: <u>W11A060-06</u>	
Sampling Team: <u>MOS, PTB</u>	Date: <u>1/6/11</u>	Arrival Time: <u>1245</u>	Point Code: <u>52-20</u>
Basin: <u>52</u>	Node: <u>AREA 6</u>		Address: <u>Area 6 - SW edge of parking lot adjacent to 6600 N. Baltimore Ave</u>
Current weather: <u>overcast</u>			
Date and time of last known rainfall: <u>last night</u>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No	If present, water is: Flowing or Standing Depth of water = _____ in Rate of flow = _____ fps		
Does river back up to this location? Yes or No	If river is backed up: Water Color	<input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear	Water Odor <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____
Are sediments observed in the line? Yes or No	Are recoverable quantities of sediments present in the line? Yes or No		
If sediments present: Avg Depth of seds = _____ in Sed Depth Range = _____ in. to _____ in.			
Estimated dimensions of sediment deposit: _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen			

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>AREA 6</u>		Point Code: <u>52-20</u>	
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)							
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)							
Sample date: <u>1/6/11</u>		Sample time: <u>1245-1258</u>		Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite - Area 6 - SW edge of parking lot adjacent to 6600 N Baltimore</u>			
Sample location: <u>NA</u> <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line				If from line, segment is From Node _____ To Node _____			
Sample collection technique: <input checked="" type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>per SOP 5.01a</u>							
Visual and olfactory observations: <u>NONE</u>				<input type="checkbox"/> Odor _____ <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Discoloration _____			
				<input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____			
Sample composition/particle size distribution (estimated percentages):		Silt/Clay <u>65</u> Sand <u>10</u> Fine Gravel <u>5</u> Coarse Gravel <u>15</u> Debris <u>5</u> Decomposed Organics <u>&lt; 1%</u> Other (describe) <u>plastic</u>					
If present, type of debris in sample		<input type="checkbox"/> Wood <input type="checkbox"/> Large rocks <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input checked="" type="checkbox"/> Organics <input type="checkbox"/> Paper		Removed debris? <input checked="" type="checkbox"/> Yes (Type & Amount) <input type="checkbox"/> No <u>coarse gravel, veg, plastic</u>			
Compositing notes <input checked="" type="checkbox"/> Per SOP5.01e <input type="checkbox"/> Deviations (describe)							
Sample Jars Collected (number, size, full or partial)? <u>4 full 4oz. jars + 1 full 8 oz. jar</u>							
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).  <u>1 8oz and 1 4oz jar to be archived</u>		<b>Jar Size</b>		<b>Amount Full</b>		<b>Target Analyses</b>	
<b>W11A060-06</b> Portland Harbor 52_20 Sampled: 01/06/11 12:58 Field Data Sheet		Duplicate sample collected? <input checked="" type="checkbox"/> Y/N					
Lab Du		OC: <u>Dup ID Here</u>					

<b>SECTION 3 - PHOTOGRAPH LOG</b>	
Overview of node showing drainage area	Filename(s): <u>52-20 Area 6 Overview looking NW</u> <u>52-20 Area 6 Overview looking SE</u>
Plan view of sediments inline	Filename: _____
Homogenized sample (sediment in bowl)	Filename: <u>52-20 Area 6 Homogenized composite 010611</u>
Other?	Filename(s): <u>Sub-sample sampling photos</u>



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Portland, OR 97203-5452



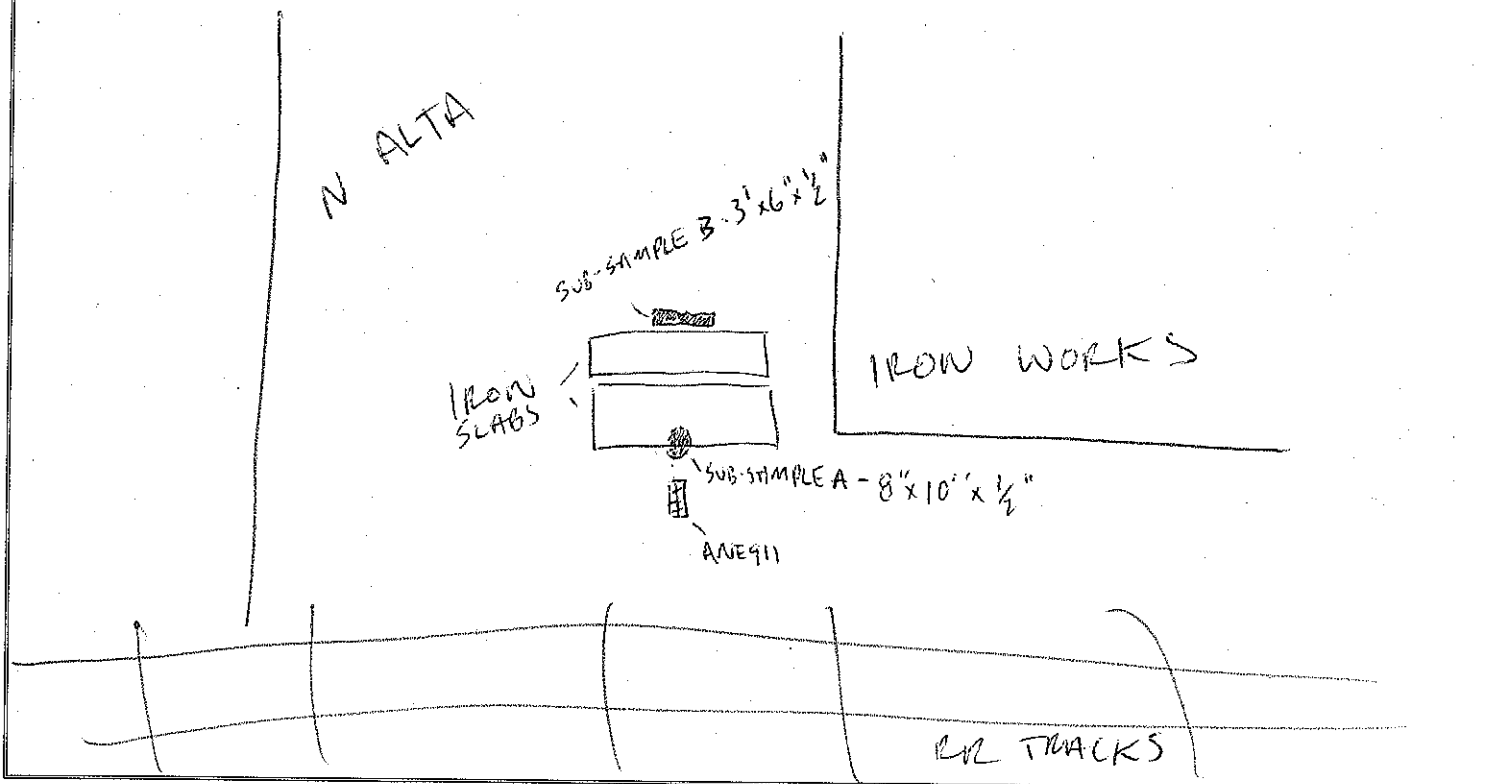
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>PORTLAND HARBOR</u>		Sample ID: <u>W11A060-07</u>	
Sampling Team: <u>MSS, PTB</u>	Date: <u>1/6/11</u>	Arrival Time: <u>1510</u>	Point Code: <u>52-21</u>
Basin: <u>52</u>	Node: <u>AREA 7</u>	Address: <u>Pothole East of AVE 911</u>	
Current weather: <u>Overcast</u>			
Date and time of last known rainfall: <u>Last night</u>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No	If present, water is: Flowing or Standing Depth of water = _____ in Rate of flow = _____ fps		
Does river back up to this location? Yes or No	If river is backed up:	Water Color <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear	Water Odor <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____
Are sediments observed in the line? Yes or No.	Are recoverable quantities of sediments present in the line? Yes or No		
If sediments present: Avg Depth of seds = _____ in Sed Depth Range = _____ in. to _____ in.			
Estimated dimensions of sediment deposit: _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen			

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>	<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>AREA 7</u>	Point Code: <u>SZ-Z1</u>
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)				
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)				
Sample date: <u>1/6/11</u>	Sample time: <u>1510 - 1518</u>	Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite - Area 7 - Pothole East of AWE911</u>		
Sample location: <u>NA</u> <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line		If from line, segment is From Node _____ To Node _____		
Sample collection technique: <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>Per SOP 5.01a</u>				
Visual and olfactory observations:		Color of sample		
<input type="checkbox"/> Odor _____ <input checked="" type="checkbox"/> Sheen <u>at collection</u> <input type="checkbox"/> Discoloration _____		<input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____		
Sample composition/particle size distribution (estimated percentages):		Silt/Clay <u>70</u> Sand <u>20</u> Fine Gravel <u>5</u> Coarse Gravel <u>5</u> Debris _____ Decomposed Organics _____    Other (describe) _____		
If present, type of debris in sample		Removed debris?		
<input type="checkbox"/> Wood <input type="checkbox"/> Large rocks <input checked="" type="checkbox"/> Metal <input type="checkbox"/> Plastic <input checked="" type="checkbox"/> Organics (leaves) <input type="checkbox"/> Paper		<input checked="" type="checkbox"/> Yes (Type & Amount) <u>Metal scraps &amp; leaves excluded at collection</u> <input type="checkbox"/> No		
Compositing notes <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe) <u>Per SOP 5.01a</u>				
Sample Jars Collected (number, size, full or partial)? <u>4 full 4 oz. jars - 1 full 8 oz. jar</u>				
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).  <u>1 full 4oz. jar</u> <u>1 full 8 oz. jar</u> <b>ARCHIVED</b>	Jar Size	Amount Full	Target Analyses	
Lab: <b>W11A060-07</b>	Duplicate sample collected? <u>YN</u>			
Dup: <b>Portland Harbor 52_21</b>	DC: <u>Dup to here</u>			
Sampled: 01/06/11 15:18 Field Data Sheet				

### SECTION 3 - PHOTOGRAPH LOG

Overview of node showing drainage area	Filename(s):
Plan view of sediments inline	Filename:
Homogenized sample (sediment in bowl)	Filename:
Other?	Filename(s):



CITY OF PORTLAND  
**ENVIRONMENTAL SERVICES**

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



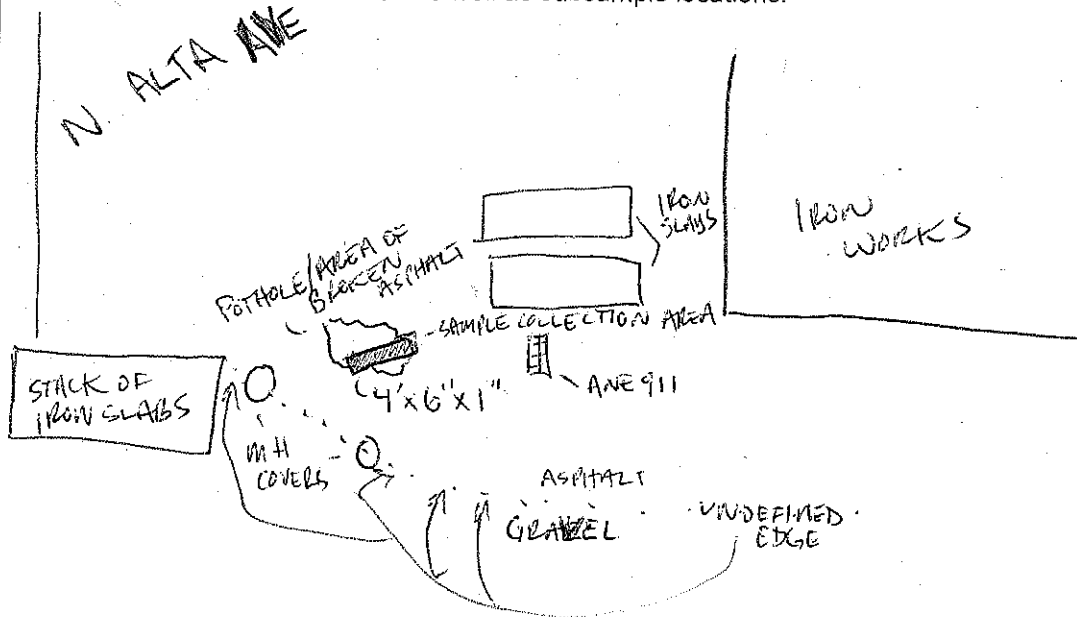
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>PORTLAND HARBOR</u>		Sample ID: <u>WHA 060-08</u>	
Sampling Team: <u>WJS, PTB</u>	Date: <u>1/6/11</u>	Arrival Time: <u>1520</u>	Point Code: <u>52-22</u>
Basin: <u>52</u>	Node: <u>Area 9</u>		Address: <u>Pothole NW of AVE 911</u>
Current weather: <u>Overcast</u>			
Date and time of last known rainfall: <u>last night</u>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No	If present, water is: Flowing or Standing Depth of water = _____ in Rate of flow = _____ fps		
Does river back up to this location? Yes or No	If river is backed up:	Water Color <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear	Water Odor <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____
Are sediments observed in the line? Yes or No	Are recoverable quantities of sediments present in the line? Yes or No		
If sediments present: Avg Depth of seds = _____ in Sed Depth Range = _____ in. to _____ in.			
Estimated dimensions of sediment deposit: _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen			

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>		<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>AREA 9</u>		Point Code: <u>52-22</u>			
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)									
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)									
Sample date: <u>1/6/11</u>		Sample time: <u>1528-1535</u>		Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite-Area 9-Pothole NW of ANE911</u>					
Sample location: <u>NA</u> <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line				If from line, segment is From Node _____ To Node _____					
Sample collection technique: <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>Per SOP 5.01a</u>									
Visual and olfactory observations: <u>NONE</u> <input type="checkbox"/> Odor _____ <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Discoloration _____				Color of sample <input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____					
Sample composition/particle size distribution (estimated percentages):				Silt/Clay <u>25</u> Sand <u>40</u> Fine Gravel <u>25</u> Coarse Gravel <u>10</u> Debris _____ Decomposed Organics _____ Other (describe) _____					
If present, type of debris in sample <input type="checkbox"/> Wood <input type="checkbox"/> Large rocks <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Organics <input type="checkbox"/> Paper				Removed debris? <input type="checkbox"/> Yes (Type & Amount) <input type="checkbox"/> No					
Compositing notes <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe) <u>Per 5.01a</u>									
Sample Jars Collected (number, size, full or partial)? <u>4 full 4oz. jars 1 full 8oz. jar</u>									
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). <u>* 1 8oz. jar + 1 4oz. jar to be archived</u>				Jar Size		Amount Full		Target Analyses	
Lab ID: <b>W11A060-08</b> Portland Harbor 52-22 Sampled: 01/06/11 15:35 Field Data Sheet				Duplicate sample collected? <u>Y(N)</u>					
DUP:				DUP ID:					

<b>SECTION 3 - PHOTOGRAPH LOG</b>	
Overview of node showing drainage area	Filename(s):
Plan view of sediments inline	Filename:
Homogenized sample (sediment in bowl)	Filename:
Other?	Filename(s):



CITY OF PORTLAND  
**ENVIRONMENTAL SERVICES**

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Portland, OR 97203-5452



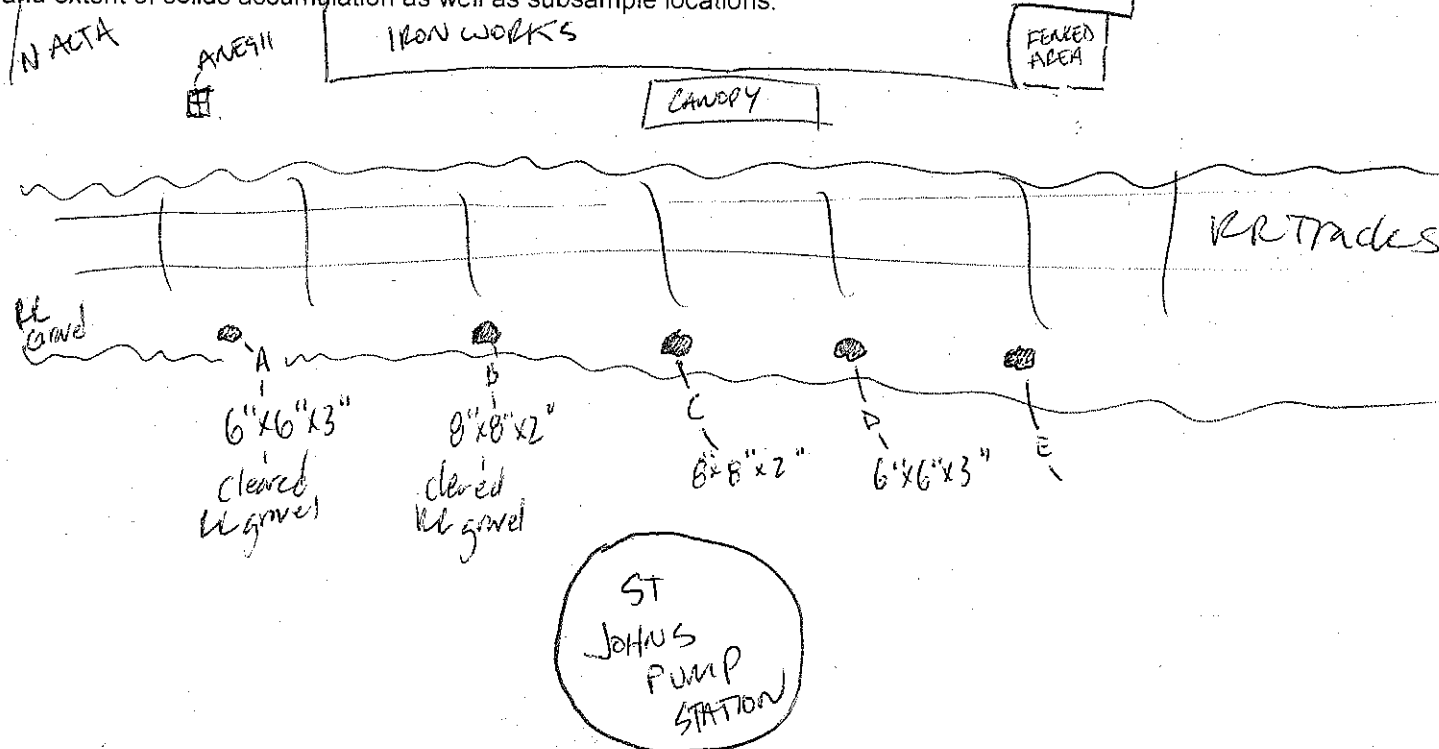
**INLINE SEDIMENT SAMPLING FIELD DATA SHEET**

Project Name: <u>PORTLAND HARBOR</u>		Sample ID: <u>SW 11A060-10</u>	
Sampling Team: <u>MS5, PTB</u>	Date: <u>1/6/11</u>	Arrival Time: <u>1445</u>	Point Code: <u>52-23</u>
Basin: <u>52</u>	Node: <u>AREA 8</u>	Address: <u>SW &amp; RR TRACKS</u> <u>ADJACENT TO ST. JOHNS PS. E690 N. BURLINGTON AVE.</u>	
Current weather: <u>FOG/OVERCAST</u>			
Date and time of last known rainfall: <u>LAST NIGHT</u>			

**SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT**

Is there water inline? Yes or No	If present, water is: Flowing or Standing Depth of water = _____ in Rate of flow = _____ fps		
Does river back up to this location? Yes or No	If river is backed up:	Water Color <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Clear	Water Odor <input type="checkbox"/> Hydrocarbon <input type="checkbox"/> Sanitary <input type="checkbox"/> Other _____
Are sediments observed in the line? Yes or No	Are recoverable quantities of sediments present in the line? Yes or No		
If sediments present: Avg Depth of seds = _____ in Sed Depth Range = _____ in. to _____ in.			
Estimated dimensions of sediment deposit: _____ in. by _____ in. OR <input type="checkbox"/> As far as can be seen			

**SITE DIAGRAM:** Include street intersections/main lines/laterals/catch basins/MH's/pipe sizes/ flow direction/ driveways cuts and extent of solids accumulation as well as subsample locations.



Date: <u>1/6/11</u>	<b>SECTION 2 - SAMPLE COLLECTION REPORT</b>		Node: <u>Area B</u>	Point Code: <u>52-23</u>
Sampling Equipment: <input checked="" type="checkbox"/> Stainless steel utensil & stainless steel receptacle <input type="checkbox"/> Other (Describe)				
Equipment Decontamination process: <input checked="" type="checkbox"/> Per SOP7.01a <input type="checkbox"/> Deviations (Describe)				
Sample date: <u>1/6/11</u>	Sample time: <u>1445-1500</u>	Sample Identification Code (IL-XX-NNNNNN-mmyy) <u>Surface Soil Composite - Area 8 - SW of RR Tracks adjacent to St Johns Pump Station</u>		
Sample location: <sup>NA</sup> <input type="checkbox"/> From MH chamber <input type="checkbox"/> From line		If from line, segment is From Node _____ To Node _____		
Sample collection technique: <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe below) <u>Per SOP 5.01a</u>				
Visual and olfactory observations: <u>NONE</u>		<input type="checkbox"/> Odor _____ <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Discoloration _____ Color of sample <input checked="" type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Other (describe) _____		
Sample composition/particle size distribution (estimated percentages):		Silt/Clay <u>60</u> Sand <u>10</u> Fine Gravel <u>10</u> Coarse Gravel <u>20</u> Debris _____ Decomposed Organics _____    Other (describe) _____		
If present, type of debris in sample		<input type="checkbox"/> Wood <input type="checkbox"/> Large rocks <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Organics <input type="checkbox"/> Paper Removed debris? <input type="checkbox"/> Yes (Type & Amount) <input type="checkbox"/> No		
Compositing notes <input type="checkbox"/> Per SOP5.01e <input checked="" type="checkbox"/> Deviations (describe) <u>Per SOP 5.01a</u>				
Sample Jars Collected (number, size, full or partial)? <u>4 full 4 oz. jars    1 full 8 oz. jar</u> <span style="border: 1px solid black; padding: 2px;">ALL TO BE ARCHIVED</span>				
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).  <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>W11A060-10</b>            Portland Harbor            52-23            Sampled: 01/06/11 15:00            Field Data Sheet         </div>	Jar Size	Amount Full	Target Analyses	
Lab: _____		Duplicate sample collected? <u>Y/N</u>		
Duplicate sample identification # on COC: _____		Dup ID Here _____		

<b>SECTION 3 - PHOTOGRAPH LOG</b>	
Overview of node showing drainage area	Filename(s): <u>52-23 Area B Overview looking NW 01064</u>
Plan view of sediments inline	Filename: _____
Homogenized sample (sediment in bowl)	Filename: <u>52-23 Area B Homogenized composite 01064</u>
Other?	Filename(s): _____

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APPENDIX C

## Laboratory Reports (on CD only)

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## ***June 2008 Inline Solids 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 June 2008 Inline Solids Sampling City Outfall Basin 52**

**To:** File  
**From:** Karen Demsey, GSI Water Solutions, Inc. (GSI)  
**Date:** November 17, 2011

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from a source investigation sampling event conducted by the City of Portland (City). Three inline solids samples (FO 080840, FO 080841 and FO 080842) and one duplicate inline solids sample (FO 080843) were collected in Outfall Basin 52 on June 26, 2008, and submitted for analyses.

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 below:

- BES WPCL
  - Total Solids – SM 2540G
  - Metals – EPA 6020
  - Polychlorinated Biphenyls (PCBs) Aroclors – EPA 8082
- Test America (TA)
  - Total Organic Carbon (TOC) – EPA 9060 (Modified)
- Analytical Resources, Inc.
  - Grain Size – ASTM D421/422

The WPCL summary report and the subcontracted laboratory reports for all analyses associated with this sampling event 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 of the analytical data is based on the available documentation provided by the subcontracted laboratories 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 laboratory control limits
- Laboratory duplicate precision within laboratory control limits
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within laboratory control limits
- Laboratory control and duplicate laboratory control (LC/DLC) sample recoveries within laboratory control limits

The results of the QA/QC review of the laboratory analyses 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**

Samples for all analyses were extracted and analyzed within the recommended method-specific holding times.

## **Method Blanks**

No analytes were detected in the method blanks.

## **Surrogate Recoveries**

No surrogate recovery exceptions are noted in the WPCL report.

## **Matrix Spike/Matrix Spike Duplicate**

TA reports that the MS or MSD result exceeds the control limits for TOC analysis. The laboratory did not indicate this QC exception impacted the analytical results. No MS/MSD recovery exceptions are noted in the WPCL report.

## **Laboratory Control Samples**

An LC sample was processed during the laboratory analysis of TOC. The LC recovery is within the method-specified laboratory control limit. No LC recovery exceptions are noted in the WPCL report.

## Other

The WPCL report includes the following notes in relation to PCB analysis:

- For samples FO 080840, FO 080841 and FO 080843, the report states that non-PCB components interfered with quantitation of Aroclor 1254 at the low concentrations detected; the detected concentrations of Aroclor 1254 in these samples are therefore reported as estimated values.

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: 6/26/2008  
Page: 1 of 1  
Collected By: RCBWCR/LAP

Project Name: PORTLAND HARBOR INLINE SAMP

File Number: 1020.001

Matrix: SEDIMENT

Requested Analyses

General

Metals

Field Comments

OUTFALL 52

WPCL Sample I.D.

Location

Point Code

Sample Date

Sample Time

Sample Type

PCB Aroclors - LL

TOC

Total Solids

Grain Size

Total Metals

(As, Cd, Cu, Pb, Zn)

FO 080840

IL-52-AAES53-0608  
N BURLINGTON & RR

52\_1

6/26/08

0921

C

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FO 080841

IL-52-AAES569-E-0608  
N BURLINGTON & CRAWFORD

52\_2

6/26/08

1108

C

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FO 080842

IL-52-AAES13-0608  
N ALTA & BRADFORD

52\_3

6/26/08

1458

C

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FO 080843

DUPLICATE

DUP

6/26/08

C

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Relinquished By: 1

Signature: [Signature]

Time: 1557

Relinquished By: 2

Signature: [Signature]

Time:

Relinquished By: 3

Signature: [Signature]

Time:

Relinquished By: 4

Signature: [Signature]

Time:

Received By: 1

Signature: [Signature]

Time: 1557

Received By: 2

Signature: [Signature]

Time:

Received By: 3

Signature: [Signature]

Time:

Received By: 4

Signature: [Signature]

Time:

Printed Name:

Printed Name: [Name]

Printed Name:

Printed Name: [Name]

Date:

Date: [Date]

Date:

Date: [Date]

Date:

Date: [Date]

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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: **FO080840**

Sample Collected: 06/26/08 09:21  
Sample Received: 06/26/08

Sample Status: COMPLETE AND  
VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP  
Address/Location: IL-52-AAE553-0608  
N BURLINGTON & RR CROSSING  
Sample Point Code: 52\_1  
Sample Type: GRAB  
Sample Matrix: SEDIMENT

Report Page: Page 1 of 2

System ID: AM06039  
EID File #: 1020.001  
LocCode: PORTHARI  
Collected By: RCB/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. LAB: PCB in this sample appears to a mixture of Aroclors 1260 and 1254; non-PCB components interfere with quantitation of 1254 at the low concentration detected.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	82.1	% W/W	0.01	SM 2540 G	07/01/08
<b>METALS</b>					
ARSENIC	1.94	mg/Kg dry wt	0.50	EPA 6020	07/03/08
CADMIUM	0.72	mg/Kg dry wt	0.10	EPA 6020	07/03/08
COPPER	106	mg/Kg dry wt	0.25	EPA 6020	07/03/08
LEAD	23.7	mg/Kg dry wt	0.10	EPA 6020	07/03/08
ZINC	588	mg/Kg dry wt	0.50	EPA 6020	07/03/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	07/02/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1254	EST 26	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1260	29	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	36000	mg/Kg dry wt	2000	EPA 9060 MOD	07/08/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	1.78	Fract %	0.01	ASTM D421/422	07/16/08
Coarse Sand (4750-2000 µm)	21.86	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (150-75 µm)	0.91	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (250-150 µm)	2.54	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (425-250 µm)	9.09	Fract %	0.01	ASTM D421/422	07/16/08
Gravel (>4750 µm)	19.73	Fract %	0.01	ASTM D421/422	07/16/08
Medium Sand (2000-850 µm)	25.09	Fract %	0.01	ASTM D421/422	07/16/08
Medium Sand (850-425 µm)	16.76	Fract %	0.01	ASTM D421/422	07/16/08
Silt (13-9 µm)	<0.01	Fract %	0.01	ASTM D421/422	07/16/08
Silt (22-13 µm)	0.45	Fract %	0.01	ASTM D421/422	07/16/08
Silt (32-22 µm)	<0.01	Fract %	0.01	ASTM D421/422	07/16/08
Silt (7-3.2 µm)	0.89	Fract %	0.01	ASTM D421/422	07/16/08

Report Date: 08/26/08

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: **FO080840**

Sample Collected: 06/26/08 09:21  
Sample Received: 06/26/08

Sample Status: **COMPLETE AND  
VALIDATED**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP  
Address/Location: IL-52-AAE553-0608  
N BURLINGTON & RR CROSSING  
Sample Point Code: 52\_1  
Sample Type: GRAB  
Sample Matrix: SEDIMENT

Report Page: Page 2 of 2

System ID: AM06039  
EID File #: 1020.001  
LocCode: PORTHARI  
Collected By: RCB/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. LAB: PCB in this sample appears to a mixture of Aroclors 1260 and 1254; non-PCB components interfere with quantitation of 1254 at the low concentration detected.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Silt (75-32 $\mu$ m)	0.92	Fract %	0.01	ASTM D421/422	07/16/08
Silt (9-7 $\mu$ m)	<0.01	Fract %	0.01	ASTM D421/422	07/16/08

End of Report for Sample ID: FO080840

Report Date: 08/26/08

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: **FO080841**

Sample Collected: 06/26/08 11:08  
Sample Received: 06/26/08

Sample Status: **COMPLETE AND  
VALIDATED**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP

Report Page: Page 1 of 2

Address/Location: IL-52-AAE569-E-0608  
N BURLINGTON & CRAWFORD

System ID: AM06040

Sample Point Code: 52\_2

EID File #: 1020.001

Sample Type: GRAB

LocCode: PORTHARI

Sample Matrix: SEDIMENT

Collected By: RCB/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. LAB: PCB in this sample appears to a mixture of Aroclors 1260 and 1254; non-PCB components interfere with quantitation of 1254 at the low concentration detected.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	84.9	% W/W	0.01	SM 2540 G	07/01/08
<b>METALS</b>					
ARSENIC	2.09	mg/Kg dry wt	0.50	EPA 6020	07/03/08
CADMIUM	0.29	mg/Kg dry wt	0.10	EPA 6020	07/03/08
COPPER	33.6	mg/Kg dry wt	0.25	EPA 6020	07/03/08
LEAD	70.7	mg/Kg dry wt	0.10	EPA 6020	07/03/08
ZINC	109	mg/Kg dry wt	0.50	EPA 6020	07/03/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	07/02/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1254	EST 27	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1260	23	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	5500	mg/Kg dry wt	2000	EPA 9060 MOD	07/08/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	1.97	Fract %	0.01	ASTM D421/422	07/16/08
Coarse Sand (4750-2000 µm)	3.06	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (150-75 µm)	10.80	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (250-150 µm)	20.91	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (425-250 µm)	31.12	Fract %	0.01	ASTM D421/422	07/16/08
Gravel (>4750 µm)	8.08	Fract %	0.01	ASTM D421/422	07/16/08
Medium Sand (2000-850 µm)	2.85	Fract %	0.01	ASTM D421/422	07/16/08
Medium Sand (850-425 µm)	11.79	Fract %	0.01	ASTM D421/422	07/16/08
Silt (13-9 µm)	0.66	Fract %	0.01	ASTM D421/422	07/16/08
Silt (22-13 µm)	1.32	Fract %	0.01	ASTM D421/422	07/16/08
Silt (32-22 µm)	0.66	Fract %	0.01	ASTM D421/422	07/16/08
Silt (7-3.2 µm)	1.97	Fract %	0.01	ASTM D421/422	07/16/08

Report Date: 08/26/08

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: FO080841**

**Sample Collected:** 06/26/08 11:08  
**Sample Received:** 06/26/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-AAE569-E-0608  
N BURLINGTON & CRAWFORD  
**Sample Point Code:** 52\_2  
**Sample Type:** GRAB  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 2 of 2

**System ID:** AM06040  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/WCR

**Comments:**

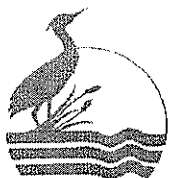
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. LAB: PCB in this sample appears to a mixture of Aroclors 1260 and 1254; non-PCB components interfere with quantitation of 1254 at the low concentration detected.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Silt (75-32 $\mu$ m)	4.80	Fract %	0.01	ASTM D421/422	07/16/08
Silt (9-7 $\mu$ m)	<0.01	Fract %	0.01	ASTM D421/422	07/16/08

End of Report for Sample ID: FO080841

Report Date: 08/26/08

Validated By: 



## LABORATORY ANALYSIS REPORT

Sample ID: **FO080842**

Sample Collected: 06/26/08 14:58  
Sample Received: 06/26/08

Sample Status: **COMPLETE AND  
VALIDATED**

Proj./Company Name: PORTLAND HARBOR INLINE SAMP  
Address/Location: IL-52-AAE513-0608  
N ALTA & BRADFORD  
Sample Point Code: 52\_3  
Sample Type: GRAB  
Sample Matrix: SEDIMENT

Report Page: Page 1 of 2

System ID: AM06041  
EID File #: 1020.001  
LocCode: PORTHARI  
Collected By: RCB/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
<b>GENERAL</b>					
TOTAL SOLIDS	53.1	% W/W	0.01	SM 2540 G	07/01/08
<b>METALS</b>					
ARSENIC	7.67	mg/Kg dry wt	0.50	EPA 6020	07/03/08
CADMIUM	0.93	mg/Kg dry wt	0.10	EPA 6020	07/03/08
COPPER	1240	mg/Kg dry wt	0.25	EPA 6020	07/03/08
LEAD	81.6	mg/Kg dry wt	0.10	EPA 6020	07/03/08
ZINC	649	mg/Kg dry wt	0.50	EPA 6020	07/03/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	07/02/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1254	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1260	114	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	120000	mg/Kg dry wt	2000	EPA 9060 MOD	07/08/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	4.46	Fract %	0.01	ASTM D421/422	07/16/08
Coarse Sand (4750-2000 µm)	21.47	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (150-75 µm)	4.89	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (250-150 µm)	4.25	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (425-250 µm)	7.84	Fract %	0.01	ASTM D421/422	07/16/08
Gravel (>4750 µm)	4.32	Fract %	0.01	ASTM D421/422	07/16/08
Medium Sand (2000-850 µm)	16.73	Fract %	0.01	ASTM D421/422	07/16/08
Medium Sand (850-425 µm)	11.32	Fract %	0.01	ASTM D421/422	07/16/08
Silt (13-9 µm)	2.55	Fract %	0.01	ASTM D421/422	07/16/08
Silt (22-13 µm)	3.83	Fract %	0.01	ASTM D421/422	07/16/08
Silt (32-22 µm)	7.01	Fract %	0.01	ASTM D421/422	07/16/08
Silt (7-3.2 µm)	2.55	Fract %	0.01	ASTM D421/422	07/16/08
Silt (75-32 µm)	8.13	Fract %	0.01	ASTM D421/422	07/16/08

Report Date: 08/26/08

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: **FO080842**      Sample Collected: 06/26/08 14:58      Sample Status: COMPLETE AND VALIDATED  
Sample Received: 06/26/08

Proj./Company Name: PORTLAND HARBOR INLINE SAMP      Report Page: Page 2 of 2  
Address/Location: IL-52-AAE513-0608  
N ALTA & BRADFORD      System ID: AM06041  
Sample Point Code: 52\_3      EID File #: 1020.001  
Sample Type: GRAB      LocCode: PORTHARI  
Sample Matrix: SEDIMENT      Collected By: RCB/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
Silt (9-7 $\mu$ m)	0.64	Fract %	0.01	ASTM D421/422	07/16/08

End of Report for Sample ID: FO080842

Report Date: 08/26/08

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: **FO080843**

Sample Collected: 06/26/08 00:00  
Sample Received: 06/26/08

Sample Status: COMPLETE AND  
VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP  
Address/Location: DUPLICATE

Report Page: Page 1 of 2

Sample Point Code: DUP  
Sample Type: GRAB  
Sample Matrix: SEDIMENT

System ID: AM06042  
EID File #: 1020.001  
LocCode: PORTHARI  
Collected By: RCB/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. LAB: PCB in this sample appears to a mixture of Aroclors 1260 and 1254; non-PCB components interfere with quantitation of 1254 at the low concentration detected.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	83.1	% W/W	0.01	SM 2540 G	07/01/08
<b>METALS</b>					
ARSENIC	1.39	mg/Kg dry wt	0.50	EPA 6020	07/03/08
CADMIUM	0.56	mg/Kg dry wt	0.10	EPA 6020	07/03/08
COPPER	117	mg/Kg dry wt	0.25	EPA 6020	07/03/08
LEAD	22.0	mg/Kg dry wt	0.10	EPA 6020	07/03/08
ZINC	431	mg/Kg dry wt	0.50	EPA 6020	07/03/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	07/02/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1254	EST 22	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1260	21	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	07/02/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	35000	mg/Kg dry wt	2000	EPA 9060 MOD	07/08/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	1.25	Fract %	0.01	ASTM D421/422	07/16/08
Coarse Sand (4750-2000 µm)	19.36	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (150-75 µm)	1.35	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (250-150 µm)	3.81	Fract %	0.01	ASTM D421/422	07/16/08
Fine Sand (425-250 µm)	11.87	Fract %	0.01	ASTM D421/422	07/16/08
Gravel (>4750 µm)	24.66	Fract %	0.01	ASTM D421/422	07/16/08
Medium Sand (2000-850 µm)	17.46	Fract %	0.01	ASTM D421/422	07/16/08
Medium Sand (850-425 µm)	17.33	Fract %	0.01	ASTM D421/422	07/16/08
Silt (13-9 µm)	<0.01	Fract %	0.01	ASTM D421/422	07/16/08
Silt (22-13 µm)	1.25	Fract %	0.01	ASTM D421/422	07/16/08
Silt (32-22 µm)	0.83	Fract %	0.01	ASTM D421/422	07/16/08
Silt (7-3.2 µm)	0.83	Fract %	0.01	ASTM D421/422	07/16/08

Report Date: 08/26/08

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: FO080843**

**Sample Collected:** 06/26/08 00:00  
**Sample Received:** 06/26/08

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** DUPLICATE

**Report Page:** Page 2 of 2

**Sample Point Code:** DUP  
**Sample Type:** GRAB  
**Sample Matrix:** SEDIMENT

**System ID:** AM06042  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/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. LAB: PCB in this sample appears to a mixture of Aroclors 1260 and 1254; non-PCB components interfere with quantitation of 1254 at the low concentration detected.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Silt (75-32 $\mu$ m)	0.01	Fract %	0.01	ASTM D421/422	07/16/08
Silt (9-7 $\mu$ m)	<0.01	Fract %	0.01	ASTM D421/422	07/16/08

**End of Report for Sample ID: FO080843**

**Report Date:** 08/26/08

**Validated By:** 

July 30, 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 06/26/08 17:45.  
The following list is a summary of the Work Orders contained in this report, generated on 07/30/08 16:04.

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

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
PRF0963	Portland Harbor	36238

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**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor**

Project Number:

36238

Project Manager:

Jennifer Shackelford

Report Created:

07/30/08 16:04

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO 080840	PRF0963-01	Soil	06/26/08 09:21	06/26/08 17:45
FO 080841	PRF0963-02	Soil	06/26/08 11:08	06/26/08 17:45
FO 080842	PRF0963-03	Soil	06/26/08 14:58	06/26/08 17:45
FO 080843	PRF0963-04	Soil	06/26/08 00:00	06/26/08 17:45

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**  
Project Number: **36238**  
Project Manager: **Jennifer Shackelford**

Report Created:  
**07/30/08 16:04**

**Total Organic Carbon**  
TestAmerica Tacoma

Analyte	Method	Result	MDL *	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>PRF0963-01 (FO 080840)</b>			<b>Soil</b>				<b>Sampled: 06/26/08 09:21</b>			
Total Organic Carbon	9060	<b>36000</b>	-----	2000	mg/Kg	1x	33831	07/08/08 11:21	07/08/08 11:21	
<b>PRF0963-02 (FO 080841)</b>			<b>Soil</b>				<b>Sampled: 06/26/08 11:08</b>			
Total Organic Carbon	9060	<b>5500</b>	-----	2000	mg/Kg	1x	33831	07/08/08 11:21	07/08/08 11:21	
<b>PRF0963-03 (FO 080842)</b>			<b>Soil</b>				<b>Sampled: 06/26/08 14:58</b>			
Total Organic Carbon	9060	<b>120000</b>	-----	2000	mg/Kg	1x	33831	07/08/08 11:21	07/08/08 11:21	
<b>PRF0963-04 (FO 080843)</b>			<b>Soil</b>				<b>Sampled: 06/26/08 00:00</b>			
Total Organic Carbon	9060	<b>35000</b>	-----	2000	mg/Kg	1x	33831	07/08/08 11:21	07/08/08 11:21	

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**  
Project Number: 36238  
Project Manager: Jennifer Shackelford

Report Created:  
07/30/08 16:04

**Total Organic Carbon - Laboratory Quality Control Results**

TestAmerica Tacoma

QC Batch: 33831

Soil Preparation Method: NA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Matrix Spike (104901S)</b>			QC Source: PRF0963-01					Extracted: 07/08/08 11:21						
Total Organic Carbon	9060	50600	---	2000	mg/Kg	1x	36000	10000	146%	(76-128)	--	--	07/08/08 11:21	F
<b>Duplicate (104901X)</b>			QC Source: PRF0963-01					Extracted: 07/08/08 11:21						
Total Organic Carbon	9060	35300	---	2000	mg/Kg	1x	36000	--	--	--	2%	(20)	07/08/08 11:21	
<b>Blank (580-33831-1)</b>			QC Source:					Extracted: 07/08/08 11:21						
Total Organic Carbon	9060	ND	---	2000	mg/Kg	1x	--	--	--	--	--	--	07/08/08 11:21	
<b>LCS (580-33831-2)</b>			QC Source:					Extracted: 07/08/08 11:21						
Total Organic Carbon	9060	5500	---	2000	mg/Kg	1x	--	3400	162%	(-)	--	--	07/08/08 11:21	

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**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor**

Project Number:

36238

Project Manager:

Jennifer Shackelford

Report Created:

07/30/08 16:04

**Notes and Definitions**Report Specific Notes:

- F - MS or MSD exceeds the control 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).
- 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 - 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.*

## CHAIN OF CUSTODY REPORT

Work Order #: **PRFO963**

CLIENT: <b>City of Portland</b>				INVOICE TO: <b>Charles Lytle</b>				<b>TURNAROUND REQUEST</b> in Business Days * Organic & Inorganic Analyses <input checked="" type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 Petroleum Hydrocarbon Analyses <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 STD <input type="checkbox"/> OTHER Specify: _____ <small>* Turnaround Requests less than standard may incur Rush Charges</small>					
REPORT TO ADDRESS: <b>Jennifer Shackelford</b>				P.O. NUMBER: <b>36238</b>									
PHONE: _____ FAX: _____				PRESERVATIVE: _____									
PROJECT NAME: <b>Portland Harbor</b>				REQUESTED ANALYSES: _____									
PROJECT NUMBER: <b>Inline Sump</b>													
SAMPLED BY: _____													
CLIENT SAMPLE IDENTIFICATION		SAMPLING DATE/TIME		Grain Size	TOC					MATRIX (W, S, O)	# OF CONT.	LOCATION COMMENTS	TA WO ID
1 FO 080840		6/26/08 0921		X	X					S	2		
2 } 841		} 1108		X	X					S	2		
3 } 842		} 1458		X	X					S	2		
4 ↓ 843		↓ -		X	X					S	2		
5													
6													
7													
8													
9													
10													
RELEASED BY: <b>Ron Klueh</b>		FIRM: <b>City of Portland</b>		DATE: <b>6/26/08</b>		RECEIVED BY: <b>Bob Lytle</b>		FIRM: <b>TAP</b>		DATE: <b>6/26/08</b>		TIME: <b>16:30</b>	
PRINT NAME: <b>Ron Klueh</b>				TIME: <b>16:30</b>		PRINT NAME: <b>Bob Lytle</b>				TIME: <b>16:30</b>			
RELEASED BY: <b>Bob Lytle</b>		FIRM: <b>TAP</b>		DATE: <b>6/26/08</b>		RECEIVED BY: <b>Jamie Ireland</b>		FIRM: <b>TAP</b>		DATE: <b>6/26/08</b>		TIME: <b>17:45</b>	
PRINT NAME: <b>Bob Lytle</b>				TIME: <b>16:30</b>		PRINT NAME: <b>J. Ireland</b>				TIME: <b>17:45</b>			
ADDITIONAL REMARKS:												TEMP: <b>5.5</b>	PAGE <b>1</b> OF <b>1</b>

# TestAmerica Sample Receipt Checklist

Cooler ID#:

Received by:

Unpacked by:

Logged-in by:

Work Order No.

PRF0963

(section A)

(section B)

Date: 6/26/08

Date: 6/26/08

Date: 6/26/08

Time: 17:45

Initials: JP

Initials: PS

Initials: JP

Client:

City of Portland

Project:

Portland Harbor

Temperature out of range:

\*\*\*ESI Clients (see Section C)

Not enough Ice  
No Ice  
Ice Melted  
W/in 4 Hours  
Other:

Cooler Temperature (IR): 5.5 °C plastic glass NA (oil/air OR ESI client)

Temperature Blank: °C DIGI #1 #2

A

Custody Seals: (#)

Signature: Y N Dated:

X None

Container Type:

1 #Cooler(s)

#Box(s)

None (#Other:)

Coolant Type:

Gel/ Blue Ice

X Loose Ice

None

Packing Material:

Bubble Bags

Styrofoam Cubbies

Peanuts

X None (#Other:)

Received from:

TA Courier

Senvoy

UPS

Fed Ex

Client

TDP

USPS

SDS

Mid-Valley

GS/TA

GS/Senvoy

Other:

B

Sample Status:

(If N circled, see NOD)

General:

Intact?

Y

N

# Containers Match COC?

Y

N

none given

IDs Match COC?

Y

N

For Analyses Requested:

Cyanide checked?

Y

N

NA

Correct Type & Preservation?

Y

N

Adequate Volume?

Y

N

Within Hold Time?

Y

N

Volatiles/ Oil Quality:

VOAs/ Syringes free of Headspace?

Y

N

NA

TB on COC? not provided

Y

N

NA

Metals:

HNO3 Preserved?

Y

N

NA

Dissolved Metals Filtered?

Y

N

NA

C

\*\*\*ESI Clients Only:

Temperature Blank: °C not provided DIGI #1 #2

All preserved bottles checked Y N NA (voas/soils/all unp.)

All preserved accordingly? Y N (see NOD) NA (voas/soils/all unp.)

FED EX/ UPS: Was the tracking paper keepable? YES NO

If circled NO, what is the Tracking number?

FED EX Goldstreak UPS DHL Other:

Project Managers:

Comments:

PM Reviewed: (Initial/Date)



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

July 16, 2008

Mr. Howard Holmes  
Test America, Inc.  
9405 SW Nimbus Ave.  
Beaverton, OR 97008

**Subject: Project No.: PRF0963;  
ARI Project No.: ND94**

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

*Taylor McKenzie for Harold Benny*  
Harold Benny  
Geotechnical Division Manager  
206-695-6246  
[haroldb@arilabs.com](mailto:haroldb@arilabs.com)

Enclosures

cc: File ND94



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

Client: Test America, Inc.

ARI Project No.: ND94

Client Project No.: PRF0963

**Case Narrative**

1. Four samples were submitted for grain size distribution according to ASTM D421/D422.
2. A standard "milkshake" mixer was used to disperse the samples.
3. An assumed specific gravity of 2.65 was used in the calculations.
4. Sample PRF0963-03 contained abundant organic material, which may have broken down during the sieving process, affecting grain size analysis.
5. The data is provided in summary tables and plots.
6. There were no further anomalies in this project.

Approved by:

Title:

Taylor McKenzie  
Lead Technician

Date:

7/16/08

ND 94

**SUBCONTRACT ORDER**

**TestAmerica Portland**

**PRF0963**


**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:  
Receipt Temperature: °C Ice: Y / N

Analysis	Units	Due	Expires	Comments
<b>Sample ID: PRF0963-01</b>				
	Soil		Sampled: 06/26/08 09:21	
Grain Size (ASTM) - SUB	ug/l	07/11/08	12/23/08 09:21	sub to Analytical Resources Inc (ARI)
Containers Supplied:				
8 oz. jar (A)				
<b>Sample ID: PRF0963-02</b>				
	Soil		Sampled: 06/26/08 11:08	
Grain Size (ASTM) - SUB	ug/l	07/11/08	12/23/08 11:08	sub to Analytical Resources Inc (ARI)
Containers Supplied:				
8 oz. jar (A)				
<b>Sample ID: PRF0963-03</b>				
	Soil		Sampled: 06/26/08 14:58	
Grain Size (ASTM) - SUB	ug/l	07/11/08	12/23/08 14:58	sub to Analytical Resources Inc (ARI)
Containers Supplied:				
8 oz. jar (A)				
<b>Sample ID: PRF0963-04</b>				
	Soil		Sampled: 06/26/08 00:00	
Grain Size (ASTM) - SUB	ug/l	07/11/08	12/23/08 00:00	sub to Analytical Resources Inc (ARI)
Containers Supplied:				
8 oz. jar (A)				

 7-2-08 3:15  
Released By Date/Time

 7/3/08 10:00  
Received By Date/Time

Released By Date/Time

Received By Date/Time

Test America, Inc.  
PRF0963

Percent Finer (Passing) Than the Indicated Size

Sieve Size (microns)	2"	1"	3/4"	1/2"	3/8"	#4 (4750)	#10 (2000)	#20 (850)	#40 (425)	#60 (250)	#100 (150)	#200 (75)	32	22	13	9	7	3.2	1.3
PRF0963-01	100.0	100.0	100.0	97.3	94.5	80.3	58.4	33.3	16.6	7.5	4.9	4.0	3.1	3.1	2.7	2.7	2.7	1.8	1.8
PRF0963-02	100.0	100.0	100.0	100.0	95.8	91.9	88.9	86.0	74.2	43.1	22.2	11.4	6.6	5.9	4.6	3.9	3.9	2.0	2.0
PRF0963-03	100.0	100.0	100.0	100.0	99.6	95.7	74.2	57.5	46.2	38.3	34.1	29.2	21.0	14.0	10.2	7.7	7.0	4.5	3.2
PRF0963-04	100.0	100.0	100.0	94.7	90.2	75.3	56.0	38.5	21.2	9.3	5.5	4.2	4.2	3.3	2.1	2.1	2.1	1.2	1.2

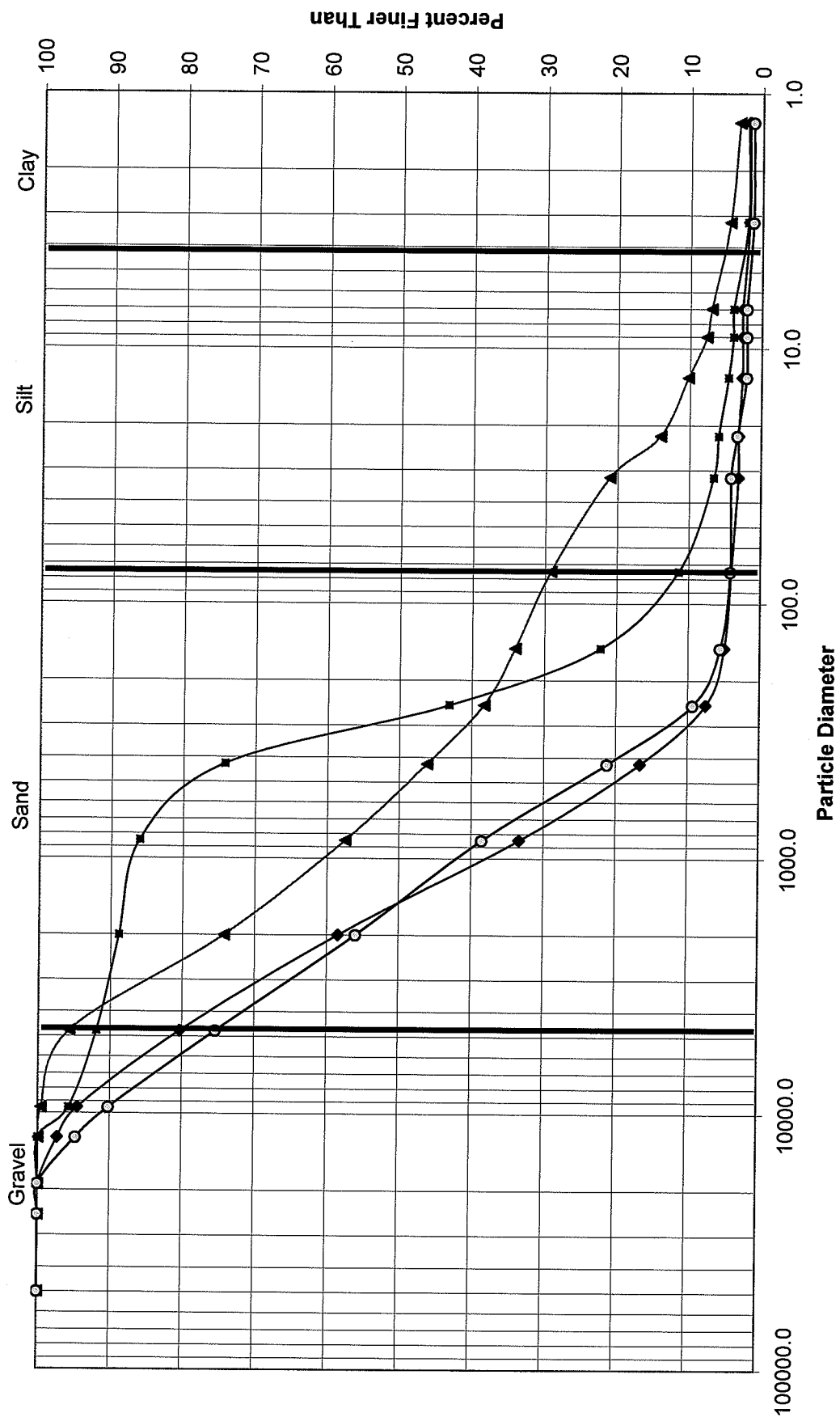
Testing performed according to ASTM D421/D422

Test America, Inc.  
PRF0963

Percent Retained in Each Size Fraction

Description	%Coarse Gravel			% Gravel		% Coarse Sand		% Medium Sand		% Fine Sand			% Very Coarse Silt		% Coarse Silt		% Medium Silt		% Fine Silt		% Very Fine Silt		% Clay
	3-2"	2-1"	1-3/4"	3/4-1/2"	1/2-3/8"	3/8"-4/750	4750-2000	2000-850	850-425	425-250	250-150	150-75	75-32	32-22	22-13	13-9	9-7	7-3.2	<3.2				
Particle Size (microns)																							
PRF0963-01	0.00	0.00	0.00	2.75	2.76	14.22	21.86	25.09	16.76	9.09	2.54	0.91	0.92	0.00	0.45	0.00	0.00	0.89	1.78				
PRF0963-02	0.00	0.00	0.00	0.00	4.24	3.84	3.06	2.85	11.79	31.12	20.91	10.80	4.80	0.66	1.32	0.66	0.00	1.97	1.97				
PRF0963-03	0.00	0.00	0.00	0.00	0.40	3.92	21.47	16.73	11.32	7.84	4.25	4.89	8.13	7.01	3.83	2.55	0.64	2.55	4.46				
PRF0963-04	0.00	0.00	0.00	5.25	4.57	14.84	19.36	17.46	17.33	11.87	3.81	1.35	0.01	0.83	1.25	0.00	0.00	0.83	1.25				

# Grain Size Distribution by Hydrometer



—◆— PRF0963-01      —■— PRF0963-02      —▲— PRF0963-03      —○— PRF0963-04

## ***September 2008 Catch Basin 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 September 2008 Inline Solids Sampling City Outfall Basin 52**

**To:** File  
**From:** Julia Fowler, GSI Water Solutions, Inc. (GSI)  
**Date:** November 11, 2008

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from a source investigation sampling event conducted by the City of Portland (City) in September 2008. Nine inline solids samples (FO081100 through FO081106, FO081108, and FO081109) and one duplicate sample (FO091107) were collected in Outfall Basin 52 on September 9 and 10, 2008.

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
  - Total Solids – SM 2540G
  - Polychlorinated Biphenyls (PCBs) Aroclors – EPA 8082
  - Total Metals – EPA 6020
- TestAmerica (TA)
  - Total Organic Carbon (TOC) – EPA 9060 MOD
- Analytical Resources, Incorporated (ARI)
  - Grain size – ASTM D421/422

The WPCL summary report and the subcontracted laboratory reports for all analyses associated with this sampling event 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 of the analytical data is based on the available documentation provided by the subcontracted laboratories 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 laboratory control limits
- Laboratory duplicate precision within laboratory control limits.
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within laboratory control limits
- Laboratory control and duplicate laboratory control (LC/DLC) 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**

Samples for all analyses were extracted and analyzed within the recommended method-specific holding times.

## **Method Blanks**

A method blank was processed during the subcontracted laboratory analysis of TOC. TOC was detected at 5.9 milligrams per a kilogram (mg/Kg) in the blank sample. This value is greater than the method detection limit but below the method reporting limit of 100 mg/Kg. The laboratory did not indicate this detection impacted the analytical results. No issues with regard to method blank detections are noted in the WPCL report.

## **Surrogate Recoveries**

No surrogate recovery exceptions are noted in the WPCL report.

## **Matrix Spike/Matrix Spike Duplicate**

No MS/MSD recovery exceptions are noted in the WPCL report. MS/MSD samples were not utilized as part of the subcontracted laboratory analysis.

## Laboratory Control Samples

An LC sample was processed during the laboratory analysis of TOC. The LC recovery is within the method-specified laboratory control limit. No LC recovery exceptions are noted in the WPCL report.

## Other

The WPCL report includes the following notes in relation to PCB analysis:

- FO081100 (52\_4), FO081101 (52\_5), FO081105 (52\_9), FO081108 (52\_11): “Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1254 (estimated due to pattern overlap).”
- FO081102 (52\_6): “Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1016/1242 and 1254; concentrations are flagged as estimates due to high surrogate recoveries and pattern overlap.”
- FO081103 (52\_7), FO081107 (DUP): “Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1254 (estimated due to pattern overlap); MRLs are raised due to low percent solids.”
- FO081104 (52\_8): “PCB Aroclor MRLs are raised due to dilution required for high concentration of target analyte.”
- FO081106 (52\_10): “MRLs are raised for PCB Aroclors due to high concentrations of non-target interferences; multiple clean-up procedures did not remove the interferences.”



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



Date: 9/10/2008  
Page: 1 of 1

Collected By: RCB/JXB/LAS

Project Name: PORTLAND HARBOR INLINE SAMP

File Number: 1020.001

Matrix: SEDIMENT

Requested Analyses

General

Metals

Field Comments

OUTFALL 52 CATCH BASIN SAMPLING

WPCL Sample I.D.

Location

Point Sample Code Date Sample Time Sample Type

PCB Aroclors - LL  
TOC  
Total Solids  
Grain Size  
Total Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, Zn)

FO 081100

IL-52-ANES13-0908  
N Burlington & RR Tracks

52\_4 9/9/08 0925 C

FO 081101

IL-52-ANES15-0908  
N Burlington & Crawford

52\_5 9/9/08 1010 C

FO 081102

IL-52-AAEG51-0908  
N Pittsburg & RR Tracks

52\_6 9/9/08 1116 C

FO 081103

IL-52-ANES21-0908  
PIW Parking Lot

52\_7 9/9/08 1153 C

FO 081104

IL-52-ANES11-0908  
N Alta & RR Tracks

52\_8 9/9/08 1336 C

FO 081105

IL-52-ANES10-0908  
8675 N Crawford

52\_9 9/9/08 1415 C

FO 081106

IL-52-ANES10-0908  
N Crawford & St. Johns Br

52\_10 9/9/08 1449 C

FO 081107

IL-52-ANES10-0908  
N Baltimore & Bradford

52\_11 9/10/08 0820 C

FO 081108

IL-52-AAEG54-0908  
N Bradford & RR Tracks

52\_12 9/10/08 0905 C

FO 081109

IL-52-AAEG54-0908  
N Bradford & RR Tracks

52\_12 9/10/08 0905 C

Signature: *[Signature]*

Date: 10/35

Relinquished By: 2.

Signature: *[Signature]*

Date: *[Date]*

Relinquished By: 4.

Signature: *[Signature]*

Date: *[Date]*

Signature: *[Signature]*

Date: 9/10/08

Relinquished By: 2.

Signature: *[Signature]*

Date: *[Date]*

Relinquished By: 4.

Signature: *[Signature]*

Date: *[Date]*

Signature: *[Signature]*

Date: 9/10/08

Relinquished By: 2.

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Relinquished By: 4.

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Date: *[Date]*

Signature: *[Signature]*

Date: 9/10/08

Relinquished By: 2.

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Date: *[Date]*

Relinquished By: 4.

Signature: *[Signature]*

Date: *[Date]*

Signature: *[Signature]*

Date: 9/10/08

Relinquished By: 2.

Signature: *[Signature]*

Date: *[Date]*

Relinquished By: 4.

Signature: *[Signature]*

Date: *[Date]*



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: FO081100**

**Sample Collected:** 09/09/08 09:25  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-ANE813-0908  
N BURLINGTON & RR TRACKS  
**Sample Point Code:** 52\_4  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AM08407  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/JXB/LAS

**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: Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1254 (estimated due to pattern overlap).

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	98.9	% W/W	0.01	SM 2540 G	09/10/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1254	EST 29	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1260	38	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	22500	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	2.18	Fract %	0.01	ASTM D421/422	09/12/08
Coarse Sand (4750-2000 µm)	19.98	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (150-75 µm)	4.30	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (250-150 µm)	4.67	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (425-250 µm)	7.32	Fract %	0.01	ASTM D421/422	09/12/08
Gravel (>4750 µm)	22.96	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (2000-850 µm)	19.60	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (850-425 µm)	11.28	Fract %	0.01	ASTM D421/422	09/12/08
Silt (13-9 µm)	0.82	Fract %	0.01	ASTM D421/422	09/12/08
Silt (22-13 µm)	1.09	Fract %	0.01	ASTM D421/422	09/12/08
Silt (32-22 µm)	0.82	Fract %	0.01	ASTM D421/422	09/12/08
Silt (7-3.2 µm)	2.45	Fract %	0.01	ASTM D421/422	09/12/08
Silt (75-32 µm)	1.44	Fract %	0.01	ASTM D421/422	09/12/08
Silt (9-7 µm)	1.09	Fract %	0.01	ASTM D421/422	09/12/08

End of Report for Sample ID: FO081100

Report Date: 10/08/08

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: FO081101**

**Sample Collected:** 09/09/08 10:10  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-ANE815-0908  
N BURLINGTON & CRAWFORD  
**Sample Point Code:** 52\_5  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AM08408  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/JXB/LAS

**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: Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1254 (estimated due to pattern overlap).

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	91.3	% W/W	0.01	SM 2540 G	09/10/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1254	EST 30	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1260	28	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	35900	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	3.10	Fract %	0.01	ASTM D421/422	09/12/08
Coarse Sand (4750-2000 µm)	16.88	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (150-75 µm)	6.37	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (250-150 µm)	6.54	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (425-250 µm)	9.07	Fract %	0.01	ASTM D421/422	09/12/08
Gravel (>4750 µm)	20.02	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (2000-850 µm)	14.07	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (850-425 µm)	10.89	Fract %	0.01	ASTM D421/422	09/12/08
Silt (13-9 µm)	0.69	Fract %	0.01	ASTM D421/422	09/12/08
Silt (22-13 µm)	2.76	Fract %	0.01	ASTM D421/422	09/12/08
Silt (32-22 µm)	3.45	Fract %	0.01	ASTM D421/422	09/12/08
Silt (7-3.2 µm)	2.41	Fract %	0.01	ASTM D421/422	09/12/08
Silt (75-32 µm)	3.06	Fract %	0.01	ASTM D421/422	09/12/08
Silt (9-7 µm)	0.69	Fract %	0.01	ASTM D421/422	09/12/08

End of Report for Sample ID: FO081101

Report Date: 10/08/08

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: FO081102**

**Sample Collected:** 09/09/08 11:16  
**Sample Received:** 09/10/08

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-AAE651-0908  
N PITTSBURG & RR TRACKS  
**Sample Point Code:** 52\_6  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AM08409  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/JXB/LAS

**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: Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1016/1242 and 1254; concentrations are flagged as estimates due to high surrogate recoveries and pattern overlap.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	95.1	% W/W	0.01	SM 2540 G	09/12/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	EST 37	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1254	EST 108	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1260	EST 203	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	63800	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08

**End of Report for Sample ID: FO081102**

**Report Date:** 10/08/08

**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: FO081103**

**Sample Collected:** 09/09/08 11:53  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-ANE921-0908  
PIW PARKING LOT  
**Sample Point Code:** 52\_7  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AM08410  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/JXB/LAS

**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: Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1254 (estimated due to pattern overlap); MRLs are raised due to low percent solids.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	47.3	% W/W	0.01	SM 2540 G	09/10/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1221	<40	µg/Kg dry wt	40	EPA 8082	09/24/08
Aroclor 1232	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1248	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1254	EST 33	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1260	60	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1262	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1268	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	64100	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	5.38	Fract %	0.01	ASTM D421/422	09/12/08
Coarse Sand (4750-2000 µm)	9.75	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (150-75 µm)	9.63	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (250-150 µm)	9.20	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (425-250 µm)	11.33	Fract %	0.01	ASTM D421/422	09/12/08
Gravel (>4750 µm)	6.32	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (2000-850 µm)	12.32	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (850-425 µm)	11.58	Fract %	0.01	ASTM D421/422	09/12/08
Silt (13-9 µm)	2.69	Fract %	0.01	ASTM D421/422	09/12/08
Silt (22-13 µm)	4.31	Fract %	0.01	ASTM D421/422	09/12/08
Silt (32-22 µm)	5.38	Fract %	0.01	ASTM D421/422	09/12/08
Silt (7-3.2 µm)	4.31	Fract %	0.01	ASTM D421/422	09/12/08
Silt (75-32 µm)	5.63	Fract %	0.01	ASTM D421/422	09/12/08
Silt (9-7 µm)	2.15	Fract %	0.01	ASTM D421/422	09/12/08

End of Report for Sample ID: FO081103

Report Date: 10/08/08

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: FO081104**

**Sample Collected:** 09/09/08 13:36  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP

**Report Page:** Page 1 of 2

**Address/Location:** IL-52-ANE911-0908  
N ALTA & RR TRACKS

**System ID:** AM08411

**Sample Point Code:** 52\_8

**EID File #:** 1020.001

**Sample Type:** COMPOSITE

**LocCode:** PORTHARI

**Sample Matrix:** SEDIMENT

**Collected By:** RCB/JXB/LAS

**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: PCB Aroclor MRLs are raised due to dilution required for high concentration of target analyte.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	90.3	% W/W	0.01	SM 2540 G	09/10/08
<b>METALS</b>					
ARSENIC	7.42	mg/Kg dry wt	0.50	EPA 6020	09/22/08
CADMIUM	0.59	mg/Kg dry wt	0.10	EPA 6020	09/22/08
CHROMIUM	563	mg/Kg dry wt	5.00	EPA 6020	09/22/08
COPPER	5000	mg/Kg dry wt	2.00	EPA 6020	09/22/08
LEAD	272	mg/Kg dry wt	1.00	EPA 6020	09/22/08
MERCURY	0.036	mg/Kg dry wt	0.010	EPA 6020	09/22/08
NICKEL	321	mg/Kg dry wt	5.00	EPA 6020	09/22/08
SILVER	0.84	mg/Kg dry wt	0.10	EPA 6020	09/22/08
ZINC	437	mg/Kg dry wt	5.00	EPA 6020	09/22/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<1000	µg/Kg dry wt	1000	EPA 8082	09/29/08
Aroclor 1221	<2000	µg/Kg dry wt	2000	EPA 8082	09/29/08
Aroclor 1232	<1000	µg/Kg dry wt	1000	EPA 8082	09/29/08
Aroclor 1248	<1000	µg/Kg dry wt	1000	EPA 8082	09/29/08
Aroclor 1254	<1000	µg/Kg dry wt	1000	EPA 8082	09/29/08
Aroclor 1260	8160	µg/Kg dry wt	1000	EPA 8082	09/29/08
Aroclor 1262	<1000	µg/Kg dry wt	1000	EPA 8082	09/29/08
Aroclor 1268	<1000	µg/Kg dry wt	1000	EPA 8082	09/29/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	32400	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	1.34	Fract %	0.01	ASTM D421/422	09/12/08
Coarse Sand (4750-2000 µm)	22.81	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (150-75 µm)	2.98	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (250-150 µm)	4.03	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (425-250 µm)	6.59	Fract %	0.01	ASTM D421/422	09/12/08
Gravel (>4750 µm)	30.68	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (2000-850 µm)	17.33	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (850-425 µm)	9.64	Fract %	0.01	ASTM D421/422	09/12/08
Silt (13-9 µm)	0.27	Fract %	0.01	ASTM D421/422	09/12/08

**Report Date:** 10/08/08

**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: FO081104**

**Sample Collected:** 09/09/08 13:36  
**Sample Received:** 09/10/08

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-ANE911-0908  
N ALTA & RR TRACKS  
**Sample Point Code:** 52\_8  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 2 of 2  
**System ID:** AM08411  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/JXB/LAS

**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: PCB Aroclor MRLs are raised due to dilution required for high concentration of target analyte.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Silt (22-13 $\mu$ m)	1.34	Fract %	0.01	ASTM D421/422	09/12/08
Silt (32-22 $\mu$ m)	0.80	Fract %	0.01	ASTM D421/422	09/12/08
Silt (7-3.2 $\mu$ m)	0.80	Fract %	0.01	ASTM D421/422	09/12/08
Silt (75-32 $\mu$ m)	0.57	Fract %	0.01	ASTM D421/422	09/12/08
Silt (9-7 $\mu$ m)	0.80	Fract %	0.01	ASTM D421/422	09/12/08

End of Report for Sample ID: FO081104

Report Date: 10/08/08

Validated By:



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**LABORATORY ANALYSIS REPORT**

**Sample ID: FO081105**

**Sample Collected:** 09/09/08 14:15  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP

**Report Page:** Page 1 of 2

**Address/Location:** IL-52-8675NCRAWFORD-0908

8675 N CRAWFORD

**System ID:** AM08412

**Sample Point Code:** 52\_9

**EID File #:** 1020.001

**Sample Type:** COMPOSITE

**LocCode:** PORTHARI

**Sample Matrix:** SEDIMENT

**Collected By:** RCB/JXB/LAS

**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: Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1254 with some 1260 (estimated due to pattern overlap).

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	62.9	% W/W	0.01	SM 2540 G	09/10/08
<b>METALS</b>					
ARSENIC	7.08	mg/Kg dry wt	0.50	EPA 6020	09/22/08
CADMIUM	1.91	mg/Kg dry wt	0.10	EPA 6020	09/22/08
CHROMIUM	5260	mg/Kg dry wt	5.00	EPA 6020	09/22/08
COPPER	13500	mg/Kg dry wt	2.00	EPA 6020	09/22/08
LEAD	150	mg/Kg dry wt	1.00	EPA 6020	09/22/08
MERCURY	0.087	mg/Kg dry wt	0.010	EPA 6020	09/22/08
NICKEL	3050	mg/Kg dry wt	5.00	EPA 6020	09/22/08
SILVER	1.36	mg/Kg dry wt	0.10	EPA 6020	09/22/08
ZINC	3120	mg/Kg dry wt	5.00	EPA 6020	09/22/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/29/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1254	60	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1260	EST 29	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	60800	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	2.81	Fract %	0.01	ASTM D421/422	09/12/08
Coarse Sand (4750-2000 µm)	13.30	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (150-75 µm)	9.66	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (250-150 µm)	9.06	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (425-250 µm)	11.66	Fract %	0.01	ASTM D421/422	09/12/08
Gravel (>4750 µm)	7.84	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (2000-850 µm)	16.61	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (850-425 µm)	12.30	Fract %	0.01	ASTM D421/422	09/12/08

**Report Date:** 10/08/08

**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: FO081105**

**Sample Collected:** 09/09/08 14:15  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-8675NCRAWFORD-0908  
8675 N CRAWFORD  
**Sample Point Code:** 52\_9  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 2 of 2

**System ID:** AM08412  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/JXB/LAS

**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: Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1254 with some 1260 (estimated due to pattern overlap).

Test Parameter	Result	Units	MRL	Method	Analysis Date
Silt (13-9 $\mu$ m)	0.80	Fract %	0.01	ASTM D421/422	09/12/08
Silt (22-13 $\mu$ m)	2.40	Fract %	0.01	ASTM D421/422	09/12/08
Silt (32-22 $\mu$ m)	2.00	Fract %	0.01	ASTM D421/422	09/12/08
Silt (7-3.2 $\mu$ m)	2.00	Fract %	0.01	ASTM D421/422	09/12/08
Silt (75-32 $\mu$ m)	8.74	Fract %	0.01	ASTM D421/422	09/12/08
Silt (9-7 $\mu$ m)	0.80	Fract %	0.01	ASTM D421/422	09/12/08

**End of Report for Sample ID: FO081105**

**Report Date:** 10/08/08

**Validated By:**



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**LABORATORY ANALYSIS REPORT**

**Sample ID: FO081106**

**Sample Collected:** 09/09/08 14:49  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP

**Report Page:** Page 1 of 2

**Address/Location:** IL-52-AAE673-0908

N CRAWFORD & ST JOHNS

**Sample Point Code:** 52\_10

**Sample Type:** COMPOSITE

**Sample Matrix:** SEDIMENT

**System ID:** AM08413

**EID File #:** 1020.001

**LocCode:** PORTHARI

**Collected By:** RCB/JXB/LAS

**UPDATED DATA**  
**REASON:** *Corrected*  
*Added/Deleted*  
**DATE:** 10/21/08

**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: MRLs are raised for PCB Aroclors due to high concentrations of non-target interferences; multiple clean-up procedures did not remove the interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	64.9	% W/W	0.01	SM 2540 G	09/10/08
<b>METALS</b>					
ARSENIC	5.62	mg/Kg dry wt	0.50	EPA 6020	09/22/08
CADMIUM	1.22	mg/Kg dry wt	0.10	EPA 6020	09/22/08
CHROMIUM	954	mg/Kg dry wt	5.00	EPA 6020	09/22/08
COPPER	2170	mg/Kg dry wt	2.00	EPA 6020	09/22/08
LEAD	110	mg/Kg dry wt	1.00	EPA 6020	09/22/08
MERCURY	0.085	mg/Kg dry wt	0.010	EPA 6020	09/22/08
NICKEL	512	mg/Kg dry wt	5.00	EPA 6020	09/22/08
SILVER	0.35	mg/Kg dry wt	0.10	EPA 6020	09/22/08
ZINC	1160	mg/Kg dry wt	5.00	EPA 6020	09/22/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<100	µg/Kg dry wt	100	EPA 8082	09/29/08
Aroclor 1221	<200	µg/Kg dry wt	200	EPA 8082	09/29/08
Aroclor 1232	<100	µg/Kg dry wt	100	EPA 8082	09/29/08
Aroclor 1248	<100	µg/Kg dry wt	100	EPA 8082	09/29/08
Aroclor 1254	<100	µg/Kg dry wt	100	EPA 8082	09/29/08
Aroclor 1260	<100	µg/Kg dry wt	100	EPA 8082	09/29/08
Aroclor 1262	<100	µg/Kg dry wt	100	EPA 8082	09/29/08
Aroclor 1268	<100	µg/Kg dry wt	100	EPA 8082	09/29/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	113000	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	7.47	Fract %	0.01	ASTM D421/422	09/12/08
Coarse Sand (4750-2000 µm)	15.20	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (150-75 µm)	4.74	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (250-150 µm)	4.00	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (425-250 µm)	6.14	Fract %	0.01	ASTM D421/422	09/12/08
Gravel (>4750 µm)	20.36	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (2000-850 µm)	12.75	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (850-425 µm)	9.28	Fract %	0.01	ASTM D421/422	09/12/08

**Report Date:** 10/21/08

**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: FO081106**

**Sample Collected:** 09/09/08 14:49  
**Sample Received:** 09/10/08

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-AAE673-0908  
N CRAWFORD & ST JOHNS  
**Sample Point Code:** 52\_10  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 2 of 2

**System ID:** AM08413  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/JXB/LAS

**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: MRLs are raised for PCB Aroclors due to high concentrations of non-target interferences; multiple clean-up procedures did not remove the interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Silt (13-9 $\mu\text{m}$ )	1.07	Fract %	0.01	ASTM D421/422	09/12/08
Silt (22-13 $\mu\text{m}$ )	4.27	Fract %	0.01	ASTM D421/422	09/12/08
Silt (32-22 $\mu\text{m}$ )	5.33	Fract %	0.01	ASTM D421/422	09/12/08
Silt (7-3.2 $\mu\text{m}$ )	3.73	Fract %	0.01	ASTM D421/422	09/12/08
Silt (75-32 $\mu\text{m}$ )	2.46	Fract %	0.01	ASTM D421/422	09/12/08
Silt (9-7 $\mu\text{m}$ )	3.20	Fract %	0.01	ASTM D421/422	09/12/08

**End of Report for Sample ID: FO081106**

**Report Date:** 10/21/08

**Validated By:**



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**Water Pollution Control Laboratory**  
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**LABORATORY ANALYSIS REPORT**

**Sample ID: FO081107**

**Sample Collected:** 09/09/08 00:00  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** DUPLICATE

**Report Page:** Page 1 of 1

**Sample Point Code:** DUP  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**System ID:** AM08414  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** RCB/JXB/LAS

**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: Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1254 (estimated due to pattern overlap); MRLs are raised due to low percent solids.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	50.5	% W/W	0.01	SM 2540 G	09/10/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1221	<40	µg/Kg dry wt	40	EPA 8082	09/24/08
Aroclor 1232	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1248	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1254	EST 61	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1260	83	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1262	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1268	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	77200	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	5.20	Fract %	0.01	ASTM D421/422	09/12/08
Coarse Sand (4750-2000 µm)	9.26	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (150-75 µm)	9.29	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (250-150 µm)	9.23	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (425-250 µm)	11.43	Fract %	0.01	ASTM D421/422	09/12/08
Gravel (>4750 µm)	5.50	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (2000-850 µm)	10.76	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (850-425 µm)	11.52	Fract %	0.01	ASTM D421/422	09/12/08
Silt (13-9 µm)	2.83	Fract %	0.01	ASTM D421/422	09/12/08
Silt (22-13 µm)	5.20	Fract %	0.01	ASTM D421/422	09/12/08
Silt (32-22 µm)	6.61	Fract %	0.01	ASTM D421/422	09/12/08
Silt (7-3.2 µm)	5.20	Fract %	0.01	ASTM D421/422	09/12/08
Silt (75-32 µm)	5.15	Fract %	0.01	ASTM D421/422	09/12/08
Silt (9-7 µm)	2.83	Fract %	0.01	ASTM D421/422	09/12/08

End of Report for Sample ID: FO081107

Report Date: 10/08/08

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: FO081108**

**Sample Collected:** 09/10/08 08:20  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP

**Report Page:** Page 1 of 1

**Address/Location:** IL-52-ANE910-0908  
N BALTIMORE & BRADFORD

**System ID:** AM08415

**Sample Point Code:** 52\_11

**EID File #:** 1020.001

**Sample Type:** COMPOSITE

**LocCode:** PORTHARI

**Sample Matrix:** SEDIMENT

**Collected By:** RCB/JXB/LAS

**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: Detected PCB appears to be a mix of Aroclors, predominantly Aroclor 1260 with some 1254 (estimated due to pattern overlap).

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	97.5	% W/W	0.01	SM 2540 G	09/12/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/29/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1254	EST 123	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1260	515	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/29/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	85400	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08

**End of Report for Sample ID: FO081108**

**Report Date:** 10/08/08

**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: FO081109**

**Sample Collected:** 09/10/08 09:05  
**Sample Received:** 09/10/08

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP

**Report Page:** Page 1 of 2

**Address/Location:** IL-52-AAE694-0908

N BRADFORD & RR TRACKS

**Sample Point Code:** 52\_12

**System ID:** AM08416

**Sample Type:** COMPOSITE

**EID File #:** 1020.001

**Sample Matrix:** SEDIMENT

**LocCode:** PORTHARI

**Collected By:** RCB/JXB/LAS

**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
<b>GENERAL</b>					
TOTAL SOLIDS	95.6	% W/W	0.01	SM 2540 G	09/10/08
<b>METALS</b>					
ARSENIC	2.61	mg/Kg dry wt	0.50	EPA 6020	09/22/08
CADMIUM	0.51	mg/Kg dry wt	0.10	EPA 6020	09/22/08
CHROMIUM	46.4	mg/Kg dry wt	5.00	EPA 6020	09/22/08
COPPER	69.7	mg/Kg dry wt	2.00	EPA 6020	09/22/08
LEAD	39.1	mg/Kg dry wt	1.00	EPA 6020	09/22/08
MERCURY	0.125	mg/Kg dry wt	0.010	EPA 6020	09/22/08
NICKEL	25.8	mg/Kg dry wt	5.00	EPA 6020	09/22/08
SILVER	0.10	mg/Kg dry wt	0.10	EPA 6020	09/22/08
ZINC	187	mg/Kg dry wt	5.00	EPA 6020	09/22/08
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/24/08
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1254	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1260	54	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/24/08
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	40700	mg/Kg dry wt	100	EPA 9060 MOD	09/19/08
<b>GRAIN SIZE BY ASTM - ARI</b>					
Clay (<3.2 µm)	3.25	Fract %	0.01	ASTM D421/422	09/12/08
Coarse Sand (4750-2000 µm)	14.44	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (150-75 µm)	3.26	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (250-150 µm)	3.21	Fract %	0.01	ASTM D421/422	09/12/08
Fine Sand (425-250 µm)	4.80	Fract %	0.01	ASTM D421/422	09/12/08
Gravel (>4750 µm)	46.31	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (2000-850 µm)	8.47	Fract %	0.01	ASTM D421/422	09/12/08
Medium Sand (850-425 µm)	5.84	Fract %	0.01	ASTM D421/422	09/12/08
Silt (13-9 µm)	1.00	Fract %	0.01	ASTM D421/422	09/12/08

**Report Date:** 10/08/08

**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: FO081109**

**Sample Collected:** 09/10/08 09:05  
**Sample Received:** 09/10/08

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP

**Report Page:** Page 2 of 2

**Address/Location:** IL-52-AAE694-0908

N BRADFORD & RR TRACKS

**System ID:** AM08416

**Sample Point Code:** 52\_12

**EID File #:** 1020.001

**Sample Type:** COMPOSITE

**LocCode:** PORTHARI

**Sample Matrix:** SEDIMENT

**Collected By:** RCB/JXB/LAS

**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
Silt (22-13 $\mu$ m)	1.75	Fract %	0.01	ASTM D421/422	09/12/08
Silt (32-22 $\mu$ m)	2.00	Fract %	0.01	ASTM D421/422	09/12/08
Silt (7-3.2 $\mu$ m)	2.25	Fract %	0.01	ASTM D421/422	09/12/08
Silt (75-32 $\mu$ m)	2.42	Fract %	0.01	ASTM D421/422	09/12/08
Silt (9-7 $\mu$ m)	1.00	Fract %	0.01	ASTM D421/422	09/12/08

**End of Report for Sample ID: FO081109**

**Report Date:** 10/08/08

**Validated By:** 

September 30, 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 09/10/08 16:40.  
The following list is a summary of the Work Orders contained in this report, generated on 09/30/08 09:50.

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

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
PRI0356	Portland Harbor	36238

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**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor**

Project Number:

36238

Report Created:

Project Manager:

Jennifer Shackelford

09/30/08 09:50

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO 081100	PRI0356-01	Soil	09/09/08 09:25	09/10/08 16:40
FO 081101	PRI0356-02	Soil	09/09/08 10:10	09/10/08 16:40
FO 081102	PRI0356-03	Soil	09/09/08 11:16	09/10/08 16:40
FO 081103	PRI0356-04	Soil	09/09/08 11:53	09/10/08 16:40
FO 081104	PRI0356-05	Soil	09/09/08 13:36	09/10/08 16:40
FO 081105	PRI0356-06	Soil	09/09/08 14:15	09/10/08 16:40
FO 081106	PRI0356-07	Soil	09/09/08 14:49	09/10/08 16:40
FO 081107	PRI0356-08	Soil	09/09/08 00:00	09/10/08 16:40
FO 081108	PRI0356-09	Soil	09/10/08 08:20	09/10/08 16:40
FO 081109	PRI0356-10	Soil	09/09/08 09:05	09/10/08 16:40

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**  
Project Number: 36238  
Project Manager: Jennifer Shackelford

Report Created:  
09/30/08 09:50

## Organic Carbon, Total (TOC)

TestAmerica Connecticut

Analyte	Method	Result	MDL *	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>PRI0356-01 (FO 081100)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 09:25</b>		
Total Organic Carbon - Duplicates	9060	22500	-----	100	mg/Kg	1x	20178	09/19/08 13:38	09/19/08 13:38	
<b>PRI0356-02 (FO 081101)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 10:10</b>		
Total Organic Carbon - Duplicates	9060	35900	-----	100	mg/Kg	1x	20178	09/19/08 13:51	09/19/08 13:51	
<b>PRI0356-03 (FO 081102)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 11:16</b>		
Total Organic Carbon - Duplicates	9060	63800	-----	100	mg/Kg	1x	20178	09/19/08 14:05	09/19/08 14:05	
<b>PRI0356-04 (FO 081103)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 11:53</b>		
Total Organic Carbon - Duplicates	9060	64100	-----	100	mg/Kg	1x	20178	09/19/08 14:19	09/19/08 14:19	
<b>PRI0356-05 (FO 081104)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 13:36</b>		
Total Organic Carbon - Duplicates	9060	32400	-----	100	mg/Kg	1x	20178	09/19/08 14:47	09/19/08 14:47	
<b>PRI0356-06 (FO 081105)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 14:15</b>		
Total Organic Carbon - Duplicates	9060	60800	-----	100	mg/Kg	1x	20178	09/19/08 15:02	09/19/08 15:02	
<b>PRI0356-07 (FO 081106)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 14:49</b>		
Total Organic Carbon - Duplicates	9060	113000	-----	100	mg/Kg	1x	20178	09/19/08 15:16	09/19/08 15:16	
<b>PRI0356-08 (FO 081107)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 00:00</b>		
Total Organic Carbon - Duplicates	9060	77200	-----	100	mg/Kg	1x	20178	09/19/08 15:31	09/19/08 15:31	
<b>PRI0356-09 (FO 081108)</b>				<b>Soil</b>				<b>Sampled: 09/10/08 08:20</b>		
Total Organic Carbon - Duplicates	9060	85400	-----	100	mg/Kg	1x	20178	09/19/08 15:45	09/19/08 15:45	
<b>PRI0356-10 (FO 081109)</b>				<b>Soil</b>				<b>Sampled: 09/09/08 09:05</b>		
Total Organic Carbon - Duplicates	9060	40700	-----	100	mg/Kg	1x	20178	09/19/08 16:13	09/19/08 16:13	

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**  
Project Number: 36238  
Project Manager: Jennifer Shackelford

Report Created:  
09/30/08 09:50

**Organic Carbon, Total (TOC) - Laboratory Quality Control Results**

TestAmerica Connecticut

QC Batch: 20178

Soil Preparation Method: NA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>LCS (220-20178-5)</b>			QC Source:						Extracted: 09/19/08 13:24					
Total Organic Carbon - Duplicates	9060	4670	---	100	mg/Kg	1x	--	3530	132%	(28-172)	--	--	09/19/08 13:24	
<b>Blank (220-20178-6)</b>			QC Source:						Extracted: 09/19/08 13:31					
Total Organic Carbon - Duplicates	9060	5.9	---	100	mg/Kg	1x	--	--	--	--	--	--	09/19/08 13:31	J

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**

Project Number:

36238

Project Manager:

Jennifer Shackelford

Report Created:

09/30/08 09:50

## Notes and Definitions

### Report Specific Notes:

- J - Sample result is greater than the MDL but below the CRDL

### 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).
- 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 - 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.*

## CHAIN OF CUSTODY REPORT

Work Order #: **PRI0356**

CLIENT: <b>City of Portland</b>		INVOICE TO: <b>Charles Lytle</b>		<b>TURNAROUND REQUEST</b> in Business Days * Organic & Inorganic Analyses <input checked="" type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 Petroleum Hydrocarbon Analyses <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 STD <input type="checkbox"/> OTHER Specify: _____ * Turnaround Requests less than standard may incur Rush Charges.			
REPORT TO ADDRESS: <b>Jennifer Shackelford</b>		P.O. NUMBER: <b>36238</b>					
PHONE: _____ FAX: _____		PRESERVATIVE: _____					
PROJECT NAME: <b>Portland Harbor</b>		REQUESTED ANALYSES					
PROJECT NUMBER: <b>Inline Samp</b>							
SAMPLED BY: _____							
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TUO	GUIN				
1 FO 081100	9/9/08 9:25	X	X				S 2
2 FO 081101	10:10	X	X				S 2
3 FO 081102	11:16	X					S 1
4 FO 081103	11:53	X	X				S 2
5 FO 081104	13:36	X	X				S 2
6 FO 081105	14:15	X	X				S 2
7 FO 081106	14:49	X	X				S 2
8 FO 081107	—	X	X				S 2
9 FO 081108	9/10/08 8:20	X					S 1
10 FO 081109	9:05	X	X				S 2
RELEASED BY: <b>Kristen Wright</b>	FIRM: <b>City of Portland</b>	DATE: <b>9/10/08</b>	TIME: <b>15:20</b>	RECEIVED BY: <b>Bob F</b>	FIRM: <b>TAP</b>	DATE: <b>9/10/08</b>	TIME: <b>15:20</b>
PRINT NAME: <b>Kristen Wright</b>		DATE: <b>9/10/08</b>	TIME: <b>16:40</b>	RECEIVED BY: <b>KAREN WILSON</b>	FIRM: <b>TA-P</b>	DATE: <b>9-10-08</b>	TIME: <b>16:40</b>
ADDITIONAL REMARKS:						TEMP: <b>29°C</b>	PAGE 1 OF 1

# TestAmerica Sample Receipt Checklist

Cooler ID: \_\_\_\_\_

Received by: \_\_\_\_\_

Unpacked by: \_\_\_\_\_

Logged-in by: \_\_\_\_\_

Work Order No. PR10356

\*(section A)

\*(section B)

Date: 9-10-08

Date: 9-10-08

Date: 9/10/08

Client: City of Portland

Time: 16:40

Initials: K

Initials: JS

Project: Portland Harbor

Initials: K

Temperature out of range:

\*\*\*ESI Clients (see Section C)

☐ Not enough Ice  
☐ No Ice  
☐ Ice Melted  
☐ Win 4 Hours  
☐ Other: \_\_\_\_\_

Digi #1

Digi #2

Temperature Blank: \_\_\_\_\_ °C

Cooler Temperature (IR): 2.9 °C plastic glass NA (oil/air samples, ESI client)

**A**

Custody Seals: (# \_\_\_\_\_)

Signature: Y N Dated: \_\_\_\_\_

☒ None

Container Type:

1 #Cooler(s)

\_\_\_\_ #Box(s)

\_\_\_\_ None (\_\_\_\_ #Other: \_\_\_\_\_)

Coolant Type:

\_\_\_\_ Gel Ice

☒ Loose Ice

\_\_\_\_ None

Packing Material:

\_\_\_\_ Bubble Bags

\_\_\_\_ Styrofoam Cubbies

\_\_\_\_ Peanuts

☒ None (\_\_\_\_ Other: \_\_\_\_\_)

Received from:

☒ TA Courier

\_\_\_\_ Senvoy

\_\_\_\_ UPS

\_\_\_\_ Fed Ex

\_\_\_\_ Client

\_\_\_\_ TDP

\_\_\_\_ DHL

\_\_\_\_ SDS

\_\_\_\_ Mid-Valley

\_\_\_\_ GS/TA

\_\_\_\_ GS/Senvoy

\_\_\_\_ Other: \_\_\_\_\_

**B**

Sample Status:  
(If N circled, see NOD)

General:

Intact? Y N

# Containers Match COC? Y N none given

IDs Match COC? Y N

For Analyses Requested:

Cyanide Checked? Y N NA

Correct Type & Preservation? Y N

Adequate Volume? Y N

Within Hold Time? Y N

Volatiles/ Oil Quality:

VOAs/ Syringes free of Headspace? Y N NA

TB on COC? not provided Y N NA

Metals:

HNO3 Preserved? Y N NA

Dissolved Metals Filtered? Y N NA

**C**

\*\*\*ESI Clients Only:

Temperature Blank: \_\_\_\_\_ °C not provided Digi: # 1 #2

All preserved bottles checked Y N NA (voas/soils/all unp.)

All preserved accordingly? Y N (see NOD) NA (voas/soils/all unp.)

FED EX/ UPS: Was the tracking paper keepable? YES NO

If circled NO, what is the Tracking number? \_\_\_\_\_

FED EX Goldstreak UPS DHL Other: \_\_\_\_\_

Project Managers:

Comments: \_\_\_\_\_

PM Reviewed: \_\_\_\_\_ (Initial/Date)



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

October 6, 2008

Mr. Howard Holmes  
Test America, Inc.  
9405 SW Nimbus Ave.  
Beaverton, OR 97008

**Subject: Project No.: PRI0356;  
ARI Project No.: NO98**

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

*Shenna Smith for Harold Benny.*  
Harold Benny  
Geotechnical Division Manager  
206-695-6246  
[haroldb@arilabs.com](mailto:haroldb@arilabs.com)

Enclosures

cc: File NO98



**Client:** Test America, Inc.

**ARI Project No.:** NO98

**Client Project:** PRI0356

### Case Narrative

1. Eight samples were received on September 12, 2008, 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 (dry prep).
3. The samples contained organic material such as twigs, roots, leaves, etc. that may have broke down during the analysis, and may have affected the reported grain size distribution.
4. An assumed specific gravity of 2.65 was used in the calculations.
5. A standard milkshake mixer type device was used to disperse the samples.
6. The data is provided in summary tables and plots.
7. There were no further anomalies in the samples or test method.

Approved by:

Title:

*Sherron Smith*  
Laboratory Supervisor

Date:

*10/16/08*

N098

**SUBCONTRACT ORDER**  
**TestAmerica Portland**  
**PRI0356**

**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:  
Receipt Temperature: \_\_\_\_\_ °C      Ice: Y / N

Analysis	Units	Due	Expires	Comments	
Sample ID: PRI0356-01	Soil		Sampled: 09/09/08 09:25		A
Grain Size (ASTM) - SUB	ug/l	09/24/08	03/08/09 09:25	sub to Analytical Resources Inc (ARI)	
Containers Supplied:					
8 oz. jar (A)					
Sample ID: PRI0356-02	Soil		Sampled: 09/09/08 10:10		B
Grain Size (ASTM) - SUB	ug/l	09/24/08	03/08/09 10:10	sub to Analytical Resources Inc (ARI)	
Containers Supplied:					
8 oz. jar (A)					
Sample ID: PRI0356-04	Soil		Sampled: 09/09/08 11:53		C
Grain Size (ASTM) - SUB	ug/l	09/24/08	03/08/09 11:53	sub to Analytical Resources Inc (ARI)	
Containers Supplied:					
8 oz. jar (A)					
Sample ID: PRI0356-05	Soil		Sampled: 09/09/08 13:36		D
Grain Size (ASTM) - SUB	ug/l	09/24/08	03/08/09 13:36	sub to Analytical Resources Inc (ARI)	
Containers Supplied:					
8 oz. jar (A)					
Sample ID: PRI0356-06	Soil		Sampled: 09/09/08 14:15		E
Grain Size (ASTM) - SUB	ug/l	09/24/08	03/08/09 14:15	sub to Analytical Resources Inc (ARI)	
Containers Supplied:					
8 oz. jar (A)					
Sample ID: PRI0356-07	Soil		Sampled: 09/09/08 14:49		F
Grain Size (ASTM) - SUB	ug/l	09/24/08	03/08/09 14:49	sub to Analytical Resources Inc (ARI)	
Containers Supplied:					
8 oz. jar (A)					

Released By

Date/Time

Received By

Date/Time

Released By

Date/Time

Received By

Date/Time

1098

## SUBCONTRACT ORDER

TestAmerica Portland

PRI0356

Analysis	Units	Due	Expires	Comments
Sample ID: PRI0356-08	Soil		Sampled: 09/09/08 00:00	G
Grain Size (ASTM) - SUB	ug/l	09/24/08	03/08/09 00:00	sub to Analytical Resources Inc (ARI)
Containers Supplied:				
8 oz. jar (A)				
Sample ID: PRI0356-10	Soil		Sampled: 09/09/08 09:05	H
Grain Size (ASTM) - SUB	ug/l	09/24/08	03/08/09 09:05	sub to Analytical Resources Inc (ARI)
Containers Supplied:				
8 oz. jar (A)				

Percent Finer (Passing) Than the Indicated Size

Sieve Size (microns)	2"	1"	3/4"	1/2"	3/8"	#4 (4750)	#10 (2000)	#20 (850)	#40 (425)	#60 (250)	#100 (150)	#200 (75)	32	22	13	9	7	3.2	1.3
PRI0356-01	100.0	100.0	100.0	94.5	90.8	77.0	57.1	37.5	26.2	18.9	14.2	9.9	8.5	7.6	6.5	5.7	4.6	2.2	1.4
PRI0356-02	100.0	100.0	100.0	96.9	93.7	80.0	63.1	49.0	38.1	29.1	22.5	16.2	13.1	9.7	6.9	6.2	5.5	3.1	2.1
PRI0356-04	100.0	100.0	99.9	99.9	99.8	93.7	83.9	71.6	60.0	48.7	39.5	29.9	24.2	18.8	14.5	11.8	9.7	5.4	3.8
PRI0356-05	100.0	100.0	100.0	94.9	89.3	69.3	46.5	29.2	19.5	13.0	8.9	5.9	5.4	4.6	3.2	3.0	2.1	1.3	1.3
PRI0356-06	100.0	100.0	99.9	99.8	98.2	92.2	78.9	62.2	49.9	38.3	29.2	19.6	10.8	8.8	6.4	5.6	4.8	2.8	2.4
PRI0356-07	100.0	100.0	100.0	97.0	90.5	79.6	64.4	51.7	42.4	36.3	32.3	27.5	25.1	19.7	15.5	14.4	11.2	7.5	3.7
PRI0356-08	100.0	100.0	99.8	99.8	99.0	94.5	85.2	74.5	63.0	51.5	42.3	33.0	27.9	21.3	16.1	13.2	10.4	5.2	4.3
PRI0356-10	100.0	100.0	100.0	94.0	81.2	53.7	39.3	30.8	24.9	20.1	16.9	13.7	11.2	9.2	7.5	6.5	5.5	3.2	2.5

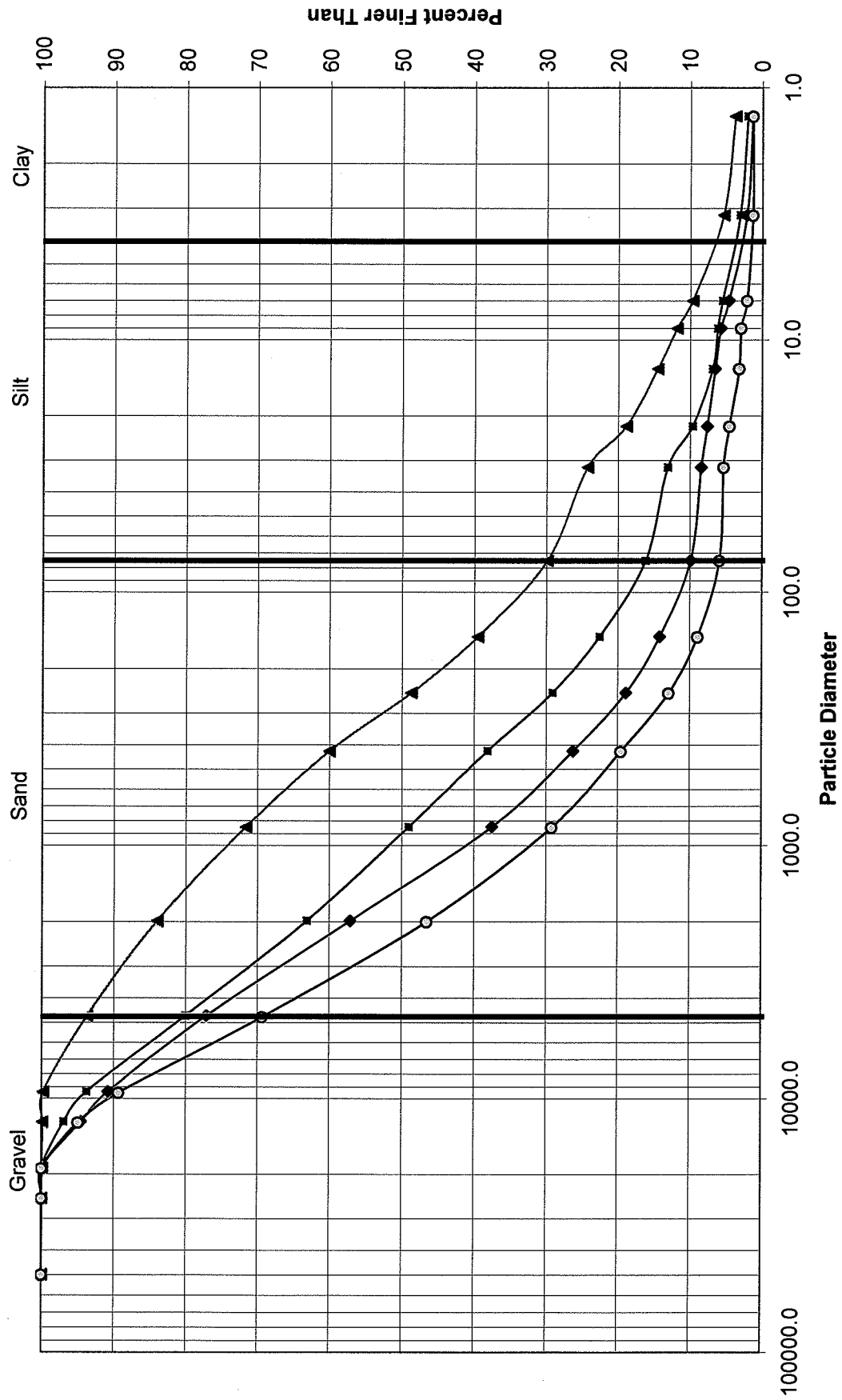
Testing performed according to ASTM D421/D422

Test America, Inc.  
PRI0356

Percent Retained in Each Size Fraction

Description	% Coarse Gravel			% Gravel		% Coarse Sand	% Medium Sand		% Fine Sand				% Very Coarse Silt	% Coarse Silt	% Medium Silt	% Fine Silt	% Very Fine Silt	% Clay					
	3-2"	2-1"	1-3/4"	3/4-1/2"	1/2-3/8"	3/8"-4/750"	4750-2000"	2000-850"	850-425"	425-250"	250-150"	150-75"											
Particle Size (microns)																							
PRI0356-01	0.00	0.00	0.00	5.48	3.77	13.71	19.98	19.60	11.28	7.32	4.67	4.30	1.44	0.82	32.22	75-32	22-13	13-9	9-7	7-3.2	<3.2		
PRI0356-02	0.00	0.00	0.00	3.06	3.20	13.76	16.88	14.07	10.89	9.07	6.54	6.37	3.06	3.45	5.38	5.63	4.31	2.69	0.69	0.69	2.41	2.45	2.18
PRI0356-04	0.00	0.00	0.08	0.03	0.10	6.11	9.75	12.32	11.58	11.33	9.20	9.63	5.63	5.38	0.80	0.57	1.34	0.27	0.80	0.80	2.15	4.31	5.38
PRI0356-05	0.00	0.00	0.00	5.11	5.58	19.99	22.81	17.33	9.64	6.59	4.03	2.98	8.74	2.00	2.00	8.74	2.40	0.80	0.80	2.00	2.00	2.81	
PRI0356-06	0.00	0.00	0.07	0.09	1.65	6.03	13.30	16.61	12.30	11.66	9.06	9.66	2.46	5.33	5.33	2.46	4.27	1.07	3.20	3.73	7.47		
PRI0356-07	0.00	0.00	0.00	2.97	6.49	10.90	15.20	12.75	9.28	6.14	4.00	4.74	5.15	6.61	6.61	5.15	5.20	2.83	2.83	5.20	5.20	5.20	
PRI0356-08	0.00	0.00	0.18	0.02	0.82	4.48	9.26	10.76	11.52	11.43	9.23	9.29	2.42	2.00	2.00	2.42	1.75	1.00	1.00	2.25	2.25	3.25	
PRI0356-10	0.00	0.00	0.00	6.03	12.73	27.55	14.44	8.47	5.84	4.80	3.21	3.26											

# Grain Size Distribution by Hydrometer



The graph illustrates the relationship between particle diameter and the percentage of soil finer than that diameter. The x-axis represents particle diameter on a logarithmic scale, ranging from 100,000.0 to 1.0. The y-axis represents the percentage finer than, ranging from 0 to 100. The graph is divided into four regions: Gravel, Sand, Silt, and Clay. Four curves are plotted, each representing a different soil type, showing how the percentage of soil finer than a given particle size varies.

Particle Diameter (mm)	Curve 1 (Gravel)	Curve 2 (Sand)	Curve 3 (Silt)	Curve 4 (Clay)
100,000.0	0	0	0	0
10,000.0	0	0	0	0
1,000.0	0	0	0	0
100.0	0	0	0	0
10.0	0	0	0	0
1.0	0	0	0	0



## ***2010 Sediment Trap 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 2010 Sediment Trap Sampling City Outfall Basin 52**

**To:** File  
**From:** Andrew Davidson, GSI Water Solutions, Inc. (GSI)  
**Date:** October 18, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from a source control investigation sampling event conducted by the City of Portland (City) between February 2010 and June 2010. Five sediment trap samples (FO105694, FO105695, FO105696, FO105697, FO105698), one duplicate sample (FO105702), and one equipment blank sample (FO105699) were collected in City Outfall Basin 52 between February 2, 2010 and June 17, 2010.

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
  - Total Solids – SM 2540G
  - Polychlorinated Biphenyls (PCBs) Aroclors – EPA 8082
  - Metals – EPA 6020
- Test America (TA)
  - Total Organic Carbon (TOC) – EPA 9060 MOD
- Pace Analytical Services (Pace)
  - PCB Congeners – EPA 1668A

The WPCL summary report and the subcontracted laboratory reports for all analyses associated with this sampling event 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 of the analytical data is based on the available documentation provided by the subcontracted laboratories 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 laboratory control limits
- Internal standard recoveries within accuracy control limits
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within laboratory control limits
- Laboratory control and duplicate laboratory control (LC/DLC) 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**

Samples for all analyses were extracted and analyzed within the recommended method-specific holding times.

## **Method Blanks**

Due to poor internal standard recoveries and interferences in the QC extracts, some samples were re-extracted and run in separate batches during the subcontracted laboratory analysis of PCB congeners. As a result, three method blanks were processed during the PCB laboratory analysis; one with each batch. One method blank was analyzed with sample FO105694. A second method blank was processed with sample FO105696. A third method blank was processed with samples FO105695, FO105697, FO105698 and FO105702. PCB congeners 31 and 52 were detected in the first method blank. The concentrations of these two congeners in the associated sample were less than 10 times the concentrations detected in the method blank; therefore, the results are qualified with a “B” flag in the subcontracted report. PCB congeners 1, 2, 3, 11, 20, 28, 31, and 52 were detected in the method blank processed with sample FO105696. The concentrations of congeners 1, 2, 3, and 11 in the sample were less than 10 times the concentrations in the method blank; therefore, the results are qualified with a “B” flag in the subcontracted report and as potentially high estimates “J” in the accompanying data tables. Concentrations of congeners 20, 28, 31, and 52 in the sample were 10 times greater than the concentrations detected in the method blank; therefore, the results are not qualified. No analytes were detected in the method blank processed along with the remaining PCB congener samples.

Two method blanks were processed during the laboratory analysis of TOC. There is no reported detection of TOC in either method blank sample.

## **Internal Standard Recoveries**

Isotopically-labeled internal standard recoveries were processed during the laboratory analysis of PCB congeners. With the exception of sample FO105696 and its associated QC samples, the labeled internal standard recoveries obtained for the sample extracts were within the method-specified control limits. Internal standard recoveries outside of method-specified control limits are flagged “R” in the subcontracted laboratory report. Congeners associated with the impacted internal standards in sample FO105696 are qualified as estimates (EST).

Interfering background constituents impacted the measurement of some PCB congeners and some isotopically-labeled internal standards. The affected values are flagged “I” in the subcontracted report to indicate that incorrect isotope ratios were obtained. Estimated maximum possible concentrations (EMPCs) are provided for affected congeners, and values are qualified with an “EMPC” flag. These values are not included in the total homolog and total PCB values. Congeners associated with impacted internal standards are qualified as estimates.

Due to the poor internal standard recovery in sample FO105696 and its associated QC samples, total homolog and total PCB concentrations for this sample are considered estimates. For the remaining five samples, estimated congener value(s) are not significant relative to the total PCB concentration (i.e. <1%), and total homolog and total PCB concentrations are considered only slightly biased.

## **Matrix Spike/Matrix Spike Duplicate**

MS/MSD samples were processed during the subcontracted analysis of TOC. Analyte recoveries and relative percent differences (RPDs) were within laboratory control limits for the MS/MSD samples.

## **Laboratory Control Samples**

As with the method blank samples, three sets of LC/DLC samples were processed during the laboratory analysis of PCB congeners; one with each batch. LC and DLC recoveries and RPDs were within laboratory control limits for the batch that included sample FO105694 and the batch that included samples FO105695, FO105697, FO105698, and FO105702. The spikes associated with sample FO105696 exhibited elevated recoveries for congeners 1, 3, and 4 due to their association with poorly recovered internal standards. Spiked congener 1 was not recovered and is flagged “NC” (not calculated) in the subcontracted laboratory report. LC/DLC samples were processed during the laboratory analysis of TOC. LC and DLC recoveries and RPDs were within laboratory control limits for the TOC analysis.

## **Other**

During the PCB congener analysis, the initial extraction batch that included samples FO105695, FO105696, FO105697, FO105698, and FO105702 exhibited poor internal standard recovery and

interferences in the QC extracts. Accordingly, the sample set was re-extracted, with the exception of sample FO105696 for which insufficient volume was available for re-extraction.

A separate PCB congener analysis was conducted for the field equipment blank sample, FO105699. No congeners were detected in the field blank or in the laboratory blank processed with this sample. All associated QA/QC samples were within method specified reporting limits.

WPCL reports that method reporting limits associated with the PCB Aroclor analysis were elevated in samples FO105695 and FO105697 due to low percent solids. Sample FO105697 exhibited trace levels of PCB tentatively identified as mixed Aroclors 1254/1260. Sample FO105694 exhibited trace levels of Aroclor 1260 slightly below the method reporting limit (MRL). Several unidentified non-Aroclor chromatographic peaks were detected in samples FO105697, FO105698, and FO105702. WPCL reports that quantification of PCB Aroclors may be imprecise in samples FO105698 and FO105702 due to overlapping components of the detected Aroclors.



Project Name: PORTLAND HARBOR STORMWATER SAMP

File Number: 1020.005

Matrix: SEDIMENT/WATER

Requested Analyses

Basin 52 Sediment Trap Chain-of-custody  
Sediment traps installed: 2/22/2010  
Sediment traps removed: 6/16/2010  
\* 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.

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	PCB Congeners (All 209)	PCB Aroclors (Low-level)	PAH+Phthalates	SVOCs	Grain Size	TOC	TS*	Total Metals (As, Cd Cr, Cu, Pb, Ni, Ag, Zn) + Hg	Comments
FO105694	ST-52-AAE498-0610 N BAY TUNOKE & BRADFORD	52_ST1	6/17/10	943	C	●	●			●	●	●	●	TS=58.2 273.1 g Total Wet Weight
FO105695	ST-52-AAE513-0610 N BRADFORD & ALTA	52_ST2	6/17/10	1026	C	●	●			●	●	●	●	TS=48.2 258.9 g Total Wet Weight
FO105696	ST-52-AAE700-0610 N PITTSBURG, SW OF RR TRACKS STANDARD BOTTLE	52_ST3	6/16/10	1548	C	●	●			●	●	●	●	TS=54.1 16.7 g Total Wet Weight
FO105697	ST-52-AAE700-0610 N PITTSBURG, SW OF RR TRACKS SIFT SED TRAP	52_ST3	6/17/10	1038	C	●	●			●	●	●	●	TS=46.6 266.9 g Total Wet Weight
FO105698	ST-52-AAE516-0610 8675 N CRAWFORD ST	52_ST4	6/17/10	1142	C	●	●			●	●	●	●	TS=66.6 974.4 g Total Wet Weight
FO105702	Duplicate	Dup	6/17/10		C	●	●			●	●	●	●	TS=66.6
FO105699	SIFT Equipment Blank	52_ST4	6/17/10	1230	G	●	●			●	●	●	●	

Relinquished By: 1. Signature: [Signature] Time: 1252

Relinquished By: 2. Signature: [Signature] Time: 1252

Relinquished By: 3. Signature: [Signature] Time: 1252

Relinquished By: 4. Signature: [Signature] Time: 1252

Received By: 1. Signature: [Signature] Date: 6/17/10

Received By: 2. Signature: [Signature] Date: 6/17/10

Received By: 3. Signature: [Signature] Date: 6/17/10

Received By: 4. Signature: [Signature] Date: 6/17/10

Signature: [Signature] Time: 1252



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: **FO105694** Sample Collected: 06/17/10 09:43 Sample Status: **COMPLETE AND VALIDATED**  
Sample Received: 06/17/10

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP  
Address/Location: ST-52-AAE498-0610  
N BALTIMORE & BRADFORD  
Sample Point Code: 52\_ST1  
Sample Type: COMPOSITE  
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1

System ID: AO05580  
EID File #: 1020.005  
LocCode: PORTHASW  
Collected By: AJA/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: In addition to the Aroclor 1248 reported, this sample contains trace level of Aroclor 1260 (est. 9 ug/Kg).

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	58.2	% W/W	0.01	SM 2540 G	06/17/10
<b>METALS</b>					
ARSENIC	3.19	mg/Kg dry wt	0.50	EPA 6020	06/25/10
CADMIUM	0.66	mg/Kg dry wt	0.10	EPA 6020	06/25/10
CHROMIUM	99.5	mg/Kg dry wt	0.50	EPA 6020	06/25/10
COPPER	97.3	mg/Kg dry wt	0.25	EPA 6020	06/25/10
LEAD	59.3	mg/Kg dry wt	0.10	EPA 6020	06/25/10
MERCURY	0.048	mg/Kg dry wt	0.010	EPA 6020	06/25/10
NICKEL	43.2	mg/Kg dry wt	0.25	EPA 6020	06/25/10
SILVER	0.21	mg/Kg dry wt	0.10	EPA 6020	06/25/10
ZINC	350	mg/Kg dry wt	0.50	EPA 6020	06/25/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1248	11	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1254	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	46000	mg/Kg dry wt	2000	EPA 9060 MOD	07/01/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	07/15/10

End of Report for Sample ID: FO105694

Report Date: 08/20/10

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: FO105695**

**Sample Collected:** 06/17/10 10:26  
**Sample Received:** 06/17/10

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR STORMWATER SAMP  
**Address/Location:** ST-52-AAE513-0610  
N BRADFORD & ALTA NEAR ST JOHNS PS  
**Sample Point Code:** 52\_ST2  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AO05581  
**EID File # :** 1020.005  
**LocCode:** PORTHASW  
**Collected By:** AJA/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: Reporting limits for PCB Aroclors are raised due to low %solids.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	48.2	% W/W	0.01	SM 2540 G	06/17/10
<b>METALS</b>					
ARSENIC	5.25	mg/Kg dry wt	0.50	EPA 6020	06/25/10
CADMIUM	1.01	mg/Kg dry wt	0.10	EPA 6020	06/25/10
CHROMIUM	162	mg/Kg dry wt	0.50	EPA 6020	06/25/10
COPPER	254	mg/Kg dry wt	0.25	EPA 6020	06/25/10
LEAD	86.5	mg/Kg dry wt	0.10	EPA 6020	06/25/10
MERCURY	0.068	mg/Kg dry wt	0.010	EPA 6020	06/25/10
NICKEL	99.2	mg/Kg dry wt	0.25	EPA 6020	06/25/10
SILVER	0.39	mg/Kg dry wt	0.10	EPA 6020	06/25/10
ZINC	462	mg/Kg dry wt	0.50	EPA 6020	06/25/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1221	<40	µg/Kg dry wt	40	EPA 8082	06/22/10
Aroclor 1232	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1248	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1254	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1260	130	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1262	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1268	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	81000	mg/Kg dry wt	2000	EPA 9060 MOD	07/01/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	08/10/10

End of Report for Sample ID: FO105695

Report Date: 08/20/10

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: FO105696**

**Sample Collected: 06/16/10 15:48**

**Sample Status: COMPLETE AND  
VALIDATED**

**Sample Received: 06/17/10**

**Proj./Company Name:** PORTLAND HARBOR STORMWATER SAMP  
**Address/Location:** ST-52-AAE700-0610  
N PITTSBURGH SW OF RR TRKS- STANDARD BOT  
**Sample Point Code:** 52\_ST3  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AO05582  
**EID File #:** 1020.005  
**LocCode:** PORTHASW  
**Collected By:** AJA/PTB

**Comments:**

Wet Weight: 16.7g 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
<b>GENERAL</b>					
TOTAL SOLIDS	54.1	% W/W	0.01	SM 2540 G	06/17/10
<b>OUTSIDE ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	07/14/10

**End of Report for Sample ID: FO105696**

**Report Date: 08/20/10**

**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: **FO105697**

Sample Collected: 06/17/10 10:38  
Sample Received: 06/17/10

Sample Status: **COMPLETE AND  
VALIDATED**

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP  
Address/Location: ST-52-AAE700-0610  
N PITTSBURGH SW OF RR TRKS- SIFT SEDTRAP  
Sample Point Code: 52\_ST3  
Sample Type: COMPOSITE  
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1

System ID: AO05583  
EID File #: 1020.005  
LocCode: PORTHASW  
Collected By: AJA/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: Reporting limits for PCB Aroclors are raised due to low %solids. This sample exhibited trace level PCB tentatively identified as mixed Aroclors 1254/1260. Also noted were several unidentified non-Aroclor chromatographic peaks.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	46.6	% W/W	0.01	SM 2540 G	06/17/10
<b>METALS</b>					
ARSENIC	4.57	mg/Kg dry wt	0.50	EPA 6020	06/25/10
CADMIUM	1.51	mg/Kg dry wt	0.10	EPA 6020	06/25/10
CHROMIUM	98.5	mg/Kg dry wt	0.50	EPA 6020	06/25/10
COPPER	150	mg/Kg dry wt	0.25	EPA 6020	06/25/10
LEAD	104	mg/Kg dry wt	0.10	EPA 6020	06/25/10
MERCURY	0.112	mg/Kg dry wt	0.010	EPA 6020	06/25/10
NICKEL	60.0	mg/Kg dry wt	0.25	EPA 6020	06/25/10
SILVER	0.25	mg/Kg dry wt	0.10	EPA 6020	06/25/10
ZINC	730	mg/Kg dry wt	0.50	EPA 6020	06/25/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1221	<40	µg/Kg dry wt	40	EPA 8082	06/22/10
Aroclor 1232	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1248	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1254	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1260	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1262	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1268	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	84000	mg/Kg dry wt	2000	EPA 9060 MOD	07/01/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	08/10/10

End of Report for Sample ID: FO105697

Report Date: 08/20/10

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: FO105698**

**Sample Collected:** 06/17/10 11:42  
**Sample Received:** 06/17/10

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR STORMWATER SAMP  
**Address/Location:** ST-52-AAE516-0610  
8675 N CRAWFORD ST  
**Sample Point Code:** 52\_ST4  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AO05584  
**EID File #:** 1020.005  
**LocCode:** PORTHASW  
**Collected By:** AJA/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: Quantification of PCB Aroclors may be imprecise due to overlapping components of the detected Aroclors. Also noted were several unidentified non-Aroclor chromatographic peaks.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	66.6	% W/W	0.01	SM 2540 G	06/17/10
<b>METALS</b>					
ARSENIC	3.34	mg/Kg dry wt	0.50	EPA 6020	06/25/10
CADMIUM	1.18	mg/Kg dry wt	0.10	EPA 6020	06/25/10
CHROMIUM	243	mg/Kg dry wt	0.50	EPA 6020	06/25/10
COPPER	309	mg/Kg dry wt	0.25	EPA 6020	06/25/10
LEAD	89.8	mg/Kg dry wt	0.10	EPA 6020	06/25/10
MERCURY	0.079	mg/Kg dry wt	0.010	EPA 6020	06/25/10
NICKEL	112	mg/Kg dry wt	0.25	EPA 6020	06/25/10
SILVER	0.21	mg/Kg dry wt	0.10	EPA 6020	06/25/10
ZINC	692	mg/Kg dry wt	0.50	EPA 6020	06/25/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	78	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1254	110	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	35000	mg/Kg dry wt	2000	EPA 9060 MOD	07/01/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	08/10/10

End of Report for Sample ID: FO105698

Report Date: 08/20/10

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: FO105699**

**Sample Collected: 06/17/10 12:30**

**Sample Received: 06/17/10**

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP**

**Address/Location: SIFT EQUIPMENT BLANK**

**Report Page: Page 1 of 1**

**Sample Point Code: EQBLANK**

**Sample Type: GRAB**

**Sample Matrix: DIWTR**

**System ID: AO05585**

**EID File #: 1020.005**

**LocCode: PORTHASW**

**Collected By: AJA/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.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>METALS</b>					
MERCURY	<0.0020	µg/L	0.002	WPCLSOP M-10.02	06/25/10
<b>METALS BY ICP-MS (TOTAL) - 8</b>					
ARSENIC	<0.10	µg/L	0.1	EPA 200.8	06/24/10
CADMIUM	<0.10	µg/L	0.1	EPA 200.8	06/24/10
CHROMIUM	<0.40	µg/L	0.4	EPA 200.8	06/24/10
COPPER	0.36	µg/L	0.2	EPA 200.8	06/24/10
LEAD	<0.10	µg/L	0.1	EPA 200.8	06/24/10
NICKEL	<0.20	µg/L	0.2	EPA 200.8	06/24/10
SILVER	<0.10	µg/L	0.1	EPA 200.8	06/24/10
ZINC	<0.50	µg/L	0.5	EPA 200.8	06/24/10
<b>OUTSIDE ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	06/30/10

**End of Report for Sample ID: FO105699**

**Report Date: 08/20/10**

**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: FO105702**

**Sample Collected:** 06/17/10 00:00  
**Sample Received:** 06/17/10

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR STORMWATER SAMP  
**Address/Location:** DUPLICATE

**Report Page:** Page 1 of 1

**Sample Point Code:** DUP  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**System ID:** AO05699  
**EID File #:** 1020.005  
**LocCode:** PORTHASW  
**Collected By:** AJA/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: Quantification of PCB Aroclors may be imprecise due to overlapping components of the detected Aroclors. Also noted were several unidentified non-Aroclor chromatographic peaks.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>METALS</b>					
ARSENIC	2.81	mg/Kg dry wt	0.50	EPA 6020	06/25/10
CADMIUM	1.05	mg/Kg dry wt	0.10	EPA 6020	06/25/10
CHROMIUM	280	mg/Kg dry wt	0.50	EPA 6020	06/25/10
COPPER	339	mg/Kg dry wt	0.25	EPA 6020	06/25/10
LEAD	204	mg/Kg dry wt	0.10	EPA 6020	06/25/10
MERCURY	0.067	mg/Kg dry wt	0.010	EPA 6020	06/25/10
NICKEL	122	mg/Kg dry wt	0.25	EPA 6020	06/25/10
SILVER	0.19	mg/Kg dry wt	0.10	EPA 6020	06/25/10
ZINC	613	mg/Kg dry wt	0.50	EPA 6020	06/25/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	101	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	06/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1254	422	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	06/22/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	40000	mg/Kg dry wt	2000	EPA 9060 MOD	07/01/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	08/10/10

End of Report for Sample ID: FO105702

Report Date: 08/20/10

Validated By: 

August 18, 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 06/22/10 16:45.  
The following list is a summary of the Work Orders contained in this report, generated on 08/18/10 13:27.

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

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
PTF0689	Portland Harbor	Stormwater Basin 52

TestAmerica Portland



Christina Woodcock For Darrell Auvil, 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**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor**

Project Number:

Stormwater Basin 52

Project Manager:

Jennifer Shackelford

Report Created:

08/18/10 13:27

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO105694	PTF0689-01	Other dry	06/17/10 09:43	06/22/10 16:45
FO105695	PTF0689-02	Other dry	06/17/10 10:26	06/22/10 16:45
FO105696	PTF0689-03	Other dry	06/17/10 15:48	06/22/10 16:45
FO105697	PTF0689-04	Other dry	06/17/10 10:38	06/22/10 16:45
FO105698	PTF0689-05	Other dry	06/17/10 11:42	06/22/10 16:45
FO105702	PTF0689-06	Other dry	06/17/10 00:00	06/22/10 16:45

TestAmerica Portland



Christina Woodcock For Darrell Auvil, Project Manager

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**City of Portland Water Pollution Laboratory**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor**

Project Number:

Stormwater Basin 52

Project Manager:

Jennifer Shackelford

Report Created:

08/18/10 13:27

**Analytical Case Narrative**

TestAmerica - Portland, OR

**PTF0689**

This report is not complete without the analytical data from Pace Analytical for the PCB analysis.

TestAmerica Portland



Christina Woodcock For Darrell Auvil, Project Manager

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**City of Portland Water Pollution Laboratory**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor**

Project Number:

Stormwater Basin 52

Project Manager:

Jennifer Shackelford

Report Created:

08/18/10 13:27

**Percent Dry Weight (Solids) per ASTM D2216-80**  
TestAmerica Portland

Analyte	Method	Result	MDL *	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>PTF0689-01 (FO105694)</b>					<b>Other dry</b>			<b>Sampled: 06/17/10 09:43</b>		
% Solids	ASTM D2216-80	<b>58.2</b>	-----	0.0100	% by Weight	1x	10F0748	06/23/10 14:13	06/23/10 14:13	
<b>PTF0689-02 (FO105695)</b>					<b>Other dry</b>			<b>Sampled: 06/17/10 10:26</b>		
% Solids	ASTM D2216-80	<b>48.2</b>	-----	0.0100	% by Weight	1x	10F0748	06/23/10 14:13	06/23/10 14:13	
<b>PTF0689-03 (FO105696)</b>					<b>Other dry</b>			<b>Sampled: 06/17/10 15:48</b>		
% Solids	ASTM D2216-80	<b>54.1</b>	-----	0.0100	% by Weight	1x	10F0748	06/23/10 14:13	06/23/10 14:13	
<b>PTF0689-04 (FO105697)</b>					<b>Other dry</b>			<b>Sampled: 06/17/10 10:38</b>		
% Solids	ASTM D2216-80	<b>46.6</b>	-----	0.0100	% by Weight	1x	10F0748	06/23/10 14:13	06/23/10 14:13	
<b>PTF0689-05 (FO105698)</b>					<b>Other dry</b>			<b>Sampled: 06/17/10 11:42</b>		
% Solids	ASTM D2216-80	<b>66.6</b>	-----	0.0100	% by Weight	1x	10F0748	06/23/10 14:13	06/23/10 14:13	
<b>PTF0689-06 (FO105702)</b>					<b>Other dry</b>			<b>Sampled: 06/17/10 00:00</b>		
% Solids	ASTM D2216-80	<b>66.6</b>	-----	0.0100	% by Weight	1x	10F0748	06/23/10 14:13	06/23/10 14:13	

TestAmerica Portland



Christina Woodcock For Darrell Auvil, Project Manager

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**City of Portland Water Pollution Laboratory**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name: **Portland Harbor**  
Project Number: Stormwater Basin 52  
Project Manager: Jennifer Shackelford

Report Created:  
08/18/10 13:27

**Organic Carbon, Total (TOC)**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>PTF0689-01 (FO105694)</b>		<b>Other dry</b>		<b>Sampled: 06/17/10 09:43</b>						
Total Organic Carbon	9060	<b>46000</b>	-----	2000	mg/Kg	1x	67010	07/01/10 09:11	07/01/10 09:11	
<b>PTF0689-02 (FO105695)</b>		<b>Other dry</b>		<b>Sampled: 06/17/10 10:26</b>						
Total Organic Carbon	9060	<b>81000</b>	-----	2000	mg/Kg	1x	67010	07/01/10 09:11	07/01/10 09:11	
<b>PTF0689-04 (FO105697)</b>		<b>Other dry</b>		<b>Sampled: 06/17/10 10:38</b>						
Total Organic Carbon	9060	<b>84000</b>	-----	2000	mg/Kg	1x	67010	07/01/10 09:11	07/01/10 09:11	
<b>PTF0689-05 (FO105698)</b>		<b>Other dry</b>		<b>Sampled: 06/17/10 11:42</b>						
Total Organic Carbon	9060	<b>35000</b>	-----	2000	mg/Kg	1x	67010	07/01/10 09:11	07/01/10 09:11	
<b>PTF0689-06 (FO105702)</b>		<b>Other dry</b>		<b>Sampled: 06/17/10 00:00</b>						
Total Organic Carbon	9060	<b>40000</b>	-----	2000	mg/Kg	1x	67155	07/02/10 09:12	07/02/10 09:12	

TestAmerica Portland



Christina Woodcock For Darrell Auvil, Project Manager

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**City of Portland Water Pollution Laboratory**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name: **Portland Harbor**  
Project Number: Stormwater Basin 52  
Project Manager: Jennifer Shackelford

Report Created:  
08/18/10 13:27

**Percent Moisture**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>PTF0689-01 (FO105694)</b>		<b>Other dry</b>				<b>Sampled: 06/17/10 09:43</b>				
Percent Moisture	Moisture	41	----	0.10	%	1x	67064	07/02/10 16:19	07/02/10 16:19	
Percent Solids	"	59	----	0.10	"	"	"	"	"	
<b>PTF0689-02 (FO105695)</b>		<b>Other dry</b>				<b>Sampled: 06/17/10 10:26</b>				
Percent Moisture	Moisture	52	----	0.10	%	1x	67064	07/02/10 16:19	07/02/10 16:19	
Percent Solids	"	48	----	0.10	"	"	"	"	"	
<b>PTF0689-04 (FO105697)</b>		<b>Other dry</b>				<b>Sampled: 06/17/10 10:38</b>				
Percent Moisture	Moisture	52	----	0.10	%	1x	67064	07/02/10 16:19	07/02/10 16:19	
Percent Solids	"	48	----	0.10	"	"	"	"	"	
<b>PTF0689-05 (FO105698)</b>		<b>Other dry</b>				<b>Sampled: 06/17/10 11:42</b>				
Percent Moisture	Moisture	32	----	0.10	%	1x	67064	07/02/10 16:19	07/02/10 16:19	
Percent Solids	"	68	----	0.10	"	"	"	"	"	
<b>PTF0689-06 (FO105702)</b>		<b>Other dry</b>				<b>Sampled: 06/17/10 00:00</b>				
Percent Moisture	Moisture	32	----	0.10	%	1x	67064	07/02/10 16:19	07/02/10 16:19	
Percent Solids	"	68	----	0.10	"	"	"	"	"	

TestAmerica Portland



Christina Woodcock For Darrell Auvil, 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**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name: **Portland Harbor**  
Project Number: Stormwater Basin 52  
Project Manager: Jennifer Shackelford

Report Created:  
08/18/10 13:27

**Organic Carbon, Total (TOC) - Laboratory Quality Control Results**

TestAmerica Seattle

**QC Batch: 67010**

**Soil Preparation Method: NA**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (580-67010-3)</b>			QC Source:					Extracted: 07/01/10 09:11						
Total Organic Carbon	9060	ND	---	2000	mg/Kg	1x	--	--	--	--	--	--	07/01/10 09:11	
<b>LCS (580-67010-4)</b>			QC Source:					Extracted: 07/01/10 09:11						
Total Organic Carbon	9060	4900	---	2000	mg/Kg	1x	--	3400	144%	(12.8-187)	--	--	07/01/10 09:11	
<b>Duplicate (580-67010-7)</b>			QC Source: 580-67010-5					Extracted: 07/01/10 09:11						
Total Organic Carbon	9060	7700	---	2000	mg/Kg	1x	8000	--	--	--	4%	(50)	07/01/10 09:11	
<b>Matrix Spike (580-67010-8)</b>			QC Source: 580-67010-5					Extracted: 07/01/10 09:11						
Total Organic Carbon	9060	27700	---	2000	mg/Kg	1x	8000	18400	107%	(76-128)	--	--	07/01/10 09:11	
<b>Matrix Spike Dup (580-67010-9)</b>			QC Source: 580-67010-5					Extracted: 07/01/10 09:11						
Total Organic Carbon	9060	29300	---	2000	mg/Kg	1x	8000	20000	107%	(76-128)	6%	(28)	07/01/10 09:11	

**QC Batch: 67155**

**Soil Preparation Method: NA**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Matrix Spike (201665S)</b>			QC Source: PTF0689-06					Extracted: 07/02/10 09:12						
Total Organic Carbon	9060	55600	---	2000	mg/Kg	1x	40000	19000	84%	(76-128)	--	--	07/02/10 09:12	
<b>Duplicate (201665X)</b>			QC Source: PTF0689-06					Extracted: 07/02/10 09:12						
Total Organic Carbon	9060	36900	---	2000	mg/Kg	1x	40000	--	--	--	7%	(50)	07/02/10 09:12	
<b>Blank (580-67155-3)</b>			QC Source:					Extracted: 07/02/10 09:12						
Total Organic Carbon	9060	ND	---	2000	mg/Kg	1x	--	--	--	--	--	--	07/02/10 09:12	
<b>LCS (580-67155-4)</b>			QC Source:					Extracted: 07/02/10 09:12						
Total Organic Carbon	9060	4100	---	2000	mg/Kg	1x	--	3400	121%	(12.8-187)	--	--	07/02/10 09:12	

TestAmerica Portland



Christina Woodcock For Darrell Auvil, 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.*

<b>City of Portland Water Pollution Laboratory</b>	Project Name: <b>Portland Harbor</b>	
6543 N. Burlington Ave.	Project Number: Stormwater Basin 52	Report Created:
Portland, OR 97203	Project Manager: Jennifer Shackelford	08/18/10 13:27

**Percent Moisture - Laboratory Quality Control Results**  
TestAmerica Seattle

<b>QC Batch: 67064</b>	<b>Soil Preparation Method: NA</b>
------------------------	------------------------------------

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Duplicate (580-67064-2)</b>			QC Source: 580-67064-1					Extracted: 07/02/10 16:19						
Percent Solids	Moisture	81	---	0.10	%	1x	81	--	--	--	0%	(20)	07/02/10 16:19	
Percent Moisture	"	19	---	0.10	"	"	19	--	--	--	1%	"	"	

TestAmerica Portland



Christina Woodcock For Darrell Auvil, 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

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor**

Project Number:

Stormwater Basin 52

Project Manager:

Jennifer Shackelford

Report Created:

08/18/10 13:27

## 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.
- 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 - 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



Christina Woodcock For Darrell Auvil, 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

*PT 9689*  
 Work Order #:

## CHAIN OF CUSTODY REPORT

CLIENT: <u>City of Portland</u>		INVOICE TO: <u>Charles Lytle</u>		TURNAROUND REQUEST	
REPORT TO: <u>Jennifer Shackelford</u>		P.O. NUMBER:		in Business Days *	
ADDRESS:		PRESERVATIVE		Organic & Inorganic Analyses	
PHONE:		REQUESTED ANALYSES		Petroleum Hydrocarbon Analyses	
PROJECT NAME: <u>Portland Harbor Stormwater</u>		PCB		STD.	
PROJECT NUMBER: <u>Sample (Basin 52)</u>		Congeners - H12CG		STD.	
SAMPLED BY:		TOC		STD.	
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	OTHER Specify:			
1 F0105694	6/17/10 0943	* Turnaround Requests less than standard may incur Rush Charges.			
2 F0105695	1026	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
3 F0105696	1548	0	2	TS = 58.2%	
4 F0105697	1038	1	2	TS = 48.2%	
5 F0105698	1142	2	1	TS = 54.1%	
6 F0105702	—	2	2	TS = 46.6%	
7		2	2	TS = 66.6%	
8		2	2	TS = 66.6%	
9		2	2	TS = 66.6%	
10		2	2	TS = 66.6%	
RELEASED BY: <u>W. Lytle</u>		DATE: <u>6/22/10</u>		DATE: <u>6/22/10</u>	
PRINT NAME: <u>W. Lytle</u>		TIME: <u>1740</u>		TIME: <u>12:40</u>	
RELEASED BY: <u>Jennifer Shackelford</u>		DATE: <u>6/22/10</u>		DATE: <u>6/22/10</u>	
PRINT NAME: <u>Jennifer Shackelford</u>		TIME: <u>1645</u>		TIME: <u>1645</u>	
ADDITIONAL REMARKS: <u>Please send to RACE</u>		FIRM: <u>TAP</u>		FIRM: <u>TAP</u>	
		TEMP: <u>2.0</u>		PAGE OF	

TAL-1000(0408)

Note: Please use given TS results for calculations, b/c of limited sample volume

F0105696 has extremely limited volume ~15g, please run regardless

TestAmerica Portland  
**Sample Receiving Checklist**

Work Order #: PTF0689 Date/Time Received: 6/22/10 1143  
 Client Name and Project: City of Portland  
Portland Harbor  
 Time Zone: ☐ EDT/EST ☐ CDT/CST ☐ MDT/MST ☒ PDT/PST ☐ AK ☐ OTHER

**Unpacking Checks:**

Cooler #(s): \_\_\_\_\_  
 Temperatures: 2.4 \_\_\_\_\_  
 Digi #1 ☐ Digi #2 ☐ IR Gun ☒ ( ☐ Plastic ☒ Glass )

**Temperature out of Range:**

☐ Not enough or No Ice  
☐ Ice Melted  
☐ W/in 4 Hrs of collection  
☐ Other: \_\_\_\_\_


N/A Yes No

Initials: PS

- ☒ ☐ ☐ 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 #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

Work Order #: PTF0689

Initials: 

Login Checks:

- | N/A                                 | Yes                                 | No                       |   |
|-------------------------------------|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 22. Sufficient volume provided for all analysis? If no, document on NOD & contact PM.                                   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 23. Sufficient volume provided for client requested MS/MSD or matrix duplicates? If no, document on NOD and contact PM. |
|                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 24. Did the chain of custody include "received by" and "relinquished by" signatures, dates and times?                   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 25. Were special log in instructions read and followed?   |
|                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 26. Were tests logged checked against the COC?  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 27. Were rush notices printed and delivered?  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 28. Were short hold notices printed and delivered?  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 29. Were subcontract COCs printed?  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 30. Was HF dilution logged?   |

Labeling and Storage Checks:

Initials: PS

- | N/A                                 | Yes                                 | No                       |   |
|-------------------------------------|-------------------------------------|--------------------------|---|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 31. Were the subcontracted samples/containers put in Sx fridge?                                     |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 32. Were sample bottles and COC double checked for dissolved/filtered metals?                       |
|                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 33. Did the sample ID, Date, and Time from label match what was logged?                             |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 34. Were Foreign sample stickers affixed to each container and containers stored in foreign fridge? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 35. Were HF stickers affixed to each container, and containers stored in Sx fridge?                 |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 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).

**Report Prepared for:**

Darrell Auvil  
Test America  
9405 SW Nimbus Avenue  
Beaverton OR 97008

**REPORT OF  
LABORATORY  
ANALYSIS  
FOR PCBs**

**Report Information:**

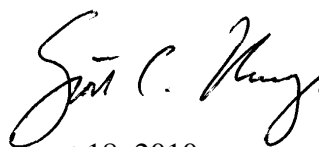
**Pace Project #: 10132108**  
**Sample Receipt Date: 06/24/2010**  
**Client Project #: PTF0689**  
**Client Sub PO #: N/A**  
**State Cert #: MN200001-005**

**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 Nate Habte, your Pace Project Manager.

**This report has been reviewed by:**



August 18, 2010

Scott Unze, Project Manager  
(612) 607-6383  
(612) 607-6444 (fax)  
scott.unze@pacelabs.com

**Report Prepared Date:**

August 18, 2010



**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.

## **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 sample extracted.

The initial extraction batch, that included samples PTF0689-02 through PTF0689-06, exhibited poor internal standard recovery and interferences in the QC extracts. The sample extracts also yielded poor recoveries but did not exhibit the interferences seen in the QC samples. Due to these issues the sample set was re-extracted, with the exception of sample PTF0689-03 for which insufficient volume was available for re-extraction. The results for the re-extracted samples were not consistent in their agreement with the initial extracts. Upon further investigation, it was determined that these samples were re-extracted without the Dean-Stark attachments on the Soxhlets and that all samples may not have been mixed with sufficient sodium sulfate to thoroughly dry the sample matrix. This could account for an inefficient extraction on the second sample set and generally lower analyte concentrations being determined. Therefore, the samples were extracted a third time under optimal extraction conditions and those results are included in this report. Sample PTF0689-01 (FO105694) was initially extracted in a separate batch and did not require re-extraction. Results from the third extraction set were in good agreement with the initial results for these samples.

The isotopically-labeled PCB internal standards in the sample extracts were generally recovered at 46-118%. Sample PTF0689-03 (FO105696) exhibited lower recoveries of 1-94%. With the exception of sample PTF0689-03 (FO105696), the labeled internal standard recoveries obtained for the sample extracts were within the target ranges specified in the method. Those sample and QC recoveries outside of the method specified ranges were flagged "R" on the results tables. Since the quantification of the native PCB congeners was based on internal standard and isotope dilution methodology, the data were automatically corrected for variation in recovery and accurate values were obtained except where very low recoveries were exhibited.

In some cases, interfering substances impacted the determination of PCB congeners. The affected values were flagged "I" where incorrect isotope ratios were obtained.

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 associated with samples PTF0689-01 and PTF0689-03 to contain low levels of selected PCB congeners. The remaining blank was found to be free of PCB congeners at the reporting limits. Any sample levels determined to be within ten times the levels in the associated method blank were flagged "B" on the results tables and may have originated, at least partially, in the laboratory. In general, levels less than ten times the background are not considered to be statistically different from the background.

Laboratory spike samples were also prepared with the sample batch using a reference matrix that had been fortified with native standards. The results show that the spiked native compounds were generally recovered at 93-122% with relative percent differences of 0.0-19.8%. The spikes associated with sample PTF0689-03 exhibited elevated recoveries for congeners 1, 3 and 4 due to their association with internal standards that were very poorly recovered. Congener #1 was not recovered in LCS-25717 and was flagged "NC" as not calculated. These results indicate high levels of accuracy and precision for these analyses except where very low recoveries were exhibited. Matrix spikes were not prepared with the sample batch.

## **REPORT OF LABORATORY ANALYSIS**

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## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN000642010A
Arkansas	88-0680	New Jersey (NE	MN002
California	01155CA	New Mexico	MN00064
Colorado	MN00064	New York (NEL	11647
Connecticut	PH-0256	North Carolina	27700
EPA Region 5	WD-15J	North Dakota	R-036
EPA Region 8	8TMS-Q	Ohio	4150
Florida (NELAP	E87605	Ohio VAP	CL101
Georgia (DNR)	959	Oklahoma	D9922
Guam	09-019r	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN200001-005
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennessee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	LA0900016	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q
Mississippi	MN00064		

## REPORT OF LABORATORY ANALYSIS

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Report No.....10132108

# **Appendix A**

## **Sample Management**

1149

SUBCONTRACT ORDER  
TestAmerica Portland  
PTF0689

WCP. 1 (5/2)

10132108

SENDING LABORATORY:

TestAmerica Portland  
9405 SW Nimbus Ave.  
Beaverton, OR 97008  
Phone: (503) 906-9200  
Fax: (503) 906-9210  
Project Manager: Darrell Auvil

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: °C Ice: Y / N

needs Excel EDD

Limited Volume - please use solids results provided for  
Standard TAT is requested unless specific due date is requested. => Due Date: 3 weeks Dry weight correction Initials: jm

Analysis	Units	Expires	Comments
----------	-------	---------	----------

Sample ID: PTF0689-01 (FO105694 - Other dry)

Sampled: 06/17/10 09:43

1668 Coplanar PCBs - SUB ug/l

12/14/10 09:43

\*\*\*209 Congeners\*\*\* TS=58.2%

Containers Supplied:

4 oz. jar (A)

Sample ID: PTF0689-02 (FO105695 - Other dry)

Sampled: 06/17/10 10:26

1668 Coplanar PCBs - SUB ug/l

12/14/10 10:26

\*\*\*209 Congeners\*\*\* TS=48.2%

Containers Supplied:

4 oz. jar (A)

Sample ID: PTF0689-03 (FO105696 - Other dry)

Sampled: 06/17/10 15:48

1668 Coplanar PCBs - SUB ug/l

12/14/10 15:48

\*\*\*209 Congeners\*\*\* TS=54.1%

Containers Supplied:

8 oz. jar (A)

Sample ID: PTF0689-04 (FO105697 - Other dry)

Sampled: 06/17/10 10:38

1668 Coplanar PCBs - SUB ug/l

12/14/10 10:38

\*\*\*209 Congeners\*\*\* TS=46.6%

Containers Supplied:

4 oz. jar (A)

Sample ID: PTF0689-05 (FO105698 - Other dry)

Sampled: 06/17/10 11:42

1668 Coplanar PCBs - SUB ug/l

12/14/10 11:42

\*\*\*209 Congeners\*\*\* TS=66.6%

Containers Supplied:

4 oz. jar (A)

Sample ID: PTF0689-06 (FO105702 - Other dry)

Sampled: 06/17/10 00:00

1668 Coplanar PCBs - SUB ug/l

12/14/10 00:00

\*\*\*209 Congeners\*\*\* TS=66.6%

Containers Supplied:

4 oz. jar (A)

Released By

Date/Time

Received By

Date/Time

Released By

Date/Time

Received By

Date/Time

Page 1 of 1

Report No.....10132108\_1668A

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## Sample Condition Upon Receipt

Client Name: Test America

Project #

SCURP.16F2)  
10132108Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other \_\_\_\_\_Tracking #: 417075257227Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals Intact: ☐ yes ☐ noPacking Material: ☐ Bubble Wrap ☒ Bubble Bag ☐ None ☐ Other \_\_\_\_\_ Temp Blank: Yes ☒ NoThermometer Used 80344042 or 179425Type of Ice: Wet ☐ Blue ☐ None☐ Samples on Ice, cooling process has begunCooler Temperature 6.0Biological Tissue Is Frozen: Yes ☐ No ☐Date and Initials of person examining contents: 6/29/10 SL

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8. <u>limited volume</u>
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>SL</u>	
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, W-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headpace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: Danell AvilaDate/Time: 6/28/10

Comments/ Resolution:

1668-209, 5-ppm TAT, due 7/23, confirmed

Project Manager Review:

NAHDate: 6/28/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina Department of Environment and Natural Resources, Inc.  
F-L213Rev.00, 05Aug2009

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Report No.....10132108\_1668A

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1132

SUBCONTRACT ORDER  
TestAmerica Portland

PTF0689

COC p. 2 (5/2) 10132108 MAY  
10135335 8/9/10

## SENDING LABORATORY:

TestAmerica Portland  
9405 SW Nimbus Ave.  
Beaverton, OR 97008  
Phone: (503) 906-9200  
Fax: (503) 906-9210  
Project Manager: Darrell Auvil

## 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: \_\_\_\_\_ °C Ice: Y / N

Additional volume

needs Excel EDD

Standard TAT is requested unless specific due date is requested. =&gt; Due Date: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Units	Expires	Comments
----------	-------	---------	----------

Sample ID: PTF0689-01 (FO105694 - Other dry)

Sampled: 06/17/10 09:43

1668 Coplanar PCBs - SUB ug/l

12/14/10 09:43

\*\*\*209 Congeners\*\*\* TS=58.2%

Containers Supplied:

4 oz. jar (A)

Sample ID: PTF0689-02 (FO105695 - Other dry)

Sampled: 06/17/10 10:26

1668 Coplanar PCBs - SUB ug/l

12/14/10 10:26

\*\*\*209 Congeners\*\*\* TS=48.2%

Containers Supplied:

4 oz. jar (A)

8 oz. jar (C)

ovl

Sample ID: PTF0689-03 (FO105696 - Other dry)

Sampled: 06/17/10 15:48

1668 Coplanar PCBs - SUB ug/l

12/14/10 15:48

\*\*\*209 Congeners\*\*\* TS=54.1%

Containers Supplied:

8 oz. jar (A)

Sample ID: PTF0689-04 (FO105697 - Other dry)

Sampled: 06/17/10 10:38

1668 Coplanar PCBs - SUB ug/l

12/14/10 10:38

\*\*\*209 Congeners\*\*\* TS=46.6%

Containers Supplied:

4 oz. jar (A)

8 oz. jar (C)

20L

Sample ID: PTF0689-05 (FO105698 - Other dry)

Sampled: 06/17/10 11:42

1668 Coplanar PCBs - SUB ug/l

12/14/10 11:42

\*\*\*209 Congeners\*\*\* TS=66.6%

Containers Supplied:

4 oz. jar (A)

8 oz. jar (C)

0.3

Sample ID: PTF0689-06 (FO105702 - Other dry)

Sampled: 06/17/10 00:00

1668 Coplanar PCBs - SUB ug/l

12/14/10 00:00

\*\*\*209 Congeners\*\*\* TS=66.6%

Containers Supplied:

4 oz. jar (A)

8 oz. jar (C)

0.1

Released By

Date/Time

Received By

Date/Time

SCUR 0-2672

Sample Condition Upon Receipt

10132108 NAH  
101353358/911

Pace Analytical

Client Name: Test America Portland

Project #

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 41707525943

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals Intact: ☒ yes ☐ no

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other Temp Blank: Yes No ☒

Thermometer Used 80344042 or 179425 Type of Ice: (We) Blue None ☐ Samples on Ice, cooling process has begun

Cooler Temperature 2.2

Biological Tissue Is Frozen: Yes No

Date and Initials of person examining contents: 8-6-10 NAH

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, Wt-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution: Resubmittals for samples PTF0689-02, 04, 05, 06

Project Manager Review:

Date:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina SEMMS, Inc. F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Report No.: 10132108\_1668A

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## 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
- I = 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

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Report No.....10132108

Report No.....10132108\_1668A

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## **Appendix B**

### **Sample Analysis Summary**

## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTF0689-01 (FO105694)		
Lab Sample ID	10132108001		
Filename	P100720A_12		
Injected By	SMT		
Total Amount Extracted	17.5 g	Matrix	Solid
% Moisture	41.8	Dilution	5
Dry Weight Extracted	10.2 g	Collected	06/17/2010 09:43
ICAL ID	P100720A04	Received	06/24/2010 09:55
CCal Filename(s)	P100720A03	Extracted	07/15/2010 15:45
Method Blank ID	BLANK-25744	Analyzed	07/20/2010 18:50

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.552	3.04	2.0	1.33	66
13C-4-MoCB	3	13.014	2.74	2.0	1.61	80
13C-2,2'-DiCB	4	13.385	1.58	2.0	1.27	63
13C-4,4'-DiCB	15	21.545	1.56	2.0	1.72	86
13C-2,2',6-TrCB	19	17.866	1.04	2.0	1.35	68
13C-3,4,4'-TrCB	37	29.856	1.05	2.0	1.81	91
13C-2,2',6,6'-TeCB	54	21.892	0.80	2.0	1.53	76
13C-3,4,4',5-TeCB	81	37.151	0.80	2.0	1.86	93
13C-3,3',4,4'-TeCB	77	37.737	0.80	2.0	1.93	97
13C-2,2',4,6,6'-PeCB	104	28.448	1.54	2.0	1.54	77
13C-2,3,3',4,4'-PeCB	105	41.343	1.59	2.0	1.82	91
13C-2,3,4,4',5-PeCB	114	40.689	1.60	2.0	1.80	90
13C-2,3',4,4',5-PeCB	118	40.135	1.56	2.0	1.81	91
13C-2,3',4,4',5'-PeCB	123	39.800	1.56	2.0	1.80	90
13C-3,3',4,4',5-PeCB	126	44.529	1.58	2.0	1.81	91
13C-2,2',4,4',6,6'-HxCB	155	34.652	1.26	2.0	1.51	76
13C-HxCB (156/157)	156/157	47.614	1.28	4.0	3.47	87
13C-2,3',4,4',5,5'-HxCB	167	46.407	1.27	2.0	1.77	89
13C-3,3',4,4',5,5'-HxCB	169	50.967	1.26	2.0	1.74	87
13C-2,2',3,4',5,6,6'-HpCB	188	40.622	1.06	2.0	1.73	87
13C-2,3,3',4,4',5,5'-HpCB	189	53.616	1.05	2.0	1.85	93
13C-2,2',3,3',5,5',6'-OxCB	202	46.121	0.90	2.0	1.79	89
13C-2,3,3',4,4',5,5',6-OxCB	205	56.785	0.90	2.0	1.72	86
13C-2,2',3,3',4,4',5,5',6-NoCB	206	59.285	0.77	2.0	1.70	85
13C-2,2',3,3',4,4',5,5',6'-NoCB	208	53.013	0.80	2.0	1.72	86
13C--DeCB	209	61.655	0.73	2.0	1.56	78
Cleanup Standards						
13C-2,4,4'-TrCB	28	25.262	1.03	2.0	1.77	89
13C-2,3,3',5,5'-PeCB	111	37.754	1.59	2.0	1.72	86
13C-2,2',3,3',5,5',6-HpCB	178	43.757	1.05	2.0	1.67	83
Recovery Standards						
13C-2,5-DiCB	9	16.285	1.55	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	27.392	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.920	1.59	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	43.321	1.25	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	56.138	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  
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

## REPORT OF LABORATORY ANALYSIS

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-01 (FO105694)  
Lab Sample ID        10132108001  
Filename               P100720A\_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.5
2		---	---	ND	---	24.5
3		---	---	ND	---	24.5
4		13.397	1.42	27.5	---	24.5
5		---	---	ND	---	24.5
6		---	---	ND	---	24.5
7		---	---	ND	---	24.5
8		17.495	1.56	59.1	---	24.5
9		---	---	ND	---	24.5
10		---	---	ND	---	24.5
11		20.778	1.50	185	---	147
12	12/13	---	---	ND	---	49.0
13	12/13	---	---	ND	---	49.0
14		---	---	ND	---	24.5
15		21.581	1.69	63.2	---	24.5
16		21.497	1.01	46.4	---	24.5
17		20.910	1.07	46.6	---	24.5
18	18/30	20.382	1.06	89.3	---	49.0
19		---	---	ND	---	24.5
20	20/28	25.279	1.01	203	---	49.0
21	21/33	25.564	1.02	113	---	49.0
22		26.017	1.01	80.2	---	24.5
23		---	---	ND	---	24.5
24		---	---	ND	---	24.5
25		---	---	ND	---	24.5
26	26/29	---	---	ND	---	49.0
27		---	---	ND	---	24.5
28	20/28	25.279	1.01	(203)	---	49.0
29	26/29	---	---	ND	---	49.0
30	18/30	20.382	1.06	(89.3)	---	49.0
31		24.927	1.02	168	B	24.5
32		22.177	0.99	33.8	---	24.5
33	21/33	25.564	1.02	(113)	---	49.0
34		---	---	ND	---	24.5
35		---	---	ND	---	24.5
36		---	---	ND	---	24.5
37		29.890	1.04	91.1	---	24.5
38		---	---	ND	---	24.5
39		---	---	ND	---	24.5
40	40/41/71	---	---	ND	---	147
41	40/41/71	---	---	ND	---	147
42		29.135	0.75	61.3	---	49.0
43	43/73	---	---	ND	---	98.1
44	44/47/65	28.532	0.79	233	---	147
45	45/51	---	---	ND	---	98.1
46		---	---	ND	---	49.0
47	44/47/65	28.532	0.79	(233)	---	147
48		---	---	ND	---	49.0

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**Pace Analytical**<sup>TM</sup>

Pace Analytical Services, Inc.  
1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTF0689-01 (FO105694)  
Lab Sample ID 10132108001  
Filename P100720A\_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.962	0.80	122	---	98.1
50	50/53	---	---	ND	---	98.1
51	45/51	---	---	ND	---	98.1
52		27.408	0.80	284 B	---	49.0
53	50/53	---	---	ND	---	98.1
54		---	---	ND	---	49.0
55		---	---	ND	---	49.0
56		33.814	0.78	97.5	---	49.0
57		---	---	ND	---	49.0
58		---	---	ND	---	49.0
59	59/62/75	---	---	ND	---	147
60		34.048	0.79	50.7	---	49.0
61	61/70/74/76	32.741	0.76	481	---	196
62	59/62/75	---	---	ND	---	147
63		---	---	ND	---	49.0
64		29.923	0.81	106	---	49.0
65	44/47/65	28.532	0.79	(233)	---	147
66		33.093	0.74	178	---	49.0
67		---	---	ND	---	49.0
68		---	---	ND	---	49.0
69	49/69	27.962	0.80	(122)	---	98.1
70	61/70/74/76	32.741	0.76	(481)	---	196
71	40/41/71	---	---	ND	---	147
72		---	---	ND	---	49.0
73	43/73	---	---	ND	---	98.1
74	61/70/74/76	32.741	0.76	(481)	---	196
75	59/62/75	---	---	ND	---	147
76	61/70/74/76	32.741	0.76	(481)	---	196
77		37.771	0.78	56.0	---	49.0
78		---	---	ND	---	49.0
79		---	---	ND	---	49.0
80		---	---	ND	---	49.0
81		---	---	ND	---	49.0
82		37.369	1.61	476	---	49.0
83		35.440	1.65	194	---	49.0
84		32.959	1.57	707	---	49.0
85	85/116/117	36.849	1.57	430	---	147
86	86/87/97/108/119/125	36.195	1.57	2170	---	294
87	86/87/97/108/119/125	36.195	1.57	(2170)	---	294
88	88/91	32.724	1.57	202	---	98.1
89		---	---	ND	---	49.0
90	90/101/113	34.954	1.57	2160	---	147
91	88/91	32.724	1.57	(202)	---	98.1
92		34.317	1.56	416	---	49.0
93	93/98/100/102	---	---	ND	---	196
94		---	---	ND	---	49.0
95		31.785	1.58	1440	---	49.0
96		---	---	ND	---	49.0

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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Nn = Value obtained from additional analyses

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTF0689-01 (FO105694)  
Lab Sample ID 10132108001  
Filename P100720A\_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	36.195	1.57	(2170)	---	294
98	93/98/100/102	---	---	ND	---	196
99		35.558	1.60	740	---	49.0
100	93/98/100/102	---	---	ND	---	196
101	90/101/113	34.954	1.57	(2160)	---	147
102	93/98/100/102	---	---	ND	---	196
103		---	---	ND	---	49.0
104		---	---	ND	---	49.0
105		41.376	1.51	1570	---	49.0
106		---	---	ND	---	49.0
107	107/124	39.448	1.57	136	---	98.1
108	86/87/97/108/119/125	36.195	1.57	(2170)	---	294
109		39.699	1.46	201	---	49.0
110	110/115	37.033	1.57	3990	---	98.1
111		---	---	ND	---	49.0
112		---	---	ND	---	49.0
113	90/101/113	34.954	1.57	(2160)	---	147
114		40.705	1.50	95.5	---	49.0
115	110/115	37.033	1.57	(3990)	---	98.1
116	85/116/117	36.849	1.57	(430)	---	147
117	85/116/117	36.849	1.57	(430)	---	147
118		40.152	1.52	3200	---	49.0
119	86/87/97/108/119/125	36.195	1.57	(2170)	---	294
120		---	---	ND	---	49.0
121		---	---	ND	---	49.0
122		---	---	ND	---	49.0
123		39.800	1.22 I	---	52.1	49.0
124	107/124	39.448	1.57	(136)	---	98.1
125	86/87/97/108/119/125	36.195	1.57	(2170)	---	294
126		---	---	ND	---	49.0
127		---	---	ND	---	49.0
128	128/166	44.646	1.24	1460	---	98.1
129	129/138/163	43.355	1.23	7690	---	147
130		42.684	1.23	527	---	49.0
131		39.783	1.26	122	---	49.0
132		40.253	1.25	2510	---	49.0
133		40.756	1.27	80.6	---	49.0
134	134/143	39.163	1.25	399	---	98.1
135	135/151	37.989	1.25	1270	---	98.1
136		35.457	1.25	520	---	49.0
137		42.902	1.24	455	---	49.0
138	129/138/163	43.355	1.23	(7690)	---	147
139	139/140	39.548	1.24	102	---	98.1
140	139/140	39.548	1.24	(102)	---	98.1
141		42.265	1.25	1100	---	49.0
142		---	---	ND	---	49.0
143	134/143	39.163	1.25	(399)	---	98.1
144		38.576	1.27	209	---	49.0

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Pace Analytical Services, Inc.  
1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-01 (FO105694)  
Lab Sample ID        10132108001  
Filename                P100720A\_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.0
146		41.427	1.23	689	---	49.0
147	147/149	38.945	1.24	3440	---	98.1
148		---	---	ND	---	49.0
149	147/149	38.945	1.24	(3440)	---	98.1
150		---	---	ND	---	49.0
151	135/151	37.989	1.25	(1270)	---	98.1
152		---	---	ND	---	49.0
153	153/168	42.064	1.23	3750	---	98.1
154		---	---	ND	---	49.0
155		---	---	ND	---	49.0
156	156/157	47.597	1.25	1240	---	98.1
157	156/157	47.597	1.25	(1240)	---	98.1
158		43.741	1.24	797	---	49.0
159		---	---	ND	---	49.0
160		---	---	ND	---	49.0
161		---	---	ND	---	49.0
162		---	---	ND	---	49.0
163	129/138/163	43.355	1.23	(7690)	---	147
164		43.036	1.25	464	---	49.0
165		---	---	ND	---	49.0
166	128/166	44.646	1.24	(1460)	---	98.1
167		46.423	1.23	347	---	49.0
168	153/168	42.064	1.23	(3750)	---	98.1
169		---	---	ND	---	49.0
170		50.330	1.05	1080	---	49.0
171	171/173	46.692	1.04	364	---	98.1
172		48.352	1.05	174	---	49.0
173	171/173	46.692	1.04	(364)	---	98.1
174		45.585	1.06	803	---	49.0
175		---	---	ND	---	49.0
176		41.913	1.04	97.0	---	49.0
177		46.038	1.04	513	---	49.0
178		43.791	1.08	135	---	49.0
179		41.007	1.03	249	---	49.0
180	180/193	49.022	1.04	1640	---	98.1
181		---	---	ND	---	49.0
182		---	---	ND	---	49.0
183	183/185	45.333	1.04	542	---	98.1
184		---	---	ND	---	49.0
185	183/185	45.333	1.04	(542)	---	98.1
186		---	---	ND	---	49.0
187		44.713	1.05	695	---	49.0
188		---	---	ND	---	49.0
189		53.638	0.98	55.1	---	49.0
190		50.883	1.11	196	---	49.0
191		---	---	ND	---	49.0
192		---	---	ND	---	49.0

Conc = Concentration  
EML =Method Specified Reporting Limit (1668A)  
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R = Recovery outside of Method 1668A control limits  
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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-01 (FO105694)  
Lab Sample ID        10132108001  
Filename                P100720A\_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	49.022	1.04	(1640)	---	98.1
194		56.160	0.88	184	---	73.6
195		53.358	0.89	85.3	---	73.6
196		51.722	0.92	107	---	73.6
197	197/200	---	---	ND	---	147
198	198/199	51.034	0.89	206	---	147
199	198/199	51.034	0.89	(206)	---	147
200	197/200	---	---	ND	---	147
201		---	---	ND	---	73.6
202		---	---	ND	---	73.6
203		51.923	0.89	125	---	73.6
204		---	---	ND	---	73.6
205		---	---	ND	---	73.6
206		---	---	ND	---	73.6
207		---	---	ND	---	73.6
208		---	---	ND	---	73.6
209		---	---	ND	---	73.6

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID            PTF0689-01 (FO105694)  
Lab Sample ID              10132108001  
Filename                     P100720A\_12

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	335
Total Trichloro Biphenyls	871
Total Tetrachloro Biphenyls	1670
Total Pentachloro Biphenyls	18100
Total Hexachloro Biphenyls	27200
Total Heptachloro Biphenyls	6540
Total Octachloro Biphenyls	707
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	55400

ND = Not Detected

Results reported on a dry weight basis

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTF0689-02 (FO105695)		
Lab Sample ID	10132108002-2R		
Filename	P100815B_07		
Injected By	BAL	Matrix	Solid
Total Amount Extracted	21.1 g	Dilution	NA
% Moisture	51.8	Collected	06/17/2010 10:26
Dry Weight Extracted	10.2 g	Received	06/24/2010 09:55
ICAL ID	P100815B02	Extracted	08/10/2010 17:35
CCal Filename(s)	P100815B_01	Analyzed	08/15/2010 22:12
Method Blank ID	BLANK-26032		

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.396	3.74	2.0	1.08	62 I
13C-4-MoCB	3	12.846	3.31	2.0	1.44	72
13C-2,2'-DiCB	4	13.194	1.60	2.0	1.23	61
13C-4,4'-DiCB	15	21.342	1.62	2.0	1.55	77
13C-2,2',6-TrCB	19	17.663	1.09	2.0	1.21	60
13C-3,4,4'-TrCB	37	29.624	1.01	2.0	1.69	84
13C-2,2',6,6'-TeCB	54	21.658	0.83	2.0	1.63	82
13C-3,4,4',5-TeCB	81	36.903	0.78	2.0	1.27	63
13C-3,3',4,4'-TeCB	77	37.506	0.79	2.0	1.20	60
13C-2,2',4,6,6'-PeCB	104	28.182	1.63	2.0	1.72	86
13C-2,3,3',4,4'-PeCB	105	41.095	1.55	2.0	1.15	57
13C-2,3,4,4',5-PeCB	114	40.441	1.58	2.0	1.20	60
13C-2,3',4,4',5-PeCB	118	39.871	1.65	2.0	1.29	65
13C-2,3',4,4',5'-PeCB	123	39.536	1.53	2.0	1.23	62
13C-3,3',4,4',5-PeCB	126	44.281	1.56	2.0	1.00	50
13C-2,2',4,4',6,6'-HxCB	155	34.387	1.29	2.0	2.09	105
13C-HxCB (156/157)	156/157	47.334	1.26	4.0	2.31	58
13C-2,3',4,4',5,5'-HxCB	167	46.126	1.31	2.0	1.36	68
13C-3,3',4,4',5,5'-HxCB	169	50.671	1.31	2.0	1.12	56
13C-2,2',3,4',5,6,6'-HpCB	188	40.340	1.04	2.0	2.05	102
13C-2,3,3',4,4',5,5'-HpCB	189	53.234	1.06	2.0	1.45	72
13C-2,2',3,3',5,5',6'-OxCB	202	45.791	0.91	2.0	1.92	96
13C-2,3,3',4,4',5,5',6-OxCB	205	56.274	0.94	2.0	1.53	76
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.688	0.72	2.0	1.85	93
13C-2,2',3,3',4,4',5,5',6'-NoCB	208	52.609	0.84	2.0	1.54	77
13C--DeCB	209	61.231	0.77	2.0	1.83	91
Cleanup Standards						
13C-2,4,4'-TrCB	28	25.012	1.17	2.0	2.04	102
13C-2,3,3',5,5'-PeCB	111	37.490	1.53	2.0	1.40	70
13C-2,2',3,3',5,5',6-HpCB	178	43.476	1.10	2.0	1.74	87
Recovery Standards						
13C-2,5-DiCB	9	16.093	1.61	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	27.142	0.81	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.672	1.49	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	43.057	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.670	0.86	2.0	NA	NA

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1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTF0689-02 (FO105695)  
Lab Sample ID 10132108002-2R  
Filename P100815B\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.408	2.85	44.1	---	24.6
2		12.595	2.86	25.6	---	24.6
3		12.858	3.03	56.6	---	24.6
4		13.206	1.53	246	---	24.6
5		---	---	ND	---	24.6
6		16.692	1.52	126	---	24.6
7		16.345	1.55	24.9	---	24.6
8		17.280	1.56	581	---	24.6
9		16.129	1.50	39.6	---	24.6
10		---	---	ND	---	24.6
11		20.587	1.53	1380	---	148
12	12/13	20.934	1.49	98.4	---	49.2
13	12/13	20.934	1.49	(98.4)	---	49.2
14		---	---	ND	---	24.6
15		21.366	1.61	810	---	24.6
16		21.270	1.04	463	---	24.6
17		20.695	1.09	465	---	24.6
18	18/30	20.180	1.06	620	---	49.2
19		17.675	0.99	134	---	24.6
20	20/28	25.063	1.02	2140	---	49.2
21	21/33	25.331	1.04	1210	---	49.2
22		25.784	1.00	872	---	24.6
23		---	---	ND	---	24.6
24		---	---	ND	---	24.6
25		24.325	1.03	157	---	24.6
26	26/29	24.039	0.99	373	---	49.2
27		20.970	0.99	95.6	---	24.6
28	20/28	25.063	1.02	(2140)	---	49.2
29	26/29	24.039	0.99	(373)	---	49.2
30	18/30	20.180	1.06	(620)	---	49.2
31		24.710	1.03	1880	---	24.6
32		21.926	1.04	361	---	24.6
33	21/33	25.331	1.04	(1210)	---	49.2
34		---	---	ND	---	24.6
35		29.205	0.95	96.8	---	24.6
36		---	---	ND	---	24.6
37		29.658	1.01	1140	---	24.6
38		---	---	ND	---	24.6
39		---	---	ND	---	24.6
40	40/41/71	29.440	0.78	1240	---	148
41	40/41/71	29.440	0.78	(1240)	---	148
42		28.886	0.78	584	---	49.2
43	43/73	---	---	ND	---	98.4
44	44/47/65	28.283	0.79	2240	---	148
45	45/51	25.146	0.80	375	---	98.4
46		25.499	0.76	143	---	49.2
47	44/47/65	28.283	0.79	(2240)	---	148
48		28.031	0.80	440	---	49.2

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Minneapolis, MN 55414

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

## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTF0689-02 (FO105695)  
Lab Sample ID 10132108002-2R  
Filename P100815B\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.729	0.78	1240	---	98.4
50	50/53	24.341	0.78	282	---	98.4
51	45/51	25.146	0.80	(375)	---	98.4
52		27.176	0.79	3720	---	49.2
53	50/53	24.341	0.78	(282)	---	98.4
54		---	---	ND	---	49.2
55		---	---	ND	---	49.2
56		33.565	0.73	976	---	49.2
57		---	---	ND	---	49.2
58		---	---	ND	---	49.2
59	59/62/75	28.668	0.84	213	---	148
60		33.817	0.77	468	---	49.2
61	61/70/74/76	32.492	0.75	4150	---	197
62	59/62/75	28.668	0.84	(213)	---	148
63		32.140	0.73	76.8	---	49.2
64		29.691	0.79	1000	---	49.2
65	44/47/65	28.283	0.79	(2240)	---	148
66		32.861	0.76	2000	---	49.2
67		31.855	0.73	83.9	---	49.2
68		---	---	ND	---	49.2
69	49/69	27.729	0.78	(1240)	---	98.4
70	61/70/74/76	32.492	0.75	(4150)	---	197
71	40/41/71	29.440	0.78	(1240)	---	148
72		---	---	ND	---	49.2
73	43/73	---	---	ND	---	98.4
74	61/70/74/76	32.492	0.75	(4150)	---	197
75	59/62/75	28.668	0.84	(213)	---	148
76	61/70/74/76	32.492	0.75	(4150)	---	197
77		37.523	0.74	640	---	49.2
78		---	---	ND	---	49.2
79		35.813	0.74	57.8	---	49.2
80		---	---	ND	---	49.2
81		---	---	ND	---	49.2
82		37.104	1.54	962	---	49.2
83		35.175	1.54	597	---	49.2
84		32.693	1.59	2180	---	49.2
85	85/116/117	36.584	1.48	922	---	148
86	86/87/97/108/119/125	35.930	1.57	8110	---	295
87	86/87/97/108/119/125	35.930	1.57	(8110)	---	295
88	88/91	32.458	1.62	935	---	98.4
89		33.213	1.55	96.2	---	49.2
90	90/101/113	34.689	1.57	23900	---	148
91	88/91	32.458	1.62	(935)	---	98.4
92		34.068	1.56	3360	---	49.2
93	93/98/100/102	31.905	1.54	274	---	197
94		---	---	ND	---	49.2
95		31.536	1.56	15100	---	49.2
96		28.635	1.41	57.0	---	49.2

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-02 (FO105695)  
Lab Sample ID        10132108002-2R  
Filename               P100815B\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.930	1.57	(8110)	---	295
98	93/98/100/102	31.905	1.54	(274)	---	197
99		35.293	1.54	2680	---	49.2
100	93/98/100/102	31.905	1.54	(274)	---	197
101	90/101/113	34.689	1.57	(23900)	---	148
102	93/98/100/102	31.905	1.54	(274)	---	197
103		30.798	1.54	67.5	---	49.2
104		---	---	ND	---	49.2
105		41.129	1.55	4110	---	49.2
106		---	---	ND	---	49.2
107	107/124	39.183	1.50	526	---	98.4
108	86/87/97/108/119/125	35.930	1.57	(8110)	---	295
109		39.452	1.58	804	---	49.2
110	110/115	36.768	1.56	18900	---	98.4
111		---	---	ND	---	49.2
112		---	---	ND	---	49.2
113	90/101/113	34.689	1.57	(23900)	---	148
114		40.458	1.44	203	---	49.2
115	110/115	36.768	1.56	(18900)	---	98.4
116	85/116/117	36.584	1.48	(922)	---	148
117	85/116/117	36.584	1.48	(922)	---	148
118		39.904	1.52	12000	---	49.2
119	86/87/97/108/119/125	35.930	1.57	(8110)	---	295
120		---	---	ND	---	49.2
121		---	---	ND	---	49.2
122		40.240	1.62	117	---	49.2
123		39.535	1.60	124	---	49.2
124	107/124	39.183	1.50	(526)	---	98.4
125	86/87/97/108/119/125	35.930	1.57	(8110)	---	295
126		44.265	1.24 I	---	305	49.2
127		---	---	ND	---	49.2
128	128/166	44.365	1.24	8380	---	98.4
129	129/138/163	43.074	1.25	102000	---	148
130		42.420	1.26	4190	---	49.2
131		39.519	1.21	659	---	49.2
132		39.988	1.26	25200	---	49.2
133		40.491	1.24	993	---	49.2
134	134/143	38.882	1.26	3290	---	98.4
135	135/151	37.708	1.25	34600	---	98.4
136		35.192	1.25	10800	---	49.2
137		42.638	1.34	1100	---	49.2
138	129/138/163	43.074	1.25	(102000)	---	148
139	139/140	39.301	1.30	548	---	98.4
140	139/140	39.301	1.30	(548)	---	98.4
141		41.984	1.25	22800	---	49.2
142		---	---	ND	---	49.2
143	134/143	38.882	1.26	(3290)	---	98.4
144		38.294	1.25	5690	---	49.2

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID      PTF0689-02 (FO105695)  
Lab Sample ID        10132108002-2R  
Filename               P100815B\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.2
146		41.162	1.25	13200	---	49.2
147	147/149	38.663	1.24	73900	---	98.4
148		37.070	1.31	63.7	---	49.2
149	147/149	38.663	1.24	(73900)	---	98.4
150		34.806	1.31	111	---	49.2
151	135/151	37.708	1.25	(34600)	---	98.4
152		---	---	ND	---	49.2
153	153/168	41.783	1.24	93900	---	98.4
154		37.976	1.09	571	---	49.2
155		---	---	ND	---	49.2
156	156/157	47.317	1.23	7760	---	98.4
157	156/157	47.317	1.23	(7760)	---	98.4
158		43.476	1.24	8400	---	49.2
159		45.405	1.47 I	---	67.3	49.2
160		---	---	ND	---	49.2
161		---	---	ND	---	49.2
162		45.657	1.21	298	---	49.2
163	129/138/163	43.074	1.25	(102000)	---	148
164		42.755	1.32	5820	---	49.2
165		---	---	ND	---	49.2
166	128/166	44.365	1.24	(8380)	---	98.4
167		46.143	1.22	3460	---	49.2
168	153/168	41.783	1.24	(93900)	---	98.4
169		50.688	1.47 I	---	157	49.2
170		50.000	1.04	39600	---	49.2
171	171/173	46.378	1.04	12100	---	98.4
172		48.038	1.03	6690	---	49.2
173	171/173	46.378	1.04	(12100)	---	98.4
174		45.288	1.04	35600	---	49.2
175		44.147	1.03	1770	---	49.2
176		41.632	1.04	4850	---	49.2
177		45.740	1.04	20800	---	49.2
178		43.493	1.04	7180	---	49.2
179		40.726	1.05	13900	---	49.2
180	180/193	48.709	1.05	83300	---	98.4
181		---	---	ND	---	49.2
182		---	---	ND	---	49.2
183	183/185	45.053	1.04	26800	---	98.4
184		---	---	ND	---	49.2
185	183/185	45.053	1.04	(26800)	---	98.4
186		---	---	ND	---	49.2
187		44.416	1.05	41000	---	49.2
188		40.357	1.01	60.5	---	49.2
189		53.256	1.01	1680	---	49.2
190		50.554	1.03	7910	---	49.2
191		49.061	1.03	1660	---	49.2
192		---	---	ND	---	49.2

Conc = Concentration  
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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-02 (FO105695)  
Lab Sample ID        10132108002-2R  
Filename                P100815B\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.709	1.05	(83300)	---	98.4
194		55.692	0.89	14400	---	73.8
195		52.954	0.89	5970	---	73.8
196		51.359	0.90	8460	---	73.8
197	197/200	47.820	0.89	2400	---	148
198	198/199	50.688	0.90	13000	---	148
199	198/199	50.688	0.90	(13000)	---	148
200	197/200	47.820	0.89	(2400)	---	148
201		46.763	0.91	1850	---	73.8
202		45.824	0.90	2200	---	73.8
203		51.560	0.89	8520	---	73.8
204		---	---	ND	---	73.8
205		56.317	0.89	915	---	73.8
206		58.709	0.78	2880	---	73.8
207		53.665	0.82	383	---	73.8
208		52.652	0.78	597	---	73.8
209		61.296	0.71	423	---	73.8

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID            PTF0689-02 (FO105695)  
Lab Sample ID              10132108002-2R  
Filename                     P100815B\_07

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	126
Total Dichloro Biphenyls	3310
Total Trichloro Biphenyls	10000
Total Tetrachloro Biphenyls	19900
Total Pentachloro Biphenyls	96100
Total Hexachloro Biphenyls	427000
Total Heptachloro Biphenyls	305000
Total Octachloro Biphenyls	57700
Total Nonachloro Biphenyls	3860
Decachloro Biphenyls	423
Total PCBs	924000

ND = Not Detected

Results reported on a dry weight basis

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTF0689-03 (FO105696)		
Lab Sample ID	10132108003		
Filename	P100717A_05		
Injected By	BAL		
Total Amount Extracted	13.8 g	Matrix	Solid
% Moisture	45.9	Dilution	5
Dry Weight Extracted	7.48 g	Collected	06/17/2010 15:48
ICAL ID	P100717A02	Received	06/24/2010 09:55
CCal Filename(s)	P100717A_01	Extracted	07/14/2010 15:15
Method Blank ID	BLANK-25716	Analyzed	07/17/2010 11:57

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	9.600	0.75	2.0	0.00755	1	IR
13C-4-MoCB	3	13.038	2.66	2.0	0.306	15	R
13C-2,2'-DiCB	4	13.410	1.79	2.0	0.0297	1	R
13C-4,4'-DiCB	15	21.557	1.55	2.0	1.23	61	
13C-2,2',6-TrCB	19	17.879	1.18	2.0	0.175	9	R
13C-3,4,4'-TrCB	37	29.858	1.04	2.0	1.78	89	
13C-2,2',6,6'-TeCB	54	21.926	0.77	2.0	0.745	37	
13C-3,4,4',5-TeCB	81	37.136	0.78	2.0	1.81	90	
13C-3,3',4,4'-TeCB	77	37.723	0.80	2.0	1.60	80	
13C-2,2',4,6,6'-PeCB	104	28.450	1.58	2.0	1.45	73	
13C-2,3,3',4,4'-PeCB	105	41.312	1.52	2.0	1.54	77	
13C-2,3,4,4',5-PeCB	114	40.658	1.55	2.0	1.57	79	
13C-2,3',4,4',5-PeCB	118	40.105	1.56	2.0	1.64	82	
13C-2,3',4,4',5-PeCB	123	39.769	1.53	2.0	1.61	81	
13C-3,3',4,4',5-PeCB	126	44.465	1.57	2.0	1.29	64	
13C-2,2',4,4',6,6'-HxCB	155	34.654	1.28	2.0	1.70	85	
13C-HxCB (156/157)	156/157	47.516	1.25	4.0	3.25	81	
13C-2,3',4,4',5,5'-HxCB	167	46.343	1.27	2.0	1.66	83	
13C-3,3',4,4',5,5'-HxCB	169	50.820	1.30	2.0	1.46	73	
13C-2,2',3,4',5,6,6'-HpCB	188	40.608	1.04	2.0	1.88	94	
13C-2,3,3',4,4',5,5'-HpCB	189	53.426	1.03	2.0	1.81	90	
13C-2,2',3,3',5,5',6,6'-OxCB	202	46.058	0.91	2.0	1.85	92	
13C-2,3,3',4,4',5,5',6-OxCB	205	56.530	0.90	2.0	1.82	91	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	59.008	0.79	2.0	1.70	85	
13C-2,2',3,3',4,4',5,5',6-NoCB	208	52.865	0.83	2.0	1.68	84	
13C--DeCB	209	61.616	0.69	2.0	1.69	84	
Cleanup Standards							
13C-2,4,4'-TrCB	28	25.264	1.09	2.0	1.68	84	
13C-2,3,3',5,5'-PeCB	111	37.740	1.61	2.0	1.54	77	
13C-2,2',3,3',5,5',6-HpCB	178	43.710	1.07	2.0	1.72	86	
Recovery Standards							
13C-2,5-DiCB	9	16.309	1.56	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	27.393	0.79	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	34.906	1.60	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	43.274	1.27	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.926	0.89	2.0	NA	NA	

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Pace Analytical Services, Inc.  
1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-03 (FO105696)  
Lab Sample ID        10132108003  
Filename                P100717A\_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.612	2.82	893 B	---	33.4
2		12.775	2.93	180 B	---	33.4
3		13.062	3.40	87.5 B	---	33.4
4		13.422	1.39	200	---	33.4
5		---	---	ND	---	33.4
6		16.908	1.59	83.8	---	33.4
7		---	---	ND	---	33.4
8		17.508	1.57	205	---	33.4
9		---	---	ND	---	33.4
10		---	---	ND	---	33.4
11		20.790	1.53	397 B	---	201
12	12/13	---	---	ND	---	66.9
13	12/13	---	---	ND	---	66.9
14		---	---	ND	---	33.4
15		21.593	1.54	441	---	33.4
16		21.509	1.07	174	---	33.4
17		20.922	1.06	365	---	33.4
18	18/30	20.407	1.06	723	---	66.9
19		17.903	1.06	81.3	---	33.4
20	20/28	25.297	1.03	1680	---	66.9
21	21/33	25.582	1.04	746	---	66.9
22		26.035	1.01	609	---	33.4
23		---	---	ND	---	33.4
24		---	---	ND	---	33.4
25		24.576	1.03	119	---	33.4
26	26/29	24.274	1.04	279	---	66.9
27		21.210	1.11	61.6	---	33.4
28	20/28	25.297	1.03	(1680)	---	66.9
29	26/29	24.274	1.04	(279)	---	66.9
30	18/30	20.407	1.06	(723)	---	66.9
31		24.945	1.02	1480	---	33.4
32		22.178	1.01	294	---	33.4
33	21/33	25.582	1.04	(746)	---	66.9
34		---	---	ND	---	33.4
35		29.422	1.03	34.7	---	33.4
36		---	---	ND	---	33.4
37		29.892	1.03	387	---	33.4
38		---	---	ND	---	33.4
39		---	---	ND	---	33.4
40	40/41/71	29.691	0.77	580	---	201
41	40/41/71	29.691	0.77	(580)	---	201
42		29.137	0.82	296	---	66.9
43	43/73	---	---	ND	---	134
44	44/47/65	28.550	0.80	986	---	201
45	45/51	25.381	0.79	210	---	134
46		---	---	ND	---	66.9
47	44/47/65	28.550	0.80	(986)	---	201
48		28.299	0.79	237	---	66.9

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Minneapolis, MN 55414

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

## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTF0689-03 (FO105696)  
Lab Sample ID 10132108003  
Filename P100717A\_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.980	0.80	578	---	134
50	50/53	24.593	0.80	162	---	134
51	45/51	25.381	0.79	(210)	---	134
52		27.427	0.78	965	---	66.9
53	50/53	24.593	0.80	(162)	---	134
54		---	---	ND	---	66.9
55		---	---	ND	---	66.9
56		33.816	0.78	184	---	66.9
57		---	---	ND	---	66.9
58		---	---	ND	---	66.9
59	59/62/75	---	---	ND	---	201
60		34.051	0.76	111	---	66.9
61	61/70/74/76	32.726	0.78	960	---	268
62	59/62/75	---	---	ND	---	201
63		---	---	ND	---	66.9
64		29.925	0.80	458	---	66.9
65	44/47/65	28.550	0.80	(986)	---	201
66		33.095	0.78	464	---	66.9
67		---	---	ND	---	66.9
68		---	---	ND	---	66.9
69	49/69	27.980	0.80	(578)	---	134
70	61/70/74/76	32.726	0.78	(960)	---	268
71	40/41/71	29.691	0.77	(580)	---	201
72		---	---	ND	---	66.9
73	43/73	---	---	ND	---	134
74	61/70/74/76	32.726	0.78	(960)	---	268
75	59/62/75	---	---	ND	---	201
76	61/70/74/76	32.726	0.78	(960)	---	268
77		37.740	0.76	68.4	---	66.9
78		---	---	ND	---	66.9
79		---	---	ND	---	66.9
80		---	---	ND	---	66.9
81		---	---	ND	---	66.9
82		37.338	1.62	114	---	66.9
83		---	---	ND	---	66.9
84		32.961	1.58	258	---	66.9
85	85/116/117	---	---	ND	---	201
86	86/87/97/108/119/125	36.181	1.57	597	---	401
87	86/87/97/108/119/125	36.181	1.57	(597)	---	401
88	88/91	32.709	1.54	172	---	134
89		---	---	ND	---	66.9
90	90/101/113	34.940	1.60	821	---	201
91	88/91	32.709	1.54	(172)	---	134
92		34.319	1.56	181	---	66.9
93	93/98/100/102	---	---	ND	---	268
94		---	---	ND	---	66.9
95		31.787	1.56	835	---	66.9
96		---	---	ND	---	66.9

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTF0689-03 (FO105696)  
Lab Sample ID 10132108003  
Filename P100717A\_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	36.181	1.57	(597)	---	401
98	93/98/100/102	---	---	ND	---	268
99		35.543	1.56	293	---	66.9
100	93/98/100/102	---	---	ND	---	268
101	90/101/113	34.940	1.60	(821)	---	201
102	93/98/100/102	---	---	ND	---	268
103		---	---	ND	---	66.9
104		---	---	ND	---	66.9
105		41.346	1.57	356	---	66.9
106		---	---	ND	---	66.9
107	107/124	---	---	ND	---	134
108	86/87/97/108/119/125	36.181	1.57	(597)	---	401
109		---	---	ND	---	66.9
110	110/115	37.019	1.57	1190	---	134
111		---	---	ND	---	66.9
112		---	---	ND	---	66.9
113	90/101/113	34.940	1.60	(821)	---	201
114		---	---	ND	---	66.9
115	110/115	37.019	1.57	(1190)	---	134
116	85/116/117	---	---	ND	---	201
117	85/116/117	---	---	ND	---	201
118		40.138	1.54	717	---	66.9
119	86/87/97/108/119/125	36.181	1.57	(597)	---	401
120		---	---	ND	---	66.9
121		---	---	ND	---	66.9
122		---	---	ND	---	66.9
123		---	---	ND	---	66.9
124	107/124	---	---	ND	---	134
125	86/87/97/108/119/125	36.181	1.57	(597)	---	401
126		---	---	ND	---	66.9
127		---	---	ND	---	66.9
128	128/166	44.599	1.26	233	---	134
129	129/138/163	43.308	1.24	1350	---	201
130		42.654	1.24	86.6	---	66.9
131		---	---	ND	---	66.9
132		40.222	1.24	412	---	66.9
133		---	---	ND	---	66.9
134	134/143	---	---	ND	---	134
135	135/151	37.958	1.23	341	---	134
136		35.443	1.26	144	---	66.9
137		---	---	ND	---	66.9
138	129/138/163	43.308	1.24	(1350)	---	201
139	139/140	---	---	ND	---	134
140	139/140	---	---	ND	---	134
141		42.234	1.24	208	---	66.9
142		---	---	ND	---	66.9
143	134/143	---	---	ND	---	134
144		---	---	ND	---	66.9

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTF0689-03 (FO105696)  
Lab Sample ID 10132108003  
Filename P100717A\_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	66.9
146		41.396	1.23	148	---	66.9
147	147/149	38.931	1.25	827	---	134
148		---	---	ND	---	66.9
149	147/149	38.931	1.25	(827)	---	134
150		---	---	ND	---	66.9
151	135/151	37.958	1.23	(341)	---	134
152		---	---	ND	---	66.9
153	153/168	42.033	1.24	881	---	134
154		---	---	ND	---	66.9
155		---	---	ND	---	66.9
156	156/157	47.516	1.24	172	---	134
157	156/157	47.516	1.24	(172)	---	134
158		43.710	1.25	134	---	66.9
159		---	---	ND	---	66.9
160		---	---	ND	---	66.9
161		---	---	ND	---	66.9
162		---	---	ND	---	66.9
163	129/138/163	43.308	1.24	(1350)	---	201
164		42.989	1.24	93.3	---	66.9
165		---	---	ND	---	66.9
166	128/166	44.599	1.26	(233)	---	134
167		---	---	ND	---	66.9
168	153/168	42.033	1.24	(881)	---	134
169		---	---	ND	---	66.9
170		50.233	1.07	307	---	66.9
171	171/173	---	---	ND	---	134
172		---	---	ND	---	66.9
173	171/173	---	---	ND	---	134
174		45.538	1.07	248	---	66.9
175		---	---	ND	---	66.9
176		---	---	ND	---	66.9
177		45.974	1.02	143	---	66.9
178		---	---	ND	---	66.9
179		40.977	1.04	90.0	---	66.9
180	180/193	48.925	1.04	574	---	134
181		---	---	ND	---	66.9
182		---	---	ND	---	66.9
183	183/185	45.286	1.04	166	---	134
184		---	---	ND	---	66.9
185	183/185	45.286	1.04	(166)	---	134
186		---	---	ND	---	66.9
187		44.666	1.02	265	---	66.9
188		---	---	ND	---	66.9
189		---	---	ND	---	66.9
190		---	---	ND	---	66.9
191		---	---	ND	---	66.9
192		---	---	ND	---	66.9

Conc = Concentration  
EML =Method Specified Reporting Limit (1668A)  
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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-03 (FO105696)  
Lab Sample ID        10132108003  
Filename               P100717A\_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.925	1.04	(574)	---	134
194		55.948	0.88	121	---	100
195		---	---	ND	---	100
196		---	---	ND	---	100
197	197/200	---	---	ND	---	201
198	198/199	---	---	ND	---	201
199	198/199	---	---	ND	---	201
200	197/200	---	---	ND	---	201
201		---	---	ND	---	100
202		---	---	ND	---	100
203		---	---	ND	---	100
204		---	---	ND	---	100
205		---	---	ND	---	100
206		59.052	0.76	108	---	100
207		---	---	ND	---	100
208		---	---	ND	---	100
209		61.660	0.68	116	---	100

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID            PTF0689-03 (FO105696)  
Lab Sample ID             10132108003  
Filename                    P100717A\_05

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	1160
Total Dichloro Biphenyls	1330
Total Trichloro Biphenyls	7030
Total Tetrachloro Biphenyls	6260
Total Pentachloro Biphenyls	5530
Total Hexachloro Biphenyls	5030
Total Heptachloro Biphenyls	1790
Total Octachloro Biphenyls	121
Total Nonachloro Biphenyls	108
Decachloro Biphenyls	116
Total PCBs	28500

ND = Not Detected

Results reported on a dry weight basis

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTF0689-04 (FO105697)		
Lab Sample ID	10132108004-2R		
Filename	P100815B_08		
Injected By	BAL		
Total Amount Extracted	21.5 g	Matrix	Solid
% Moisture	53.4	Dilution	NA
Dry Weight Extracted	10.0 g	Collected	06/17/2010 10:38
ICAL ID	P100815B02	Received	06/24/2010 09:55
CCal Filename(s)	P100815B_01	Extracted	08/10/2010 17:35
Method Blank ID	BLANK-26032	Analyzed	08/15/2010 23:17

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.420	3.96	2.0	0.803	48 I
13C-4-MoCB	3	12.871	3.23	2.0	1.28	64
13C-2,2'-DiCB	4	13.218	1.65	2.0	1.12	56
13C-4,4'-DiCB	15	21.377	1.63	2.0	1.39	70
13C-2,2',6-TrCB	19	17.687	1.02	2.0	1.20	60
13C-3,4,4'-TrCB	37	29.690	1.05	2.0	1.48	74
13C-2,2',6,6'-TeCB	54	21.691	0.74	2.0	1.58	79
13C-3,4,4',5-TeCB	81	36.967	0.81	2.0	1.08	54
13C-3,3',4,4'-TeCB	77	37.554	0.82	2.0	1.05	53
13C-2,2',4,6,6'-PeCB	104	28.231	1.58	2.0	1.80	90
13C-2,3,3',4,4'-PeCB	105	41.159	1.54	2.0	1.06	53
13C-2,3,4,4',5-PeCB	114	40.472	1.62	2.0	1.16	58
13C-2,3',4,4',5-PeCB	118	39.935	1.55	2.0	1.14	57
13C-2,3',4,4',5'-PeCB	123	39.600	1.59	2.0	1.16	58
13C-3,3',4,4',5-PeCB	126	44.362	1.53	2.0	0.926	46
13C-2,2',4,4',6,6'-HxCB	155	34.418	1.28	2.0	2.19	110
13C-HxCB (156/157)	156/157	47.380	1.23	4.0	2.24	56
13C-2,3',4,4',5,5'-HxCB	167	46.206	1.25	2.0	1.23	62
13C-3,3',4,4',5,5'-HxCB	169	50.767	1.15	2.0	1.07	54
13C-2,2',3,4',5,6,6'-HpCB	188	40.405	1.05	2.0	2.37	118
13C-2,3,3',4,4',5,5'-HpCB	189	53.316	0.99	2.0	1.53	77
13C-2,2',3,3',5,5',6,6'-OxCB	202	45.871	0.87	2.0	2.03	102
13C-2,3,3',4,4',5,5',6-OxCB	205	56.376	0.93	2.0	1.53	76
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.790	0.76	2.0	2.11	105
13C-2,2',3,3',4,4',5,5',6-NoCB	208	52.691	0.89	2.0	1.57	79
13C--DeCB	209	61.333	0.69	2.0	2.00	100
Cleanup Standards						
13C-2,4,4'-TrCB	28	25.062	1.03	2.0	1.78	89
13C-2,3,3',5,5'-PeCB	111	37.554	1.57	2.0	1.32	66
13C-2,2',3,3',5,5',6-HpCB	178	43.557	1.02	2.0	1.72	86
Recovery Standards						
13C-2,5-DiCB	9	16.117	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	27.191	0.77	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.703	1.51	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	43.104	1.33	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.773	0.98	2.0	NA	NA

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Pace Analytical Services, Inc.  
1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-04 (FO105697)  
Lab Sample ID        10132108004-2R  
Filename                P100815B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.444	2.94	46.7	---	25.0
2		12.619	3.24	31.8	---	25.0
3		12.883	3.08	75.9	---	25.0
4		13.242	1.47	237	---	25.0
5		---	---	ND	---	25.0
6		16.717	1.47	135	---	25.0
7		16.381	1.57	25.8	---	25.0
8		17.316	1.56	602	---	25.0
9		16.153	1.46	41.8	---	25.0
10		---	---	ND	---	25.0
11		20.623	1.57	751	---	150
12	12/13	20.982	1.51	109	---	49.9
13	12/13	20.982	1.51	(109)	---	49.9
14		---	---	ND	---	25.0
15		21.413	1.55	919	---	25.0
16		21.306	1.01	501	---	25.0
17		20.742	1.07	493	---	25.0
18	18/30	20.203	1.05	666	---	49.9
19		17.699	1.02	136	---	25.0
20	20/28	25.095	1.03	2080	---	49.9
21	21/33	25.364	1.02	1150	---	49.9
22		25.816	1.02	861	---	25.0
23		---	---	ND	---	25.0
24		---	---	ND	---	25.0
25		24.374	1.03	159	---	25.0
26	26/29	24.072	1.01	362	---	49.9
27		20.994	1.13	104	---	25.0
28	20/28	25.095	1.03	(2080)	---	49.9
29	26/29	24.072	1.01	(362)	---	49.9
30	18/30	20.203	1.05	(666)	---	49.9
31		24.743	1.04	1810	---	25.0
32		21.976	1.02	391	---	25.0
33	21/33	25.364	1.02	(1150)	---	49.9
34		---	---	ND	---	25.0
35		29.237	0.99	75.9	---	25.0
36		---	---	ND	---	25.0
37		29.707	1.02	1130	---	25.0
38		---	---	ND	---	25.0
39		---	---	ND	---	25.0
40	40/41/71	29.472	0.83	1580	---	150
41	40/41/71	29.472	0.83	(1580)	---	150
42		28.918	0.80	671	---	49.9
43	43/73	---	---	ND	---	99.9
44	44/47/65	28.365	0.78	3650	---	150
45	45/51	25.246	0.79	851	---	99.9
46		25.514	0.83	187	---	49.9
47	44/47/65	28.365	0.78	(3650)	---	150
48		28.080	0.81	479	---	49.9

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Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-04 (FO105697)  
Lab Sample ID        10132108004-2R  
Filename               P100815B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.761	0.79	1780	---	99.9
50	50/53	24.374	0.79	654	---	99.9
51	45/51	25.246	0.79	(851)	---	99.9
52		27.208	0.79	3570	---	49.9
53	50/53	24.374	0.79	(654)	---	99.9
54		---	---	ND	---	49.9
55		---	---	ND	---	49.9
56		33.597	0.76	779	---	49.9
57		---	---	ND	---	49.9
58		---	---	ND	---	49.9
59	59/62/75	28.700	0.77	244	---	150
60		33.848	0.76	369	---	49.9
61	61/70/74/76	32.540	0.75	3500	---	200
62	59/62/75	28.700	0.77	(244)	---	150
63		32.188	0.81	74.2	---	49.9
64		29.740	0.79	1100	---	49.9
65	44/47/65	28.365	0.78	(3650)	---	150
66		32.892	0.78	1720	---	49.9
67		31.903	0.82	79.7	---	49.9
68		---	---	ND	---	49.9
69	49/69	27.761	0.79	(1780)	---	99.9
70	61/70/74/76	32.540	0.75	(3500)	---	200
71	40/41/71	29.472	0.83	(1580)	---	150
72		---	---	ND	---	49.9
73	43/73	---	---	ND	---	99.9
74	61/70/74/76	32.540	0.75	(3500)	---	200
75	59/62/75	28.700	0.77	(244)	---	150
76	61/70/74/76	32.540	0.75	(3500)	---	200
77		37.587	0.78	413	---	49.9
78		---	---	ND	---	49.9
79		---	---	ND	---	49.9
80		---	---	ND	---	49.9
81		---	---	ND	---	49.9
82		37.151	1.53	921	---	49.9
83		35.206	1.60	492	---	49.9
84		32.741	1.57	2130	---	49.9
85	85/116/117	36.615	1.37	1040	---	150
86	86/87/97/108/119/125	35.978	1.52	5000	---	300
87	86/87/97/108/119/125	35.978	1.52	(5000)	---	300
88	88/91	32.507	1.55	1630	---	99.9
89		33.244	1.46	73.0	---	49.9
90	90/101/113	34.737	1.56	8390	---	150
91	88/91	32.507	1.55	(1630)	---	99.9
92		34.116	1.57	1750	---	49.9
93	93/98/100/102	31.953	1.50	518	---	200
94		31.065	1.47	152	---	49.9
95		31.568	1.56	7020	---	49.9
96		28.650	1.58	110	---	49.9

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-04 (FO105697)  
Lab Sample ID        10132108004-2R  
Filename               P100815B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.978	1.52	(5000)	---	300
98	93/98/100/102	31.953	1.50	(518)	---	200
99		35.357	1.57	2820	---	49.9
100	93/98/100/102	31.953	1.50	(518)	---	200
101	90/101/113	34.737	1.56	(8390)	---	150
102	93/98/100/102	31.953	1.50	(518)	---	200
103		30.830	1.52	158	---	49.9
104		---	---	ND	---	49.9
105		41.176	1.53	2820	---	49.9
106		---	---	ND	---	49.9
107	107/124	39.231	1.44	295	---	99.9
108	86/87/97/108/119/125	35.978	1.52	(5000)	---	300
109		39.499	1.45	422	---	49.9
110	110/115	36.816	1.58	10200	---	99.9
111		---	---	ND	---	49.9
112		---	---	ND	---	49.9
113	90/101/113	34.737	1.56	(8390)	---	150
114		40.505	1.60	136	---	49.9
115	110/115	36.816	1.58	(10200)	---	99.9
116	85/116/117	36.615	1.37	(1040)	---	150
117	85/116/117	36.615	1.37	(1040)	---	150
118		39.969	1.54	6200	---	49.9
119	86/87/97/108/119/125	35.978	1.52	(5000)	---	300
120		---	---	ND	---	49.9
121		---	---	ND	---	49.9
122		40.321	1.44	92.9	---	49.9
123		39.616	1.39	127	---	49.9
124	107/124	39.231	1.44	(295)	---	99.9
125	86/87/97/108/119/125	35.978	1.52	(5000)	---	300
126		44.362	1.97 I	---	84.5	49.9
127		42.802	1.52	58.3	---	49.9
128	128/166	44.429	1.23	2460	---	99.9
129	129/138/163	43.138	1.25	16400	---	150
130		42.484	1.25	1090	---	49.9
131		39.566	1.31	219	---	49.9
132		40.036	1.25	5250	---	49.9
133		---	---	ND	---	49.9
134	134/143	38.929	1.26	845	---	99.9
135	135/151	37.755	1.25	5680	---	99.9
136		35.240	1.27	2280	---	49.9
137		42.685	1.23	799	---	49.9
138	129/138/163	43.138	1.25	(16400)	---	150
139	139/140	39.331	1.19	256	---	99.9
140	139/140	39.331	1.19	(256)	---	99.9
141		42.048	1.23	2770	---	49.9
142		---	---	ND	---	49.9
143	134/143	38.929	1.26	(845)	---	99.9
144		38.359	1.25	793	---	49.9

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-04 (FO105697)  
Lab Sample ID        10132108004-2R  
Filename               P100815B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.9
146		41.226	1.24	2290	---	49.9
147	147/149	38.728	1.24	12200	---	99.9
148		---	---	ND	---	49.9
149	147/149	38.728	1.24	(12200)	---	99.9
150		34.854	1.24	70.6	---	49.9
151	135/151	37.755	1.25	(5680)	---	99.9
152		---	---	ND	---	49.9
153	153/168	41.847	1.24	12200	---	99.9
154		38.023	1.22	368	---	49.9
155		---	---	ND	---	49.9
156	156/157	47.380	1.24	1730	---	99.9
157	156/157	47.380	1.24	(1730)	---	99.9
158		43.523	1.23	1470	---	49.9
159		---	---	ND	---	49.9
160		---	---	ND	---	49.9
161		---	---	ND	---	49.9
162		---	---	ND	---	49.9
163	129/138/163	43.138	1.25	(16400)	---	150
164		42.802	1.26	1010	---	49.9
165		---	---	ND	---	49.9
166	128/166	44.429	1.23	(2460)	---	99.9
167		46.223	1.25	664	---	49.9
168	153/168	41.847	1.24	(12200)	---	99.9
169		---	---	ND	---	49.9
170		50.063	1.05	3470	---	49.9
171	171/173	46.441	1.06	1140	---	99.9
172		48.118	1.07	618	---	49.9
173	171/173	46.441	1.06	(1140)	---	99.9
174		45.351	1.04	3450	---	49.9
175		44.194	0.99	183	---	49.9
176		41.696	1.03	513	---	49.9
177		45.804	1.03	2020	---	49.9
178		43.557	1.03	818	---	49.9
179		40.773	1.02	1670	---	49.9
180	180/193	48.772	1.05	7280	---	99.9
181		---	---	ND	---	49.9
182		---	---	ND	---	49.9
183	183/185	45.100	1.05	2490	---	99.9
184		---	---	ND	---	49.9
185	183/185	45.100	1.05	(2490)	---	99.9
186		---	---	ND	---	49.9
187		44.479	1.05	4390	---	49.9
188		---	---	ND	---	49.9
189		53.359	1.03	173	---	49.9
190		50.633	1.03	733	---	49.9
191		49.141	1.05	142	---	49.9
192		---	---	ND	---	49.9

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  
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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-04 (FO105697)  
Lab Sample ID        10132108004-2R  
Filename                P100815B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.772	1.05	(7280)	---	99.9
194		55.794	0.90	1610	---	74.9
195		53.014	0.86	612	---	74.9
196		51.438	0.90	943	---	74.9
197	197/200	47.883	0.88	292	---	150
198	198/199	50.750	0.88	1790	---	150
199	198/199	50.750	0.88	(1790)	---	150
200	197/200	47.883	0.88	(292)	---	150
201		46.843	0.92	265	---	74.9
202		45.888	0.93	361	---	74.9
203		51.639	0.88	1090	---	74.9
204		---	---	ND	---	74.9
205		56.398	0.92	116	---	74.9
206		58.812	0.79	858	---	74.9
207		53.725	0.83	104	---	74.9
208		52.712	0.71	305	---	74.9
209		61.398	0.65	760	---	74.9

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID            PTF0689-04 (FO105697)  
Lab Sample ID              10132108004-2R  
Filename                     P100815B\_08

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	154
Total Dichloro Biphenyls	2820
Total Trichloro Biphenyls	9920
Total Tetrachloro Biphenyls	21700
Total Pentachloro Biphenyls	52500
Total Hexachloro Biphenyls	70900
Total Heptachloro Biphenyls	29100
Total Octachloro Biphenyls	7070
Total Nonachloro Biphenyls	1270
Decachloro Biphenyls	760
Total PCBs	196000

ND = Not Detected

Results reported on a dry weight basis

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTF0689-05 (FO105698)		
Lab Sample ID	10132108005-2R		
Filename	P100815B_09		
Injected By	BAL		
Total Amount Extracted	15.3 g	Matrix	Solid
% Moisture	33.4	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	06/17/2010 11:42
ICAL ID	P100815B02	Received	06/24/2010 09:55
CCal Filename(s)	P100815B_01	Extracted	08/10/2010 17:35
Method Blank ID	BLANK-26032	Analyzed	08/16/2010 00:23

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.444	3.44	2.0	0.930	46
13C-4-MoCB	3	12.895	2.84	2.0	1.23	61
13C-2,2'-DiCB	4	13.242	1.56	2.0	1.06	53
13C-4,4'-DiCB	15	21.402	1.66	2.0	1.36	68
13C-2,2',6-TrCB	19	17.700	1.12	2.0	1.16	58
13C-3,4,4'-TrCB	37	29.708	1.04	2.0	1.48	74
13C-2,2',6,6'-TeCB	54	21.726	0.82	2.0	1.48	74
13C-3,4,4',5-TeCB	81	36.953	0.79	2.0	1.13	56
13C-3,3',4,4'-TeCB	77	37.556	0.78	2.0	1.12	56
13C-2,2',4,6,6'-PeCB	104	28.249	1.57	2.0	1.69	84
13C-2,3,3',4,4'-PeCB	105	41.145	1.48	2.0	1.18	59
13C-2,3,4,4',5-PeCB	114	40.474	1.57	2.0	1.14	57
13C-2,3',4,4',5-PeCB	118	39.921	1.64	2.0	1.16	58
13C-2,3',4,4',5'-PeCB	123	39.585	1.57	2.0	1.18	59
13C-3,3',4,4',5-PeCB	126	44.331	1.50	2.0	1.01	51
13C-2,2',4,4',6,6'-HxCB	155	34.437	1.24	2.0	1.94	97
13C-HxCB (156/157)	156/157	47.367	1.26	4.0	2.32	58
13C-2,3',4,4',5,5'-HxCB	167	46.176	1.28	2.0	1.22	61
13C-3,3',4,4',5,5'-HxCB	169	50.687	1.27	2.0	1.13	56
13C-2,2',3,4',5,6,6'-HpCB	188	40.390	1.10	2.0	2.11	105
13C-2,3,3',4,4',5,5'-HpCB	189	53.255	1.02	2.0	1.41	71
13C-2,2',3,3',5,5',6,6'-OxCB	202	45.841	0.93	2.0	1.90	95
13C-2,3,3',4,4',5,5',6-OxCB	205	56.294	0.92	2.0	1.51	75
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.730	0.79	2.0	1.71	85
13C-2,2',3,3',4,4',5,5',6-NoCB	208	52.652	0.80	2.0	1.62	81
13C--DeCB	209	61.231	0.64	2.0	1.83	91
Cleanup Standards						
13C-2,4,4'-TrCB	28	25.096	1.12	2.0	1.76	88
13C-2,3,3',5,5'-PeCB	111	37.539	1.55	2.0	1.34	67
13C-2,2',3,3',5,5',6-HpCB	178	43.510	1.03	2.0	1.64	82
Recovery Standards						
13C-2,5-DiCB	9	16.154	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	27.209	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.739	1.62	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	43.090	1.23	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.712	0.95	2.0	NA	NA

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**Pace Analytical**<sup>TM</sup>

Pace Analytical Services, Inc.  
1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-05 (FO105698)  
Lab Sample ID        10132108005-2R  
Filename                P100815B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.456	3.19	221	---	24.5
2		12.643	2.81	39.9	---	24.5
3		12.919	3.19	159	---	24.5
4		13.266	1.59	1950	---	24.5
5		17.160	1.44	98.7	---	24.5
6		16.753	1.54	957	---	24.5
7		16.393	1.55	191	---	24.5
8		17.340	1.55	4720	---	24.5
9		16.178	1.57	327	---	24.5
10		13.518	1.65	102	---	24.5
11		20.635	1.55	768	---	147
12	12/13	20.995	1.58	382	---	48.9
13	12/13	20.995	1.58	(382)	---	48.9
14		---	---	ND	---	24.5
15		21.426	1.56	3280	---	24.5
16		21.318	1.08	3330	---	24.5
17		20.743	1.05	3300	---	24.5
18	18/30	20.216	1.05	6330	---	48.9
19		17.724	1.07	908	---	24.5
20	20/28	25.113	1.02	10500	---	48.9
21	21/33	25.381	1.03	6400	---	48.9
22		25.851	1.05	4150	---	24.5
23		---	---	ND	---	24.5
24		21.162	1.05	95.7	---	24.5
25		24.392	1.02	823	---	24.5
26	26/29	24.107	1.04	2010	---	48.9
27		21.019	1.06	616	---	24.5
28	20/28	25.113	1.02	(10500)	---	48.9
29	26/29	24.107	1.04	(2010)	---	48.9
30	18/30	20.216	1.05	(6330)	---	48.9
31		24.761	1.03	9750	---	24.5
32		21.994	1.03	2200	---	24.5
33	21/33	25.381	1.03	(6400)	---	48.9
34		23.553	1.00	37.8	---	24.5
35		29.255	1.00	183	---	24.5
36		---	---	ND	---	24.5
37		29.725	1.02	2890	---	24.5
38		---	---	ND	---	24.5
39		28.115	0.99	47.2	---	24.5
40	40/41/71	29.490	0.77	5610	---	147
41	40/41/71	29.490	0.77	(5610)	---	147
42		28.937	0.78	2640	---	48.9
43	43/73	27.494	0.74	332	---	97.9
44	44/47/65	28.350	0.79	11300	---	147
45	45/51	25.180	0.79	2100	---	97.9
46		25.566	0.81	721	---	48.9
47	44/47/65	28.350	0.79	(11300)	---	147
48		28.098	0.78	2130	---	48.9

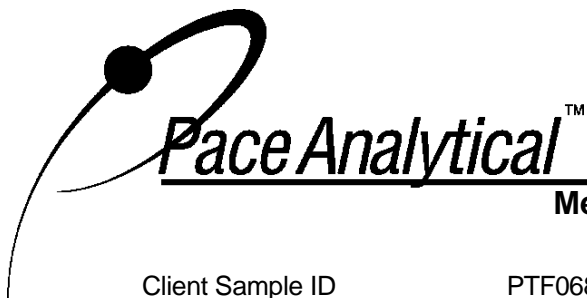
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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTF0689-05 (FO105698)  
Lab Sample ID 10132108005-2R  
Filename P100815B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.779	0.79	6520	---	97.9
50	50/53	24.409	0.78	1520	---	97.9
51	45/51	25.180	0.79	(2100)	---	97.9
52		27.226	0.79	19200	---	48.9
53	50/53	24.409	0.78	(1520)	---	97.9
54		---	---	ND	---	48.9
55		---	---	ND	---	48.9
56		33.632	0.76	2390	---	48.9
57		---	---	ND	---	48.9
58		---	---	ND	---	48.9
59	59/62/75	28.719	0.78	888	---	147
60		33.867	0.77	1220	---	48.9
61	61/70/74/76	32.559	0.77	14400	---	196
62	59/62/75	28.719	0.78	(888)	---	147
63		32.190	0.78	263	---	48.9
64		29.741	0.78	4500	---	48.9
65	44/47/65	28.350	0.79	(11300)	---	147
66		32.928	0.77	5540	---	48.9
67		31.905	0.80	218	---	48.9
68		---	---	ND	---	48.9
69	49/69	27.779	0.79	(6520)	---	97.9
70	61/70/74/76	32.559	0.77	(14400)	---	196
71	40/41/71	29.490	0.77	(5610)	---	147
72		---	---	ND	---	48.9
73	43/73	27.494	0.74	(332)	---	97.9
74	61/70/74/76	32.559	0.77	(14400)	---	196
75	59/62/75	28.719	0.78	(888)	---	147
76	61/70/74/76	32.559	0.77	(14400)	---	196
77		37.590	0.77	421	---	48.9
78		36.651	0.70	113	---	48.9
79		35.879	0.72	136	---	48.9
80		---	---	ND	---	48.9
81		---	---	ND	---	48.9
82		37.154	1.55	2650	---	48.9
83		35.225	1.71	1390	---	48.9
84		32.760	1.57	6640	---	48.9
85	85/116/117	36.651	1.55	3380	---	147
86	86/87/97/108/119/125	35.997	1.56	15900	---	294
87	86/87/97/108/119/125	35.997	1.56	(15900)	---	294
88	88/91	32.525	1.58	2900	---	97.9
89		33.263	1.53	210	---	48.9
90	90/101/113	34.756	1.57	22900	---	147
91	88/91	32.525	1.58	(2900)	---	97.9
92		34.118	1.56	4220	---	48.9
93	93/98/100/102	31.955	1.61	628	---	196
94		31.100	1.52	97.4	---	48.9
95		31.586	1.56	19600	---	48.9
96		28.685	1.74	173	---	48.9

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-05 (FO105698)  
Lab Sample ID        10132108005-2R  
Filename               P100815B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.997	1.56	(15900)	---	294
98	93/98/100/102	31.955	1.61	(628)	---	196
99		35.359	1.60	7820	---	48.9
100	93/98/100/102	31.955	1.61	(628)	---	196
101	90/101/113	34.756	1.57	(22900)	---	147
102	93/98/100/102	31.955	1.61	(628)	---	196
103		30.848	1.61	103	---	48.9
104		---	---	ND	---	48.9
105		41.179	1.55	7680	---	48.9
106		---	---	ND	---	48.9
107	107/124	39.250	1.53	775	---	97.9
108	86/87/97/108/119/125	35.997	1.56	(15900)	---	294
109		39.485	1.57	1090	---	48.9
110	110/115	36.835	1.57	24500	---	97.9
111		---	---	ND	---	48.9
112		---	---	ND	---	48.9
113	90/101/113	34.756	1.57	(22900)	---	147
114		40.508	1.58	465	---	48.9
115	110/115	36.835	1.57	(24500)	---	97.9
116	85/116/117	36.651	1.55	(3380)	---	147
117	85/116/117	36.651	1.55	(3380)	---	147
118		39.954	1.52	18600	---	48.9
119	86/87/97/108/119/125	35.997	1.56	(15900)	---	294
120		---	---	ND	---	48.9
121		---	---	ND	---	48.9
122		40.307	1.67	215	---	48.9
123		39.619	1.63	287	---	48.9
124	107/124	39.250	1.53	(775)	---	97.9
125	86/87/97/108/119/125	35.997	1.56	(15900)	---	294
126		---	---	ND	---	48.9
127		---	---	ND	---	48.9
128	128/166	44.415	1.26	3650	---	97.9
129	129/138/163	43.124	1.25	21800	---	147
130		42.453	1.27	1540	---	48.9
131		39.569	1.26	430	---	48.9
132		40.038	1.24	7600	---	48.9
133		40.541	1.19	260	---	48.9
134	134/143	38.948	1.16	1350	---	97.9
135	135/151	37.791	1.24	5820	---	97.9
136		35.259	1.26	3000	---	48.9
137		42.688	1.18	1410	---	48.9
138	129/138/163	43.124	1.25	(21800)	---	147
139	139/140	39.351	1.22	447	---	97.9
140	139/140	39.351	1.22	(447)	---	97.9
141		42.034	1.24	3490	---	48.9
142		---	---	ND	---	48.9
143	134/143	38.948	1.16	(1350)	---	97.9
144		38.361	1.26	1070	---	48.9

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID      PTF0689-05 (FO105698)  
Lab Sample ID        10132108005-2R  
Filename               P100815B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	48.9
146		41.195	1.25	2530	---	48.9
147	147/149	38.730	1.26	13700	---	97.9
148		---	---	ND	---	48.9
149	147/149	38.730	1.26	(13700)	---	97.9
150		---	---	ND	---	48.9
151	135/151	37.791	1.24	(5820)	---	97.9
152		---	---	ND	---	48.9
153	153/168	41.833	1.25	13800	---	97.9
154		38.026	1.11	145	---	48.9
155		---	---	ND	---	48.9
156	156/157	47.350	1.24	3150	---	97.9
157	156/157	47.350	1.24	(3150)	---	97.9
158		43.526	1.25	2240	---	48.9
159		---	---	ND	---	48.9
160		---	---	ND	---	48.9
161		---	---	ND	---	48.9
162		45.690	1.18	49.5	---	48.9
163	129/138/163	43.124	1.25	(21800)	---	147
164		42.805	1.22	1270	---	48.9
165		---	---	ND	---	48.9
166	128/166	44.415	1.26	(3650)	---	97.9
167		46.193	1.19	930	---	48.9
168	153/168	41.833	1.25	(13800)	---	97.9
169		---	---	ND	---	48.9
170		50.033	1.04	2330	---	48.9
171	171/173	46.428	1.03	815	---	97.9
172		48.071	1.05	383	---	48.9
173	171/173	46.428	1.03	(815)	---	97.9
174		45.321	1.04	1990	---	48.9
175		44.197	1.01	109	---	48.9
176		41.682	1.06	340	---	48.9
177		45.774	1.03	1180	---	48.9
178		43.543	1.05	404	---	48.9
179		40.776	1.06	893	---	48.9
180	180/193	48.742	1.03	3920	---	97.9
181		46.193	0.91	53.3	---	48.9
182		---	---	ND	---	48.9
183	183/185	45.086	1.06	1490	---	97.9
184		---	---	ND	---	48.9
185	183/185	45.086	1.06	(1490)	---	97.9
186		---	---	ND	---	48.9
187		44.466	1.08	2160	---	48.9
188		---	---	ND	---	48.9
189		53.277	1.13	123	---	48.9
190		50.587	1.01	451	---	48.9
191		49.094	1.07	99.2	---	48.9
192		---	---	ND	---	48.9

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      PTF0689-05 (FO105698)  
Lab Sample ID        10132108005-2R  
Filename                P100815B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.742	1.03	(3920)	---	97.9
194		55.712	0.90	558	---	73.4
195		52.975	0.88	226	---	73.4
196		51.375	0.90	357	---	73.4
197	197/200	---	---	ND	---	147
198	198/199	50.721	0.89	689	---	147
199	198/199	50.721	0.89	(689)	---	147
200	197/200	---	---	ND	---	147
201		46.813	0.97	107	---	73.4
202		45.874	0.87	152	---	73.4
203		51.576	0.91	413	---	73.4
204		---	---	ND	---	73.4
205		---	---	ND	---	73.4
206		58.730	0.85	342	---	73.4
207		---	---	ND	---	73.4
208		52.652	0.86	92.7	---	73.4
209		61.295	0.63	119	---	73.4

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID            PTF0689-05 (FO105698)  
Lab Sample ID              10132108005-2R  
Filename                    P100815B\_09

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	420
Total Dichloro Biphenyls	12800
Total Trichloro Biphenyls	53500
Total Tetrachloro Biphenyls	82100
Total Pentachloro Biphenyls	142000
Total Hexachloro Biphenyls	89600
Total Heptachloro Biphenyls	16700
Total Octachloro Biphenyls	2500
Total Nonachloro Biphenyls	435
Decachloro Biphenyls	119
Total PCBs	400000

ND = Not Detected

Results reported on a dry weight basis

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTF0689-06 (FO105702)		
Lab Sample ID	10132108006-2R		
Filename	P100815B_10		
Injected By	BAL		
Total Amount Extracted	15.4 g	Matrix	Solid
% Moisture	33.4	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	06/17/2010
ICAL ID	P100815B02	Received	06/24/2010 09:55
CCal Filename(s)	P100815B_01	Extracted	08/10/2010 17:35
Method Blank ID	BLANK-26032	Analyzed	08/16/2010 01:28

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.432	4.32	2.0	0.741	48
13C-4-MoCB	3	12.883	2.91	2.0	1.39	70
13C-2,2'-DiCB	4	13.230	1.60	2.0	1.21	61
13C-4,4'-DiCB	15	21.413	1.56	2.0	1.47	73
13C-2,2',6-TrCB	19	17.687	1.09	2.0	1.23	62
13C-3,4,4'-TrCB	37	29.707	1.11	2.0	1.60	80
13C-2,2',6,6'-TeCB	54	21.725	0.80	2.0	1.61	80
13C-3,4,4',5-TeCB	81	36.985	0.80	2.0	1.24	62
13C-3,3',4,4'-TeCB	77	37.571	0.82	2.0	1.17	58
13C-2,2',4,6,6'-PeCB	104	28.248	1.57	2.0	1.89	94
13C-2,3,3',4,4'-PeCB	105	41.143	1.57	2.0	1.26	63
13C-2,3,4,4',5-PeCB	114	40.472	1.55	2.0	1.26	63
13C-2,3',4,4',5-PeCB	118	39.919	1.58	2.0	1.31	66
13C-2,3',4,4',5'-PeCB	123	39.601	1.53	2.0	1.31	66
13C-3,3',4,4',5-PeCB	126	44.329	1.57	2.0	1.07	53
13C-2,2',4,4',6,6'-HxCB	155	34.436	1.21	2.0	2.13	107
13C-HxCB (156/157)	156/157	47.364	1.24	4.0	2.40	60
13C-2,3',4,4',5,5'-HxCB	167	46.157	1.34	2.0	1.31	65
13C-3,3',4,4',5,5'-HxCB	169	50.701	1.32	2.0	1.14	57
13C-2,2',3,4',5,6,6'-HpCB	188	40.389	1.09	2.0	2.30	115
13C-2,3,3',4,4',5,5'-HpCB	189	53.273	1.11	2.0	1.44	72
13C-2,2',3,3',5,5',6,6'-OxCB	202	45.838	0.96	2.0	1.94	97
13C-2,3,3',4,4',5,5',6-OxCB	205	56.356	0.87	2.0	1.60	80
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.748	0.84	2.0	1.72	86
13C-2,2',3,3',4,4',5,5',6-NoCB	208	52.648	0.80	2.0	1.55	78
13C--DeCB	209	61.270	0.75	2.0	1.83	91
Cleanup Standards						
13C-2,4,4'-TrCB	28	25.079	1.01	2.0	1.81	91
13C-2,3,3',5,5'-PeCB	111	37.555	1.51	2.0	1.47	74
13C-2,2',3,3',5,5',6-HpCB	178	43.524	1.09	2.0	1.79	90
Recovery Standards						
13C-2,5-DiCB	9	16.141	1.64	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	27.192	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.704	1.61	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	43.088	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.731	0.97	2.0	NA	NA

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Pace Analytical Services, Inc.  
1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-06 (FO105702)  
Lab Sample ID        10132108006-2R  
Filename               P100815B\_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.456	3.10	281	---	24.4
2		12.631	3.24	50.4	---	24.4
3		12.907	3.19	180	---	24.4
4		13.254	1.58	2260	---	24.4
5		17.148	1.58	122	---	24.4
6		16.741	1.55	1160	---	24.4
7		16.405	1.58	236	---	24.4
8		17.340	1.56	5770	---	24.4
9		16.166	1.56	402	---	24.4
10		13.506	1.56	129	---	24.4
11		20.623	1.55	997	---	146
12	12/13	20.994	1.53	438	---	48.8
13	12/13	20.994	1.53	(438)	---	48.8
14		---	---	ND	---	24.4
15		21.426	1.56	3610	---	24.4
16		21.318	1.06	4150	---	24.4
17		20.743	1.06	4160	---	24.4
18	18/30	20.203	1.04	7740	---	48.8
19		17.723	1.07	1140	---	24.4
20	20/28	25.112	1.03	13100	---	48.8
21	21/33	25.381	1.03	8080	---	48.8
22		25.850	1.03	5080	---	24.4
23		---	---	ND	---	24.4
24		21.174	1.03	157	---	24.4
25		24.391	1.03	1020	---	24.4
26	26/29	24.106	1.02	2490	---	48.8
27		21.018	1.05	763	---	24.4
28	20/28	25.112	1.03	(13100)	---	48.8
29	26/29	24.106	1.02	(2490)	---	48.8
30	18/30	20.203	1.04	(7740)	---	48.8
31		24.760	1.03	12100	---	24.4
32		21.993	1.01	2640	---	24.4
33	21/33	25.381	1.03	(8080)	---	48.8
34		23.536	0.98	46.1	---	24.4
35		29.254	0.96	239	---	24.4
36		---	---	ND	---	24.4
37		29.724	1.02	3440	---	24.4
38		---	---	ND	---	24.4
39		28.097	0.91	62.2	---	24.4
40	40/41/71	29.489	0.80	6470	---	146
41	40/41/71	29.489	0.80	(6470)	---	146
42		28.936	0.78	3070	---	48.8
43	43/73	27.477	0.74	384	---	97.6
44	44/47/65	28.349	0.79	12000	---	146
45	45/51	25.180	0.78	2480	---	97.6
46		25.548	0.78	851	---	48.8
47	44/47/65	28.349	0.79	(12000)	---	146
48		28.097	0.77	2550	---	48.8

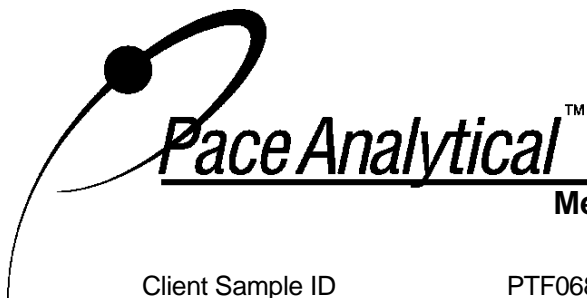
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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID      PTF0689-06 (FO105702)  
Lab Sample ID        10132108006-2R  
Filename               P100815B\_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.779	0.78	7030	---	97.6
50	50/53	24.408	0.80	1750	---	97.6
51	45/51	25.180	0.78	(2480)	---	97.6
52		27.225	0.79	18600	---	48.8
53	50/53	24.408	0.80	(1750)	---	97.6
54		---	---	ND	---	48.8
55		---	---	ND	---	48.8
56		33.631	0.76	2490	---	48.8
57		---	---	ND	---	48.8
58		---	---	ND	---	48.8
59	59/62/75	28.718	0.77	1080	---	146
60		33.866	0.76	1290	---	48.8
61	61/70/74/76	32.558	0.76	13100	---	195
62	59/62/75	28.718	0.77	(1080)	---	146
63		32.189	0.76	280	---	48.8
64		29.741	0.79	4940	---	48.8
65	44/47/65	28.349	0.79	(12000)	---	146
66		32.927	0.77	5640	---	48.8
67		31.904	0.76	264	---	48.8
68		---	---	ND	---	48.8
69	49/69	27.779	0.78	(7030)	---	97.6
70	61/70/74/76	32.558	0.76	(13100)	---	195
71	40/41/71	29.489	0.80	(6470)	---	146
72		30.697	0.73	48.8	---	48.8
73	43/73	27.477	0.74	(384)	---	97.6
74	61/70/74/76	32.558	0.76	(13100)	---	195
75	59/62/75	28.718	0.77	(1080)	---	146
76	61/70/74/76	32.558	0.76	(13100)	---	195
77		37.588	0.77	493	---	48.8
78		---	---	ND	---	48.8
79		35.878	0.89	81.5	---	48.8
80		---	---	ND	---	48.8
81		---	---	ND	---	48.8
82		37.152	1.58	1800	---	48.8
83		35.224	1.44	973	---	48.8
84		32.759	1.56	4790	---	48.8
85	85/116/117	36.649	1.55	2100	---	146
86	86/87/97/108/119/125	35.995	1.56	11200	---	293
87	86/87/97/108/119/125	35.995	1.56	(11200)	---	293
88	88/91	32.524	1.56	2150	---	97.6
89		33.262	1.64	170	---	48.8
90	90/101/113	34.754	1.57	17300	---	146
91	88/91	32.524	1.56	(2150)	---	97.6
92		34.117	1.57	3040	---	48.8
93	93/98/100/102	31.971	1.61	590	---	195
94		31.082	1.57	82.1	---	48.8
95		31.585	1.56	15500	---	48.8
96		28.684	1.62	153	---	48.8

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Fax: 612- 607-6444

## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTF0689-06 (FO105702)  
Lab Sample ID 10132108006-2R  
Filename P100815B\_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.995	1.56	(11200)	---	293
98	93/98/100/102	31.971	1.61	(590)	---	195
99		35.358	1.53	5370	---	48.8
100	93/98/100/102	31.971	1.61	(590)	---	195
101	90/101/113	34.754	1.57	(17300)	---	146
102	93/98/100/102	31.971	1.61	(590)	---	195
103		30.847	1.54	87.7	---	48.8
104		---	---	ND	---	48.8
105		41.177	1.52	5020	---	48.8
106		---	---	ND	---	48.8
107	107/124	39.248	1.52	498	---	97.6
108	86/87/97/108/119/125	35.995	1.56	(11200)	---	293
109		39.500	1.50	698	---	48.8
110	110/115	36.834	1.57	17600	---	97.6
111		---	---	ND	---	48.8
112		---	---	ND	---	48.8
113	90/101/113	34.754	1.57	(17300)	---	146
114		40.506	1.50	321	---	48.8
115	110/115	36.834	1.57	(17600)	---	97.6
116	85/116/117	36.649	1.55	(2100)	---	146
117	85/116/117	36.649	1.55	(2100)	---	146
118		39.953	1.53	12200	---	48.8
119	86/87/97/108/119/125	35.995	1.56	(11200)	---	293
120		---	---	ND	---	48.8
121		---	---	ND	---	48.8
122		40.288	1.45	139	---	48.8
123		39.617	1.55	210	---	48.8
124	107/124	39.248	1.52	(498)	---	97.6
125	86/87/97/108/119/125	35.995	1.56	(11200)	---	293
126		---	---	ND	---	48.8
127		---	---	ND	---	48.8
128	128/166	44.413	1.24	2590	---	97.6
129	129/138/163	43.122	1.25	20000	---	146
130		42.468	1.23	1110	---	48.8
131		39.567	1.18	311	---	48.8
132		40.036	1.27	6360	---	48.8
133		40.540	1.21	214	---	48.8
134	134/143	38.930	1.25	1050	---	97.6
135	135/151	37.773	1.27	6490	---	97.6
136		35.241	1.25	2810	---	48.8
137		42.686	1.19	846	---	48.8
138	129/138/163	43.122	1.25	(20000)	---	146
139	139/140	39.349	1.24	291	---	97.6
140	139/140	39.349	1.24	(291)	---	97.6
141		42.049	1.25	3860	---	48.8
142		---	---	ND	---	48.8
143	134/143	38.930	1.25	(1050)	---	97.6
144		38.360	1.27	1140	---	48.8

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-06 (FO105702)  
Lab Sample ID        10132108006-2R  
Filename               P100815B\_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	48.8
146		41.210	1.26	2350	---	48.8
147	147/149	38.729	1.26	14100	---	97.6
148		---	---	ND	---	48.8
149	147/149	38.729	1.26	(14100)	---	97.6
150		---	---	ND	---	48.8
151	135/151	37.773	1.27	(6490)	---	97.6
152		---	---	ND	---	48.8
153	153/168	41.847	1.26	16100	---	97.6
154		38.024	1.13	97.8	---	48.8
155		---	---	ND	---	48.8
156	156/157	47.364	1.23	2350	---	97.6
157	156/157	47.364	1.23	(2350)	---	97.6
158		43.524	1.24	1930	---	48.8
159		---	---	ND	---	48.8
160		---	---	ND	---	48.8
161		---	---	ND	---	48.8
162		45.721	1.07	84.0	---	48.8
163	129/138/163	43.122	1.25	(20000)	---	146
164		42.803	1.23	1150	---	48.8
165		---	---	ND	---	48.8
166	128/166	44.413	1.24	(2590)	---	97.6
167		46.191	1.25	749	---	48.8
168	153/168	41.847	1.26	(16100)	---	97.6
169		---	---	ND	---	48.8
170		50.047	1.05	4150	---	48.8
171	171/173	46.425	1.04	1390	---	97.6
172		48.085	1.05	677	---	48.8
173	171/173	46.425	1.04	(1390)	---	97.6
174		45.335	1.03	3790	---	48.8
175		44.195	1.09	210	---	48.8
176		41.680	1.03	599	---	48.8
177		45.788	1.03	2170	---	48.8
178		43.541	1.04	774	---	48.8
179		40.774	1.04	1670	---	48.8
180	180/193	48.739	1.04	8680	---	97.6
181		---	---	ND	---	48.8
182		---	---	ND	---	48.8
183	183/185	45.084	1.03	3090	---	97.6
184		---	---	ND	---	48.8
185	183/185	45.084	1.03	(3090)	---	97.6
186		---	---	ND	---	48.8
187		44.463	1.04	4450	---	48.8
188		---	---	ND	---	48.8
189		53.295	0.97	213	---	48.8
190		50.584	1.05	850	---	48.8
191		49.108	1.04	183	---	48.8
192		---	---	ND	---	48.8

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

ND = Not Detected  
NA = Not Applicable  
NC = Not Calculated  
\* = See Discussion  
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I = Interference  
ng's = Nanograms

**REPORT OF LABORATORY ANALYSIS**

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0689-06 (FO105702)  
Lab Sample ID        10132108006-2R  
Filename                P100815B\_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.739	1.04	(8680)	---	97.6
194		55.731	0.91	1620	---	73.2
195		52.993	0.92	631	---	73.2
196		51.389	0.88	975	---	73.2
197	197/200	47.851	0.85	285	---	146
198	198/199	50.718	0.89	1540	---	146
199	198/199	50.718	0.89	(1540)	---	146
200	197/200	47.851	0.85	(285)	---	146
201		46.811	0.92	233	---	73.2
202		45.889	0.90	290	---	73.2
203		51.590	0.90	1070	---	73.2
204		---	---	ND	---	73.2
205		56.377	0.80	112	---	73.2
206		58.748	0.81	627	---	73.2
207		53.705	0.86	87.3	---	73.2
208		52.692	0.84	151	---	73.2
209		61.313	0.74	194	---	73.2

Conc = Concentration  
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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID            PTF0689-06 (FO105702)  
Lab Sample ID              10132108006-2R  
Filename                     P100815B\_10

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	511
Total Dichloro Biphenyls	15100
Total Trichloro Biphenyls	66400
Total Tetrachloro Biphenyls	84800
Total Pentachloro Biphenyls	102000
Total Hexachloro Biphenyls	86100
Total Heptachloro Biphenyls	32900
Total Octachloro Biphenyls	6760
Total Nonachloro Biphenyls	865
Decachloro Biphenyls	194
Total PCBs	396000

ND = Not Detected

Results reported on a dry weight basis

**REPORT OF LABORATORY ANALYSIS**

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## Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID	BLANK-25716	Matrix	Solid
Filename	P100716B_06	Extracted	07/14/2010 15:15
Injected By	BAL	Analyzed	07/16/2010 23:56
Total Amount Extracted	10.1 g	Dilution	NA
ICAL ID	P100716B02		
CCal Filename(s)	P100716B_01		

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	9.564	2.56	2.0	0.0457	2	R
13C-4-MoCB	3	13.014	2.69	2.0	0.501	25	
13C-2,2'-DiCB	4	13.386	1.67	2.0	0.157	8	R
13C-4,4'-DiCB	15	21.533	1.58	2.0	1.34	67	
13C-2,2',6-TrCB	19	17.855	1.17	2.0	0.450	22	R
13C-3,4,4'-TrCB	37	29.875	1.07	2.0	1.32	66	
13C-2,2',6,6'-TeCB	54	21.893	0.78	2.0	1.01	50	
13C-3,4,4',5-TeCB	81	37.253	0.79	2.0	0.515	26	
13C-3,3',4,4'-TeCB	77	37.857	0.78	2.0	0.445	22	R
13C-2,2',4,6,6'-PeCB	104	28.449	1.58	2.0	3.48	174	R
13C-2,3,3',4,4'-PeCB	105	41.445	1.59	2.0	1.60	80	
13C-2,3,4,4',5-PeCB	114	40.791	1.59	2.0	1.52	76	
13C-2,3',4,4',5-PeCB	118	40.255	1.65	2.0	1.45	72	
13C-2,3',4,4',5'-PeCB	123	39.903	1.56	2.0	1.45	72	
13C-3,3',4,4',5-PeCB	126	44.564	1.58	2.0	1.84	92	
13C-2,2',4,4',6,6'-HxCB	155	34.721	1.24	2.0	1.44	72	
13C-HxCB (156/157)	156/157	47.566	1.27	4.0	6.13	153	R
13C-2,3',4,4',5,5'-HxCB	167	46.409	1.30	2.0	2.68	134	
13C-3,3',4,4',5,5'-HxCB	169	50.819	1.26	2.0	3.52	176	R
13C-2,2',3,4',5,6,6'-HpCB	188	40.724	1.03	2.0	0.534	27	
13C-2,3,3',4,4',5,5'-HpCB	189	53.404	1.04	2.0	1.79	90	
13C-2,2',3,3',5,5',6,6'-OxCB	202	46.124	0.90	2.0	0.954	48	
13C-2,3,3',4,4',5,5',6-OxCB	205	56.465	0.88	2.0	1.67	84	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.943	0.77	2.0	1.59	79	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.844	0.82	2.0	1.50	75	
13C--DeCB	209	61.508	0.70	2.0	1.49	75	
Cleanup Standards							
13C-2,4,4'-TrCB	28	25.230	1.06	2.0	1.66	83	
13C-2,3,3',5,5'-PeCB	111	37.873	1.55	2.0	1.24	62	
13C-2,2',3,3',5,5',6-HpCB	178	43.810	1.05	2.0	1.78	89	
Recovery Standards							
13C-2,5-DiCB	9	16.285	1.57	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	27.393	0.80	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	35.006	1.62	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	43.391	1.30	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.861	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  
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R = Recovery outside of Method 1668A control limits  
Nn = Value obtained from additional analyses

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ND = Not Detected  
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## REPORT OF LABORATORY ANALYSIS

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25716  
Filename P100716B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.576	2.80	192	---	24.7
2		12.763	3.27	86.3	---	24.7
3		13.038	3.36	37.9	---	24.7
4		---	---	ND	---	24.7
5		---	---	ND	---	24.7
6		---	---	ND	---	24.7
7		---	---	ND	---	24.7
8		---	---	ND	---	24.7
9		---	---	ND	---	24.7
10		---	---	ND	---	24.7
11		20.767	1.54	181	---	148
12	12/13	---	---	ND	---	49.4
13	12/13	---	---	ND	---	49.4
14		---	---	ND	---	24.7
15		---	---	ND	---	24.7
16		---	---	ND	---	24.7
17		---	---	ND	---	24.7
18	18/30	---	---	ND	---	49.4
19		---	---	ND	---	24.7
20	20/28	25.263	1.01	55.6	---	49.4
21	21/33	---	---	ND	---	49.4
22		---	---	ND	---	24.7
23		---	---	ND	---	24.7
24		---	---	ND	---	24.7
25		---	---	ND	---	24.7
26	26/29	---	---	ND	---	49.4
27		---	---	ND	---	24.7
28	20/28	25.263	1.01	(55.6)	---	49.4
29	26/29	---	---	ND	---	49.4
30	18/30	---	---	ND	---	49.4
31		24.928	1.00	44.8	---	24.7
32		---	---	ND	---	24.7
33	21/33	---	---	ND	---	49.4
34		---	---	ND	---	24.7
35		---	---	ND	---	24.7
36		---	---	ND	---	24.7
37		---	---	ND	---	24.7
38		---	---	ND	---	24.7
39		---	---	ND	---	24.7
40	40/41/71	---	---	ND	---	148
41	40/41/71	---	---	ND	---	148
42		---	---	ND	---	49.4
43	43/73	---	---	ND	---	98.7
44	44/47/65	---	---	ND	---	148
45	45/51	---	---	ND	---	98.7

Conc = Concentration  
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R = Recovery outside of Method 1668A control limits  
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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25716  
Filename P100716B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46		---	---	ND	---	49.4
47	44/47/65	---	---	ND	---	148
48		---	---	ND	---	49.4
49	49/69	---	---	ND	---	98.7
50	50/53	---	---	ND	---	98.7
51	45/51	---	---	ND	---	98.7
52		27.393	0.77	82.7	---	49.4
53	50/53	---	---	ND	---	98.7
54		---	---	ND	---	49.4
55		---	---	ND	---	49.4
56		---	---	ND	---	49.4
57		---	---	ND	---	49.4
58		---	---	ND	---	49.4
59	59/62/75	---	---	ND	---	148
60		---	---	ND	---	49.4
61	61/70/74/76	---	---	ND	---	197
62	59/62/75	---	---	ND	---	148
63		---	---	ND	---	49.4
64		---	---	ND	---	49.4
65	44/47/65	---	---	ND	---	148
66		---	---	ND	---	49.4
67		---	---	ND	---	49.4
68		---	---	ND	---	49.4
69	49/69	---	---	ND	---	98.7
70	61/70/74/76	---	---	ND	---	197
71	40/41/71	---	---	ND	---	148
72		---	---	ND	---	49.4
73	43/73	---	---	ND	---	98.7
74	61/70/74/76	---	---	ND	---	197
75	59/62/75	---	---	ND	---	148
76	61/70/74/76	---	---	ND	---	197
77		---	---	ND	---	49.4
78		---	---	ND	---	49.4
79		---	---	ND	---	49.4
80		---	---	ND	---	49.4
81		---	---	ND	---	49.4
82		---	---	ND	---	49.4
83		---	---	ND	---	49.4
84		---	---	ND	---	49.4
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	---	98.7
89		---	---	ND	---	49.4
90	90/101/113	---	---	ND	---	148

Conc = Concentration  
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R = 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 BLANK-25716  
Filename P100716B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
91	88/91	---	---	ND	---	98.7
92		---	---	ND	---	49.4
93	93/98/100/102	---	---	ND	---	197
94		---	---	ND	---	49.4
95		---	---	ND	---	49.4
96		---	---	ND	---	49.4
97	86/87/97/108/119/125	---	---	ND	---	296
98	93/98/100/102	---	---	ND	---	197
99		---	---	ND	---	49.4
100	93/98/100/102	---	---	ND	---	197
101	90/101/113	---	---	ND	---	148
102	93/98/100/102	---	---	ND	---	197
103		---	---	ND	---	49.4
104		---	---	ND	---	49.4
105		---	---	ND	---	49.4
106		---	---	ND	---	49.4
107	107/124	---	---	ND	---	98.7
108	86/87/97/108/119/125	---	---	ND	---	296
109		---	---	ND	---	49.4
110	110/115	---	---	ND	---	98.7
111		---	---	ND	---	49.4
112		---	---	ND	---	49.4
113	90/101/113	---	---	ND	---	148
114		---	---	ND	---	49.4
115	110/115	---	---	ND	---	98.7
116	85/116/117	---	---	ND	---	148
117	85/116/117	---	---	ND	---	148
118		---	---	ND	---	49.4
119	86/87/97/108/119/125	---	---	ND	---	296
120		---	---	ND	---	49.4
121		---	---	ND	---	49.4
122		---	---	ND	---	49.4
123		---	---	ND	---	49.4
124	107/124	---	---	ND	---	98.7
125	86/87/97/108/119/125	---	---	ND	---	296
126		---	---	ND	---	49.4
127		---	---	ND	---	49.4
128	128/166	---	---	ND	---	98.7
129	129/138/163	---	---	ND	---	148
130		---	---	ND	---	49.4
131		---	---	ND	---	49.4
132		---	---	ND	---	49.4
133		---	---	ND	---	49.4
134	134/143	---	---	ND	---	98.7
135	135/151	---	---	ND	---	98.7

Conc = Concentration  
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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25716  
Filename P100716B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
136		---	---	ND	---	49.4
137		---	---	ND	---	49.4
138	129/138/163	---	---	ND	---	148
139	139/140	---	---	ND	---	98.7
140	139/140	---	---	ND	---	98.7
141		---	---	ND	---	49.4
142		---	---	ND	---	49.4
143	134/143	---	---	ND	---	98.7
144		---	---	ND	---	49.4
145		---	---	ND	---	49.4
146		---	---	ND	---	49.4
147	147/149	---	---	ND	---	98.7
148		---	---	ND	---	49.4
149	147/149	---	---	ND	---	98.7
150		---	---	ND	---	49.4
151	135/151	---	---	ND	---	98.7
152		---	---	ND	---	49.4
153	153/168	---	---	ND	---	98.7
154		---	---	ND	---	49.4
155		---	---	ND	---	49.4
156	156/157	---	---	ND	---	98.7
157	156/157	---	---	ND	---	98.7
158		---	---	ND	---	49.4
159		---	---	ND	---	49.4
160		---	---	ND	---	49.4
161		---	---	ND	---	49.4
162		---	---	ND	---	49.4
163	129/138/163	---	---	ND	---	148
164		---	---	ND	---	49.4
165		---	---	ND	---	49.4
166	128/166	---	---	ND	---	98.7
167		---	---	ND	---	49.4
168	153/168	---	---	ND	---	98.7
169		---	---	ND	---	49.4
170		---	---	ND	---	49.4
171	171/173	---	---	ND	---	98.7
172		---	---	ND	---	49.4
173	171/173	---	---	ND	---	98.7
174		---	---	ND	---	49.4
175		---	---	ND	---	49.4
176		---	---	ND	---	49.4
177		---	---	ND	---	49.4
178		---	---	ND	---	49.4
179		---	---	ND	---	49.4
180	180/193	---	---	ND	---	98.7

Conc = Concentration  
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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25716  
Filename P100716B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
181		---	---	ND	---	49.4
182		---	---	ND	---	49.4
183	183/185	---	---	ND	---	98.7
184		---	---	ND	---	49.4
185	183/185	---	---	ND	---	98.7
186		---	---	ND	---	49.4
187		---	---	ND	---	49.4
188		---	---	ND	---	49.4
189		---	---	ND	---	49.4
190		---	---	ND	---	49.4
191		---	---	ND	---	49.4
192		---	---	ND	---	49.4
193	180/193	---	---	ND	---	98.7
194		---	---	ND	---	74.0
195		---	---	ND	---	74.0
196		---	---	ND	---	74.0
197	197/200	---	---	ND	---	148
198	198/199	---	---	ND	---	148
199	198/199	---	---	ND	---	148
200	197/200	---	---	ND	---	148
201		---	---	ND	---	74.0
202		---	---	ND	---	74.0
203		---	---	ND	---	74.0
204		---	---	ND	---	74.0
205		---	---	ND	---	74.0
206		---	---	ND	---	74.0
207		---	---	ND	---	74.0
208		---	---	ND	---	74.0
209		---	---	ND	---	74.0

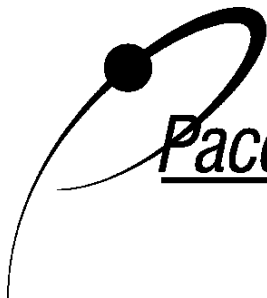
Conc = Concentration  
EML =Method Specified Reporting Limit (1668A)  
EMPC = Estimated Maximum Possible Concentration  
A = Limit of Detection based on signal to noise  
B = Less than 10 times higher than method blank level  
R = Recovery outside of Method 1668A control limits  
ng/L = Nanograms per 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

**REPORT OF LABORATORY ANALYSIS**

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Client Sample ID            DFBLKEE  
Lab Sample ID              BLANK-25716  
Filename                      P100716B\_06

<b>Congener Group</b>	<b>Concentration ng/Kg</b>
Total Monochloro Biphenyls	317
Total Dichloro Biphenyls	181
Total Trichloro Biphenyls	100
Total Tetrachloro Biphenyls	82.7
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	 681

ND = Not Detected

Results reported on a dry weight basis

**REPORT OF LABORATORY ANALYSIS**

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## Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID	BLANK-25744		
Filename	P100717A_10		
Injected By	BAL	Matrix	Solid
Total Amount Extracted	10.2 g	Extracted	07/15/2010 15:45
ICAL ID	P100717A02	Analyzed	07/17/2010 17:26
CCal Filename(s)	P100717A_01	Dilution	5

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
------------	-------	----	-------	------------	------------	------------

### Labeled Analytes

13C-2-MoCB	1	9.600	2.98	2.0	1.09	55
13C-4-MoCB	3	13.063	2.72	2.0	1.31	65
13C-2,2'-DiCB	4	13.447	1.67	2.0	1.10	55
13C-4,4'-DiCB	15	21.619	1.54	2.0	1.40	70
13C-2,2',6-TrCB	19	17.928	1.08	2.0	1.07	54
13C-3,4,4'-TrCB	37	29.944	1.07	2.0	1.46	73
13C-2,2',6,6'-TeCB	54	21.978	0.80	2.0	1.28	64
13C-3,4,4',5-TeCB	81	37.289	0.80	2.0	0.685	34
13C-3,3',4,4'-TeCB	77	37.893	0.84	2.0	0.573	29
13C-2,2',4,6,6'-PeCB	104	28.518	1.63	2.0	2.17	109
13C-2,3,3',4,4'-PeCB	105	41.482	1.59	2.0	1.32	66
13C-2,3,4,4',5-PeCB	114	40.811	1.56	2.0	1.30	65
13C-2,3',4,4',5-PeCB	118	40.274	1.54	2.0	1.20	60
13C-2,3',4,4',5'-PeCB	123	39.939	1.52	2.0	1.20	60
13C-3,3',4,4',5-PeCB	126	44.601	1.61	2.0	1.55	77
13C-2,2',4,4',6,6'-HxCB	155	34.774	1.27	2.0	1.42	71
13C-HxCB (156/157)	156/157	47.620	1.26	4.0	4.33	108
13C-2,3',4,4',5,5'-HxCB	167	46.446	1.29	2.0	2.10	105
13C-3,3',4,4',5,5'-HxCB	169	50.890	1.26	2.0	2.27	114
13C-2,2',3,4',5,6,6'-HpCB	188	40.761	1.03	2.0	0.790	39
13C-2,3,3',4,4',5,5'-HpCB	189	53.494	1.06	2.0	1.63	81
13C-2,2',3,3',5,5',6,6'-OxCB	202	46.161	0.92	2.0	1.13	57
13C-2,3,3',4,4',5,5',6-OxCB	205	56.576	0.92	2.0	1.45	72
13C-2,2',3,3',4,4',5,5',6-NoCB	206	59.055	0.79	2.0	1.42	71
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.912	0.76	2.0	1.28	64
13C--DeCB	209	61.641	0.65	2.0	1.40	70

### Cleanup Standards

13C-2,4,4'-TrCB	28	25.315	1.04	2.0	1.57	78
13C-2,3,3',5,5'-PeCB	111	37.893	1.59	2.0	0.993	50
13C-2,2',3,3',5,5',6-HpCB	178	43.846	1.02	2.0	1.47	74

### Recovery Standards

13C-2,5-DiCB	9	16.406	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	27.462	0.82	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	35.042	1.59	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	43.410	1.28	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.951	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

## REPORT OF LABORATORY ANALYSIS

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25744  
Filename P100717A\_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.6
2		---	---	ND	---	24.6
3		---	---	ND	---	24.6
4		---	---	ND	---	24.6
5		---	---	ND	---	24.6
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		24.997	1.06	31.9	---	24.6
32		---	---	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		---	---	ND	---	24.6
40	40/41/71	---	---	ND	---	148
41	40/41/71	---	---	ND	---	148
42		---	---	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

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

Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25744  
Filename P100717A\_10

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		27.478	0.81	60.0	---	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		---	---	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

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

Results reported on a dry weight basis

**REPORT OF LABORATORY ANALYSIS**

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25744  
Filename P100717A\_10

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		---	---	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

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

Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25744  
Filename P100717A\_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
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		---	---	ND	---	49.3
155		---	---	ND	---	49.3
156	156/157	---	---	ND	---	98.5
157	156/157	---	---	ND	---	98.5
158		---	---	ND	---	49.3
159		---	---	ND	---	49.3
160		---	---	ND	---	49.3
161		---	---	ND	---	49.3
162		---	---	ND	---	49.3
163	129/138/163	---	---	ND	---	148
164		---	---	ND	---	49.3
165		---	---	ND	---	49.3
166	128/166	---	---	ND	---	98.5
167		---	---	ND	---	49.3
168	153/168	---	---	ND	---	98.5
169		---	---	ND	---	49.3
170		---	---	ND	---	49.3
171	171/173	---	---	ND	---	98.5
172		---	---	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

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

Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25744  
Filename P100717A\_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML 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

**REPORT OF LABORATORY ANALYSIS**

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Client Sample ID                      DFBLKER  
Lab Sample ID                        BLANK-25744  
Filename                                P100717A\_10

<b>Congener Group</b>	<b>Concentration ng/Kg</b>
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	ND
Total Trichloro Biphenyls	31.9
Total Tetrachloro Biphenyls	60.0
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	 91.9

ND = Not Detected

Results reported on a dry weight basis

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## Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID	BLANK-26032		
Filename	P100815B_06		
Injected By	BAL	Matrix	Solid
Total Amount Extracted	10.4 g	Extracted	08/10/2010 17:35
ICAL ID	P100815B02	Analyzed	08/15/2010 21:06
CCal Filename(s)	P100815B_01	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
------------	-------	----	-------	------------	------------	------------

### Labeled Analytes

13C-2-MoCB	1	9.396	3.58	2.0	1.44	72
13C-4-MoCB	3	12.834	3.07	2.0	1.54	77
13C-2,2'-DiCB	4	13.194	1.63	2.0	1.32	66
13C-4,4'-DiCB	15	21.317	1.66	2.0	1.64	82
13C-2,2',6-TrCB	19	17.639	1.06	2.0	1.28	64
13C-3,4,4'-TrCB	37	29.639	1.13	2.0	1.43	72
13C-2,2',6,6'-TeCB	54	21.641	0.76	2.0	1.64	82
13C-3,4,4',5-TeCB	81	36.967	0.81	2.0	0.870	44
13C-3,3',4,4'-TeCB	77	37.587	0.80	2.0	0.807	40
13C-2,2',4,6,6'-PeCB	104	28.197	1.56	2.0	2.48	124
13C-2,3,3',4,4'-PeCB	105	41.159	1.63	2.0	1.35	68
13C-2,3,4,4',5-PeCB	114	40.471	1.47	2.0	1.39	70
13C-2,3',4,4',5-PeCB	118	39.952	1.47	2.0	1.34	67
13C-2,3',4,4',5'-PeCB	123	39.616	1.52	2.0	1.34	67
13C-3,3',4,4',5-PeCB	126	44.278	1.60	2.0	1.48	74
13C-2,2',4,4',6,6'-HxCB	155	34.452	1.26	2.0	1.79	89
13C-HxCB (156/157)	156/157	47.279	1.25	4.0	3.83	96
13C-2,3',4,4',5,5'-HxCB	167	46.122	1.28	2.0	1.85	93
13C-3,3',4,4',5,5'-HxCB	169	50.566	1.28	2.0	2.21	110
13C-2,2',3,4',5,6,6'-HpCB	188	40.421	1.00	2.0	1.07	54
13C-2,3,3',4,4',5,5'-HpCB	189	53.100	1.04	2.0	1.72	86
13C-2,2',3,3',5,5',6,6'-OxCB	202	45.821	0.87	2.0	1.40	70
13C-2,3,3',4,4',5,5',6-OxCB	205	56.118	0.88	2.0	1.68	84
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.510	0.78	2.0	1.70	85
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.518	0.77	2.0	1.54	77
13C--DeCB	209	60.989	0.70	2.0	1.55	78

### Cleanup Standards

13C-2,4,4'-TrCB	28	25.011	1.09	2.0	1.99	99
13C-2,3,3',5,5'-PeCB	111	37.570	1.57	2.0	1.42	71
13C-2,2',3,3',5,5',6-HpCB	178	43.490	1.07	2.0	2.08	104

### Recovery Standards

13C-2,5-DiCB	9	16.153	1.60	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	27.124	0.78	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.720	1.51	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	43.087	1.29	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.493	0.88	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

## REPORT OF LABORATORY ANALYSIS

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26032  
Filename P100815B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	23.9
2		---	---	ND	---	23.9
3		---	---	ND	---	23.9
4		---	---	ND	---	23.9
5		---	---	ND	---	23.9
6		---	---	ND	---	23.9
7		---	---	ND	---	23.9
8		---	---	ND	---	23.9
9		---	---	ND	---	23.9
10		---	---	ND	---	23.9
11		---	---	ND	---	144
12	12/13	---	---	ND	---	47.9
13	12/13	---	---	ND	---	47.9
14		---	---	ND	---	23.9
15		---	---	ND	---	23.9
16		---	---	ND	---	23.9
17		---	---	ND	---	23.9
18	18/30	---	---	ND	---	47.9
19		---	---	ND	---	23.9
20	20/28	---	---	ND	---	47.9
21	21/33	---	---	ND	---	47.9
22		---	---	ND	---	23.9
23		---	---	ND	---	23.9
24		---	---	ND	---	23.9
25		---	---	ND	---	23.9
26	26/29	---	---	ND	---	47.9
27		---	---	ND	---	23.9
28	20/28	---	---	ND	---	47.9
29	26/29	---	---	ND	---	47.9
30	18/30	---	---	ND	---	47.9
31		---	---	ND	---	23.9
32		---	---	ND	---	23.9
33	21/33	---	---	ND	---	47.9
34		---	---	ND	---	23.9
35		---	---	ND	---	23.9
36		---	---	ND	---	23.9
37		---	---	ND	---	23.9
38		---	---	ND	---	23.9
39		---	---	ND	---	23.9
40	40/41/71	---	---	ND	---	144
41	40/41/71	---	---	ND	---	144
42		---	---	ND	---	47.9
43	43/73	---	---	ND	---	95.8
44	44/47/65	---	---	ND	---	144
45	45/51	---	---	ND	---	95.8

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  
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

Results reported on a dry weight basis

**REPORT OF LABORATORY ANALYSIS**

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26032  
Filename P100815B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46		---	---	ND	---	47.9
47	44/47/65	---	---	ND	---	144
48		---	---	ND	---	47.9
49	49/69	---	---	ND	---	95.8
50	50/53	---	---	ND	---	95.8
51	45/51	---	---	ND	---	95.8
52		---	---	ND	---	47.9
53	50/53	---	---	ND	---	95.8
54		---	---	ND	---	47.9
55		---	---	ND	---	47.9
56		---	---	ND	---	47.9
57		---	---	ND	---	47.9
58		---	---	ND	---	47.9
59	59/62/75	---	---	ND	---	144
60		---	---	ND	---	47.9
61	61/70/74/76	---	---	ND	---	192
62	59/62/75	---	---	ND	---	144
63		---	---	ND	---	47.9
64		---	---	ND	---	47.9
65	44/47/65	---	---	ND	---	144
66		---	---	ND	---	47.9
67		---	---	ND	---	47.9
68		---	---	ND	---	47.9
69	49/69	---	---	ND	---	95.8
70	61/70/74/76	---	---	ND	---	192
71	40/41/71	---	---	ND	---	144
72		---	---	ND	---	47.9
73	43/73	---	---	ND	---	95.8
74	61/70/74/76	---	---	ND	---	192
75	59/62/75	---	---	ND	---	144
76	61/70/74/76	---	---	ND	---	192
77		---	---	ND	---	47.9
78		---	---	ND	---	47.9
79		---	---	ND	---	47.9
80		---	---	ND	---	47.9
81		---	---	ND	---	47.9
82		---	---	ND	---	47.9
83		---	---	ND	---	47.9
84		---	---	ND	---	47.9
85	85/116/117	---	---	ND	---	144
86	86/87/97/108/119/125	---	---	ND	---	287
87	86/87/97/108/119/125	---	---	ND	---	287
88	88/91	---	---	ND	---	95.8
89		---	---	ND	---	47.9
90	90/101/113	---	---	ND	---	144

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  
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\* = See Discussion  
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Results reported on a dry weight basis

**REPORT OF LABORATORY ANALYSIS**

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26032  
Filename P100815B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
91	88/91	---	---	ND	---	95.8
92		---	---	ND	---	47.9
93	93/98/100/102	---	---	ND	---	192
94		---	---	ND	---	47.9
95		---	---	ND	---	47.9
96		---	---	ND	---	47.9
97	86/87/97/108/119/125	---	---	ND	---	287
98	93/98/100/102	---	---	ND	---	192
99		---	---	ND	---	47.9
100	93/98/100/102	---	---	ND	---	192
101	90/101/113	---	---	ND	---	144
102	93/98/100/102	---	---	ND	---	192
103		---	---	ND	---	47.9
104		---	---	ND	---	47.9
105		---	---	ND	---	47.9
106		---	---	ND	---	47.9
107	107/124	---	---	ND	---	95.8
108	86/87/97/108/119/125	---	---	ND	---	287
109		---	---	ND	---	47.9
110	110/115	---	---	ND	---	95.8
111		---	---	ND	---	47.9
112		---	---	ND	---	47.9
113	90/101/113	---	---	ND	---	144
114		---	---	ND	---	47.9
115	110/115	---	---	ND	---	95.8
116	85/116/117	---	---	ND	---	144
117	85/116/117	---	---	ND	---	144
118		---	---	ND	---	47.9
119	86/87/97/108/119/125	---	---	ND	---	287
120		---	---	ND	---	47.9
121		---	---	ND	---	47.9
122		---	---	ND	---	47.9
123		---	---	ND	---	47.9
124	107/124	---	---	ND	---	95.8
125	86/87/97/108/119/125	---	---	ND	---	287
126		---	---	ND	---	47.9
127		---	---	ND	---	47.9
128	128/166	---	---	ND	---	95.8
129	129/138/163	---	---	ND	---	144
130		---	---	ND	---	47.9
131		---	---	ND	---	47.9
132		---	---	ND	---	47.9
133		---	---	ND	---	47.9
134	134/143	---	---	ND	---	95.8
135	135/151	---	---	ND	---	95.8

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  
ng/L = Nanograms per liter

ND = Not Detected  
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Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26032  
Filename P100815B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
136		---	---	ND	---	47.9
137		---	---	ND	---	47.9
138	129/138/163	---	---	ND	---	144
139	139/140	---	---	ND	---	95.8
140	139/140	---	---	ND	---	95.8
141		---	---	ND	---	47.9
142		---	---	ND	---	47.9
143	134/143	---	---	ND	---	95.8
144		---	---	ND	---	47.9
145		---	---	ND	---	47.9
146		---	---	ND	---	47.9
147	147/149	---	---	ND	---	95.8
148		---	---	ND	---	47.9
149	147/149	---	---	ND	---	95.8
150		---	---	ND	---	47.9
151	135/151	---	---	ND	---	95.8
152		---	---	ND	---	47.9
153	153/168	---	---	ND	---	95.8
154		---	---	ND	---	47.9
155		---	---	ND	---	47.9
156	156/157	---	---	ND	---	95.8
157	156/157	---	---	ND	---	95.8
158		---	---	ND	---	47.9
159		---	---	ND	---	47.9
160		---	---	ND	---	47.9
161		---	---	ND	---	47.9
162		---	---	ND	---	47.9
163	129/138/163	---	---	ND	---	144
164		---	---	ND	---	47.9
165		---	---	ND	---	47.9
166	128/166	---	---	ND	---	95.8
167		---	---	ND	---	47.9
168	153/168	---	---	ND	---	95.8
169		---	---	ND	---	47.9
170		---	---	ND	---	47.9
171	171/173	---	---	ND	---	95.8
172		---	---	ND	---	47.9
173	171/173	---	---	ND	---	95.8
174		---	---	ND	---	47.9
175		---	---	ND	---	47.9
176		---	---	ND	---	47.9
177		---	---	ND	---	47.9
178		---	---	ND	---	47.9
179		---	---	ND	---	47.9
180	180/193	---	---	ND	---	95.8

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  
ng/L = Nanograms per liter

ND = Not Detected  
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Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26032  
Filename P100815B\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
181		---	---	ND	---	47.9
182		---	---	ND	---	47.9
183	183/185	---	---	ND	---	95.8
184		---	---	ND	---	47.9
185	183/185	---	---	ND	---	95.8
186		---	---	ND	---	47.9
187		---	---	ND	---	47.9
188		---	---	ND	---	47.9
189		---	---	ND	---	47.9
190		---	---	ND	---	47.9
191		---	---	ND	---	47.9
192		---	---	ND	---	47.9
193	180/193	---	---	ND	---	95.8
194		---	---	ND	---	71.8
195		---	---	ND	---	71.8
196		---	---	ND	---	71.8
197	197/200	---	---	ND	---	144
198	198/199	---	---	ND	---	144
199	198/199	---	---	ND	---	144
200	197/200	---	---	ND	---	144
201		---	---	ND	---	71.8
202		---	---	ND	---	71.8
203		---	---	ND	---	71.8
204		---	---	ND	---	71.8
205		---	---	ND	---	71.8
206		---	---	ND	---	71.8
207		---	---	ND	---	71.8
208		---	---	ND	---	71.8
209		---	---	ND	---	71.8

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  
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

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Client Sample ID            DFBLKIT  
Lab Sample ID              BLANK-26032  
Filename                      P100815B\_06

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 dry weight basis

**REPORT OF LABORATORY ANALYSIS**

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## Method 1668A Polychlorobiphenyls

### Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-25717	
Filename	P100716B_03	Matrix
Total Amount Extracted	10.4 g	Solid
ICAL ID	P100716B02	Dilution
CCal Filename(s)	P100716B_01	Extracted
Method Blank ID	BLANK-25716	Analyzed
		07/14/2010 15:15
		07/16/2010 20:39
		Injected By
		BAL

PCB Isomer	Native Analytes			Labeled Analytes			
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1		NC	NC	2.0	0.000	0	R
3	1.0	2.05	205	2.0	0.180	9	R
4	1.0	2.84	284	2.0	0.0161	1	R
15	1.0	1.15	115	2.0	1.28	64	
19	1.0	1.08	108	2.0	0.154	8	R
37	1.0	1.11	111	2.0	1.23	61	
54	1.0	0.978	98	2.0	0.790	39	
81	1.0	0.961	96	2.0	0.442	22	R
77	1.0	1.00	100	2.0	0.377	19	R
104	1.0	0.988	99	2.0	3.80	190	R
105	1.0	0.970	97	2.0	1.53	76	
114	1.0	0.974	97	2.0	1.48	74	
118	1.0	1.05	105	2.0	1.44	72	
123	1.0	1.01	101	2.0	1.39	70	
126	1.0	0.996	100	2.0	1.86	93	
155	1.0	0.939	94	2.0	1.38	69	
156/157	2.0	2.07	103	4.0	6.15	154	R
167	1.0	1.06	106	2.0	2.57	128	
169	1.0	1.000	100	2.0	3.58	179	R
188	1.0	1.00	100	2.0	0.415	21	R
189	1.0	1.02	102	2.0	1.71	86	
202	1.0	1.00	100	2.0	0.767	38	
205	1.0	1.03	103	2.0	1.63	81	
206	1.0	0.991	99	2.0	1.54	77	
208	1.0	1.02	102	2.0	1.38	69	
209	1.0	1.01	101	2.0	1.46	73	

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

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-25745	
Filename	P100720A_05	Matrix
Total Amount Extracted	10.3 g	Solid
ICAL ID	P100720A04	Dilution
CCal Filename(s)	P100720A_03	Extracted
Method Blank ID	BLANK-25744	Analyzed
		Injected By
		SMT

PCB Isomer	Native Analytes			Labeled Analytes			
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.08	108	2.0	1.30	65	
3	1.0	1.08	108	2.0	1.47	74	
4	1.0	0.934	93	2.0	1.23	61	
15	1.0	1.04	104	2.0	1.69	84	
19	1.0	1.01	101	2.0	1.22	61	
37	1.0	1.08	108	2.0	1.70	85	
54	1.0	0.959	96	2.0	1.64	82	
81	1.0	0.936	94	2.0	0.779	39	
77	1.0	1.01	101	2.0	0.647	32	
104	1.0	0.938	94	2.0	2.94	147	R
105	1.0	1.02	102	2.0	1.76	88	
114	1.0	1.01	101	2.0	1.65	82	
118	1.0	1.10	110	2.0	1.54	77	
123	1.0	1.00	100	2.0	1.62	81	
126	1.0	1.02	102	2.0	2.20	110	
155	1.0	0.956	96	2.0	1.47	74	
156/157	2.0	2.05	102	4.0	5.66	142	R
167	1.0	1.01	101	2.0	2.71	135	
169	1.0	1.05	105	2.0	3.13	156	R
188	1.0	0.972	97	2.0	0.725	36	
189	1.0	1.01	101	2.0	1.97	98	
202	1.0	0.974	97	2.0	1.19	59	
205	1.0	1.02	102	2.0	1.83	92	
206	1.0	0.976	98	2.0	1.81	90	
208	1.0	0.997	100	2.0	1.53	77	
209	1.0	0.965	97	2.0	1.73	87	

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

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-26033		
Filename	P100815B_03	Matrix	Solid
Total Amount Extracted	10.8 g	Dilution	NA
ICAL ID	P100815B02	Extracted	08/10/2010 17:35
CCal Filename(s)	P100815B_01	Analyzed	08/15/2010 17:49
Method Blank ID	BLANK-26032	Injected By	BAL

PCB Isomer	Native Analytes			Labeled Analytes		
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.08	108	2.0	1.59	79
3	1.0	1.05	105	2.0	1.71	86
4	1.0	1.04	104	2.0	1.40	70
15	1.0	1.06	106	2.0	1.79	89
19	1.0	1.05	105	2.0	1.36	68
37	1.0	1.05	105	2.0	1.52	76
54	1.0	1.01	101	2.0	1.72	86
81	1.0	0.970	97	2.0	0.949	47
77	1.0	0.985	99	2.0	0.932	47
104	1.0	0.993	99	2.0	2.54	127
105	1.0	1.11	111	2.0	1.45	73
114	1.0	1.02	102	2.0	1.46	73
118	1.0	1.16	116	2.0	1.45	73
123	1.0	1.18	118	2.0	1.42	71
126	1.0	0.972	97	2.0	1.87	94
155	1.0	0.987	99	2.0	1.69	84
156/157	2.0	2.07	103	4.0	4.16	104
167	1.0	1.05	105	2.0	1.90	95
169	1.0	1.09	109	2.0	2.67	134
188	1.0	1.09	109	2.0	0.903	45
189	1.0	1.10	110	2.0	1.75	87
202	1.0	1.04	104	2.0	1.21	61
205	1.0	1.22	122	2.0	1.64	82
206	1.0	1.14	114	2.0	1.60	80
208	1.0	1.11	111	2.0	1.43	72
209	1.0	1.13	113	2.0	1.56	78

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

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-25718	
Filename	P100716B_04	Matrix
Total Amount Extracted	10.2 g	Solid
ICAL ID	P100716B02	Dilution
CCal Filename(s)	P100716B_01	Extracted
Method Blank ID	BLANK-25716	Analyzed
		Injected By

PCB Isomer	Native Analytes				Labeled Analytes			
	Spiked (ng)	Found (ng)	% Recovery		Spiked (ng)	Found (ng)	% Recovery	
1	1.0	3.21	321	R	2.0	0.0334	2	IR
3	1.0	1.41	141		2.0	0.411	21	R
4	1.0	1.26	126		2.0	0.135	7	R
15	1.0	1.13	113		2.0	1.33	67	
19	1.0	0.998	100		2.0	0.374	19	R
37	1.0	1.13	113		2.0	1.24	62	
54	1.0	0.959	96		2.0	0.934	47	
81	1.0	0.998	100		2.0	0.457	23	R
77	1.0	1.01	101		2.0	0.401	20	R
104	1.0	1.00	100		2.0	3.74	187	R
105	1.0	1.07	107		2.0	1.55	77	
114	1.0	1.00	100		2.0	1.50	75	
118	1.0	1.09	109		2.0	1.44	72	
123	1.0	1.02	102		2.0	1.43	72	
126	1.0	1.00	100		2.0	1.88	94	
155	1.0	0.968	97		2.0	1.51	75	
156/157	2.0	2.04	102		4.0	6.44	161	R
167	1.0	1.03	103		2.0	2.75	138	
169	1.0	1.01	101		2.0	3.80	190	R
188	1.0	0.954	95		2.0	0.481	24	R
189	1.0	0.983	98		2.0	1.92	96	
202	1.0	1.04	104		2.0	0.868	43	
205	1.0	0.979	98		2.0	1.74	87	
206	1.0	1.01	101		2.0	1.61	80	
208	1.0	1.01	101		2.0	1.56	78	
209	1.0	0.997	100		2.0	1.60	80	

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

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-25746		
Filename	P100720A_06	Matrix	Solid
Total Amount Extracted	10.5 g	Dilution	NA
ICAL ID	P100720A04	Extracted	07/15/2010 15:45
CCal Filename(s)	P100720A03	Analyzed	07/20/2010 12:16
Method Blank ID	BLANK-25744	Injected By	SMT

PCB Isomer	Native Analytes			Labeled Analytes			
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.13	113	2.0	1.26	63	
3	1.0	1.06	106	2.0	1.57	79	
4	1.0	0.981	98	2.0	1.25	62	
15	1.0	1.07	107	2.0	1.88	94	
19	1.0	0.989	99	2.0	1.22	61	
37	1.0	1.10	110	2.0	1.65	83	
54	1.0	0.949	95	2.0	1.57	78	
81	1.0	0.961	96	2.0	0.822	41	
77	1.0	0.971	97	2.0	0.721	36	
104	1.0	0.970	97	2.0	2.67	133	
105	1.0	1.04	104	2.0	1.40	70	
114	1.0	0.959	96	2.0	1.41	70	
118	1.0	1.06	106	2.0	1.34	67	
123	1.0	0.953	95	2.0	1.37	69	
126	1.0	1.00	100	2.0	1.77	88	
155	1.0	0.982	98	2.0	1.73	87	
156/157	2.0	2.01	101	4.0	5.29	132	
167	1.0	1.000	100	2.0	2.53	127	
169	1.0	0.968	97	2.0	2.96	148	R
188	1.0	0.975	97	2.0	0.777	39	
189	1.0	0.965	96	2.0	1.78	89	
202	1.0	0.977	98	2.0	1.20	60	
205	1.0	0.957	96	2.0	1.75	87	
206	1.0	0.967	97	2.0	1.69	85	
208	1.0	0.985	99	2.0	1.56	78	
209	1.0	0.961	96	2.0	1.65	83	

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

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-26034		
Filename	P100815B_04	Matrix	Solid
Total Amount Extracted	10.4 g	Dilution	NA
ICAL ID	P100815B02	Extracted	08/10/2010 17:35
CCal Filename(s)	P100815B_01	Analyzed	08/15/2010 18:55
Method Blank ID	BLANK-26032	Injected By	BAL

PCB Isomer	Native Analytes			Labeled Analytes		
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.16	116	2.0	1.33	67
3	1.0	1.09	109	2.0	1.59	80
4	1.0	1.01	101	2.0	1.24	62
15	1.0	1.16	116	2.0	1.65	83
19	1.0	1.01	101	2.0	1.33	67
37	1.0	1.19	119	2.0	1.45	72
54	1.0	1.01	101	2.0	1.71	86
81	1.0	0.985	99	2.0	0.889	44
77	1.0	0.965	96	2.0	0.876	44
104	1.0	0.980	98	2.0	2.53	127
105	1.0	1.06	106	2.0	1.44	72
114	1.0	1.04	104	2.0	1.43	71
118	1.0	1.18	118	2.0	1.41	70
123	1.0	1.00	100	2.0	1.43	72
126	1.0	0.996	100	2.0	1.58	79
155	1.0	0.993	99	2.0	1.83	91
156/157	2.0	2.00	100	4.0	3.87	97
167	1.0	1.04	104	2.0	1.90	95
169	1.0	1.01	101	2.0	2.17	108
188	1.0	0.999	100	2.0	1.17	59
189	1.0	1.03	103	2.0	1.79	90
202	1.0	0.982	98	2.0	1.43	71
205	1.0	1.00	100	2.0	1.72	86
206	1.0	1.03	103	2.0	1.63	82
208	1.0	1.04	104	2.0	1.54	77
209	1.0	1.01	101	2.0	1.66	83

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

## REPORT OF LABORATORY ANALYSIS

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### Method 1668A

### Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

Spike 1 ID LCS-25717  
Spike 1 Filename P100716B\_03

Spike 2 ID LCSD-25718  
Spike 2 Filename P100716B\_04

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	-1000	321	--
4-MoCB	3	205	141	37.0
2,2'-DiCB	4	284	126	77.1
4,4'-DiCB	15	115	113	1.8
2,2',6-TrCB	19	108	100	7.7
3,4,4'-TrCB	37	111	113	1.8
2,2',6,6'-TeCB	54	98	96	2.1
3,3,4,4'-TeCB	77	100	101	1.0
3,4,4',5-TeCB	81	96	100	4.1
2,2',4,6,6'-PeCB	104	99	100	1.0
2,3,3',4,4'-PeCB	105	97	107	9.8
2,3,4,4',5-PeCB	114	97	100	3.0
2,3',4,4',5-PeCB	118	105	109	3.7
2,3,4,4',5'-PeCB	123	101	102	1.0
3,3',4,4',5-PeCB	126	100	100	0.0
2,2',4,4',6,6'-HxCB	155	94	97	3.1
(156/157)	156/157	103	102	1.0
2,3',4,4',5,5'-HxCB	167	106	103	2.9
3,3',4,4',5,5'-HxCB	169	100	101	1.0
2,2',3,4',5,6,6'-HpCB	188	100	95	5.1
2,3,3',4,4',5,5'-HpCB	189	102	98	4.0
2,2',3,3',5,5',6,6'-OcCB	202	100	104	3.9
2,3,3',4,4',5,5',6-OcCB	205	103	98	5.0
2,2',3,3',4,4',5,5',6-NoCB	206	99	101	2.0
2,2',3,3',4,5,5',6,6'-NoCB	208	102	101	1.0
Decachlorobiphenyl	209	101	100	1.0

%REC = Percent Recovered

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

## REPORT OF LABORATORY ANALYSIS

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### Method 1668A

### Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

Spike 1 ID LCS-25745  
Spike 1 Filename P100720A\_05

Spike 2 ID LCSD-25746  
Spike 2 Filename P100720A\_06

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	108	113	4.5
4-MoCB	3	108	106	1.9
2,2'-DiCB	4	93	98	5.2
4,4'-DiCB	15	104	107	2.8
2,2',6-TrCB	19	101	99	2.0
3,4,4'-TrCB	37	108	110	1.8
2,2',6,6'-TeCB	54	96	95	1.0
3,3,4,4'-TeCB	77	101	97	4.0
3,4,4',5-TeCB	81	94	96	2.1
2,2',4,6,6'-PeCB	104	94	97	3.1
2,3,3',4,4'-PeCB	105	102	104	1.9
2,3,4,4',5-PeCB	114	101	96	5.1
2,3',4,4',5-PeCB	118	110	106	3.7
2,3,4,4',5'-PeCB	123	100	95	5.1
3,3',4,4',5-PeCB	126	102	100	2.0
2,2',4,4',6,6'-HxCB	155	96	98	2.1
(156/157)	156/157	102	101	1.0
2,3',4,4',5,5'-HxCB	167	101	100	1.0
3,3',4,4',5,5'-HxCB	169	105	97	7.9
2,2',3,4',5,6,6'-HpCB	188	97	97	0.0
2,3,3',4,4',5,5'-HpCB	189	101	96	5.1
2,2',3,3',5,5',6,6'-OcCB	202	97	98	1.0
2,3,3',4,4',5,5',6-OcCB	205	102	96	6.1
2,2',3,3',4,4',5,5',6-NoCB	206	98	97	1.0
2,2',3,3',4,5,5',6,6'-NoCB	208	100	99	1.0
Decachlorobiphenyl	209	97	96	1.0

%REC = Percent Recovered

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

## REPORT OF LABORATORY ANALYSIS

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### Method 1668A

### Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

Spike 1 ID LCS-26033  
Spike 1 Filename P100815B\_03

Spike 2 ID LCSD-26034  
Spike 2 Filename P100815B\_04

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	108	116	7.1
4-MoCB	3	105	109	3.7
2,2'-DiCB	4	104	101	2.9
4,4'-DiCB	15	106	116	9.0
2,2',6-TrCB	19	105	101	3.9
3,4,4'-TrCB	37	105	119	12.5
2,2',6,6'-TeCB	54	101	101	0.0
3,3,4,4'-TeCB	77	99	96	3.1
3,4,4',5-TeCB	81	97	99	2.0
2,2',4,6,6'-PeCB	104	99	98	1.0
2,3,3',4,4'-PeCB	105	111	106	4.6
2,3,4,4',5-PeCB	114	102	104	1.9
2,3',4,4',5-PeCB	118	116	118	1.7
2,3,4,4',5'-PeCB	123	118	100	16.5
3,3',4,4',5-PeCB	126	97	100	3.0
2,2',4,4',6,6'-HxCB	155	99	99	0.0
(156/157)	156/157	103	100	3.0
2,3',4,4',5,5'-HxCB	167	105	104	1.0
3,3',4,4',5,5'-HxCB	169	109	101	7.6
2,2',3,4',5,6,6'-HpCB	188	109	100	8.6
2,3,3',4,4',5,5'-HpCB	189	110	103	6.6
2,2',3,3',5,5',6,6'-OcCB	202	104	98	5.9
2,3,3',4,4',5,5',6-OcCB	205	122	100	19.8
2,2',3,3',4,4',5,5',6-NoCB	206	114	103	10.1
2,2',3,3',4,5,5',6,6'-NoCB	208	111	104	6.5
Decachlorobiphenyl	209	113	101	11.2

%REC = Percent Recovered

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

## REPORT OF LABORATORY ANALYSIS

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**Report Prepared for:**

Darrell Auvil  
Test America  
9405 SW Nimbus Avenue  
Beaverton OR 97008

**REPORT OF  
LABORATORY  
ANALYSIS  
FOR PCBs**

**Report Prepared Date:**

July 19, 2010

**Report Information:**

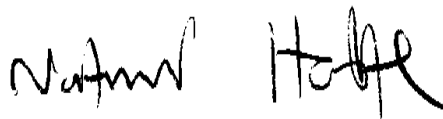
**Pace Project #: 10131888**  
**Sample Receipt Date: 06/22/2010**  
**Client Project #: PTF0605**  
**Client Sub PO #: N/A**  
**State Cert #: MN200001-005**

**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 Nate Habte, your Pace Project Manager.

**This report has been reviewed by:**



July 21, 2010

Nate Habte, Project Manager  
(612) 607-6407  
(612) 607-6444 (fax)  
natnael.habte@pacelabs.com



**Report of Laboratory Analysis**

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



## **DISCUSSION**

This report presents the results from the analyses performed on one sample 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 isotopically-labeled PCB internal standards in the sample extracts were recovered at 17-111%. With twenty two exceptions, flagged "R" on the results tables, 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 and isotope dilution methodology, 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 preparation steps did not significantly impact the measurement of the native congeners in the field sample.

Laboratory spike samples were also prepared with the sample batch using a reference matrix that had been fortified with native standards. The results show that the spiked native compounds were recovered at 94-104% with relative percent differences of 0-4.0%. These results indicate high levels of accuracy and precision for these analyses. Matrix spikes were not prepared with the sample batch.

## **REPORT OF LABORATORY ANALYSIS**

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## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN000642010A
Arkansas	88-0680	New Jersey (NE	MN002
California	01155CA	New Mexico	MN00064
Colorado	MN00064	New York (NEL	11647
Connecticut	PH-0256	North Carolina	27700
EPA Region 5	WD-15J	North Dakota	R-036
EPA Region 8	8TMS-Q	Ohio	4150
Florida (NELAP	E87605	Ohio VAP	CL101
Georgia (DNR)	959	Oklahoma	D9922
Guam	09-019r	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN200001-005
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennessee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	LA0900016	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q
Mississippi	MN00064		

## REPORT OF LABORATORY ANALYSIS

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Report No.....10131888

## **Appendix A**

### Sample Management

1155

## SUBCONTRACT ORDER

TestAmerica Portland

PTF0605

10131888

SENDING LABORATORY:

TestAmerica Portland  
9405 SW Nimbus Ave.  
Beaverton, OR 97008  
Phone: (503) 906-9200  
Fax: (503) 906-9210  
Project Manager: Darrell Auvil

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: \_\_\_\_\_ °C Ice: Y / N

needs Excel EDD

Standard TAT is requested unless specific due date is requested. =&gt; Due Date:

3 weeks

Initials:

jm

Analysis

Units

Expires

Comments

Sample ID: PTF0605-01 (FO105699 - Water)

Sampled: 06/17/10 12:30

001

1668 Coplanar PCBs - SUB ug/l

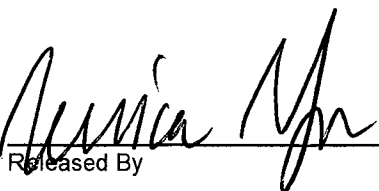
12/14/10 12:30

\*\*\*209 Congeners\*\*\* to Pace

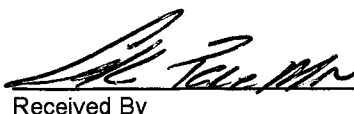
Containers Supplied:

1L Amber - Unpres. (A)

F-380

  
Released By

6/21/10  
Date/Time

  
Received By

0942  
6-22-10 0918  
Date/Time

## Sample Condition Upon Receipt

Client Name: Test AmericaProject # 16131888Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other \_\_\_\_\_Tracking #: 4170-7525-700Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals Intact: ☐ yes ☐ noPacking Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other \_\_\_\_\_Temp Blank: Yes \_\_\_\_\_ No ☒Thermometer Used 80344042 or 179425Type of Ice: 6.22.10 Wet ☒ Blue ☐ None ☐☐ Samples on ice, cooling process has begunCooler Temperature 38

Biological Tissue Is Frozen: Yes No

Date and Initials of person examining contents: 6.22.10

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>6.22.10</u>		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headpace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: Darrell Avril Date/Time: 6/21/10 @ 12:47

Comments/ Resolution:

1668-209 confirmed -> full scan  
Scan TAT despite note on COC

Project Manager Review:

NATH

Date:

6/25/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina SEMMS, Inc.  
 F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

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## 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
- I = 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

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Report No.....10131888

Report No.....10131888\_1668A

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## **Appendix B**

### Sample Analysis Summary

## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTF0605-01 (FO105699)		
Lab Sample ID	10131888001		
Filename	P100709B_08		
Injected By	BAL		
Total Amount Extracted	1030 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	06/17/2010 12:30
ICAL ID	P100709B02	Received	06/22/2010 09:42
CCal Filename(s)	P100709B_01	Extracted	06/30/2010 19:30
Method Blank ID	BLANK-25552	Analyzed	07/10/2010 08:00

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	9.540	2.94	2.0	0.399	20	R
13C-4-MoCB	3	12.991	3.16	2.0	0.445	22	R
13C-2,2'-DiCB	4	13.363	1.65	2.0	0.343	17	R
13C-4,4'-DiCB	15	21.523	1.59	2.0	0.558	28	
13C-2,2',6-TrCB	19	17.844	1.09	2.0	0.389	19	R
13C-3,4,4'-TrCB	37	29.810	1.11	2.0	1.10	55	
13C-2,2',6,6'-TeCB	54	21.894	0.80	2.0	0.544	27	
13C-3,4,4',5-TeCB	81	37.072	0.79	2.0	1.62	81	
13C-3,3',4,4'-TeCB	77	37.659	0.80	2.0	1.72	86	
13C-2,2',4,6,6'-PeCB	104	28.418	1.59	2.0	0.724	36	
13C-2,3,3',4,4'-PeCB	105	41.264	1.62	2.0	1.93	96	
13C-2,3,4,4',5-PeCB	114	40.594	1.60	2.0	1.88	94	
13C-2,3',4,4',5-PeCB	118	40.057	1.59	2.0	1.87	94	
13C-2,3',4,4',5'-PeCB	123	39.722	1.60	2.0	1.85	93	
13C-3,3',4,4',5-PeCB	126	44.400	1.59	2.0	2.08	104	
13C-2,2',4,4',6,6'-HxCB	155	34.607	1.29	2.0	1.08	54	
13C-HxCB (156/157)	156/157	47.453	1.27	4.0	4.30	108	
13C-2,3',4,4',5,5'-HxCB	167	46.262	1.28	2.0	2.10	105	
13C-3,3',4,4',5,5'-HxCB	169	50.756	1.29	2.0	2.22	111	
13C-2,2',3,4',5,6,6'-HpCB	188	40.560	1.08	2.0	1.35	68	
13C-2,3,3',4,4',5,5'-HpCB	189	53.348	1.04	2.0	2.19	110	
13C-2,2',3,3',5,5',6,6'-OxCB	202	45.994	0.93	2.0	1.54	77	
13C-2,3,3',4,4',5,5',6-OxCB	205	56.431	0.91	2.0	1.92	96	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.888	0.77	2.0	1.66	83	
13C-2,2',3,3',4,4',5,5',6-NoCB	208	52.809	0.80	2.0	1.60	80	
13C--DeCB	209	61.496	0.70	2.0	1.54	77	
Cleanup Standards							
13C-2,4,4'-TrCB	28	25.232	1.09	2.0	0.933	47	
13C-2,3,3',5,5'-PeCB	111	37.676	1.61	2.0	1.54	77	
13C-2,2',3,3',5,5',6-HpCB	178	43.663	1.06	2.0	1.60	80	
Recovery Standards							
13C-2,5-DiCB	9	16.275	1.62	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	27.362	0.80	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	34.858	1.63	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	43.227	1.27	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.827	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  
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  
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I = Interference  
ng's = Nanograms

## REPORT OF LABORATORY ANALYSIS

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0605-01 (FO105699)  
Lab Sample ID        10131888001  
Filename                P100709B\_08

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		---	---	ND	---	0.244
5		---	---	ND	---	0.244
6		---	---	ND	---	0.244
7		---	---	ND	---	0.244
8		---	---	ND	---	0.244
9		---	---	ND	---	0.244
10		---	---	ND	---	0.244
11		---	---	ND	---	1.46
12	12/13	---	---	ND	---	0.487
13	12/13	---	---	ND	---	0.487
14		---	---	ND	---	0.244
15		---	---	ND	---	0.244
16		---	---	ND	---	0.244
17		---	---	ND	---	0.244
18	18/30	---	---	ND	---	0.487
19		---	---	ND	---	0.244
20	20/28	---	---	ND	---	0.487
21	21/33	---	---	ND	---	0.487
22		---	---	ND	---	0.244
23		---	---	ND	---	0.244
24		---	---	ND	---	0.244
25		---	---	ND	---	0.244
26	26/29	---	---	ND	---	0.487
27		---	---	ND	---	0.244
28	20/28	---	---	ND	---	0.487
29	26/29	---	---	ND	---	0.487
30	18/30	---	---	ND	---	0.487
31		---	---	ND	---	0.244
32		---	---	ND	---	0.244
33	21/33	---	---	ND	---	0.487
34		---	---	ND	---	0.244
35		---	---	ND	---	0.244
36		---	---	ND	---	0.244
37		---	---	ND	---	0.244
38		---	---	ND	---	0.244
39		---	---	ND	---	0.244
40	40/41/71	---	---	ND	---	1.46
41	40/41/71	---	---	ND	---	1.46
42		---	---	ND	---	0.487
43	43/73	---	---	ND	---	0.974
44	44/47/65	---	---	ND	---	1.46
45	45/51	---	---	ND	---	0.974
46		---	---	ND	---	0.487
47	44/47/65	---	---	ND	---	1.46
48		---	---	ND	---	0.487

Conc = Concentration  
EML =Method Specified Reporting Limit (1668A)  
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Lab Sample ID        10131888001  
Filename               P100709B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	0.974
50	50/53	---	---	ND	---	0.974
51	45/51	---	---	ND	---	0.974
52		---	---	ND	---	0.487
53	50/53	---	---	ND	---	0.974
54		---	---	ND	---	0.487
55		---	---	ND	---	0.487
56		---	---	ND	---	0.487
57		---	---	ND	---	0.487
58		---	---	ND	---	0.487
59	59/62/75	---	---	ND	---	1.46
60		---	---	ND	---	0.487
61	61/70/74/76	---	---	ND	---	1.95
62	59/62/75	---	---	ND	---	1.46
63		---	---	ND	---	0.487
64		---	---	ND	---	0.487
65	44/47/65	---	---	ND	---	1.46
66		---	---	ND	---	0.487
67		---	---	ND	---	0.487
68		---	---	ND	---	0.487
69	49/69	---	---	ND	---	0.974
70	61/70/74/76	---	---	ND	---	1.95
71	40/41/71	---	---	ND	---	1.46
72		---	---	ND	---	0.487
73	43/73	---	---	ND	---	0.974
74	61/70/74/76	---	---	ND	---	1.95
75	59/62/75	---	---	ND	---	1.46
76	61/70/74/76	---	---	ND	---	1.95
77		---	---	ND	---	0.487
78		---	---	ND	---	0.487
79		---	---	ND	---	0.487
80		---	---	ND	---	0.487
81		---	---	ND	---	0.487
82		---	---	ND	---	0.487
83		---	---	ND	---	0.487
84		---	---	ND	---	0.487
85	85/116/117	---	---	ND	---	1.46
86	86/87/97/108/119/125	---	---	ND	---	2.92
87	86/87/97/108/119/125	---	---	ND	---	2.92
88	88/91	---	---	ND	---	0.974
89		---	---	ND	---	0.487
90	90/101/113	---	---	ND	---	1.46
91	88/91	---	---	ND	---	0.974
92		---	---	ND	---	0.487
93	93/98/100/102	---	---	ND	---	1.95
94		---	---	ND	---	0.487
95		---	---	ND	---	0.487
96		---	---	ND	---	0.487

Conc = Concentration  
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**Pace Analytical**<sup>TM</sup>

Pace Analytical Services, Inc.  
1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID      PTF0605-01 (FO105699)  
Lab Sample ID        10131888001  
Filename               P100709B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	2.92
98	93/98/100/102	---	---	ND	---	1.95
99		---	---	ND	---	0.487
100	93/98/100/102	---	---	ND	---	1.95
101	90/101/113	---	---	ND	---	1.46
102	93/98/100/102	---	---	ND	---	1.95
103		---	---	ND	---	0.487
104		---	---	ND	---	0.487
105		---	---	ND	---	0.487
106		---	---	ND	---	0.487
107	107/124	---	---	ND	---	0.974
108	86/87/97/108/119/125	---	---	ND	---	2.92
109		---	---	ND	---	0.487
110	110/115	---	---	ND	---	0.974
111		---	---	ND	---	0.487
112		---	---	ND	---	0.487
113	90/101/113	---	---	ND	---	1.46
114		---	---	ND	---	0.487
115	110/115	---	---	ND	---	0.974
116	85/116/117	---	---	ND	---	1.46
117	85/116/117	---	---	ND	---	1.46
118		---	---	ND	---	0.487
119	86/87/97/108/119/125	---	---	ND	---	2.92
120		---	---	ND	---	0.487
121		---	---	ND	---	0.487
122		---	---	ND	---	0.487
123		---	---	ND	---	0.487
124	107/124	---	---	ND	---	0.974
125	86/87/97/108/119/125	---	---	ND	---	2.92
126		---	---	ND	---	0.487
127		---	---	ND	---	0.487
128	128/166	---	---	ND	---	0.974
129	129/138/163	---	---	ND	---	1.46
130		---	---	ND	---	0.487
131		---	---	ND	---	0.487
132		---	---	ND	---	0.487
133		---	---	ND	---	0.487
134	134/143	---	---	ND	---	0.974
135	135/151	---	---	ND	---	0.974
136		---	---	ND	---	0.487
137		---	---	ND	---	0.487
138	129/138/163	---	---	ND	---	1.46
139	139/140	---	---	ND	---	0.974
140	139/140	---	---	ND	---	0.974
141		---	---	ND	---	0.487
142		---	---	ND	---	0.487
143	134/143	---	---	ND	---	0.974
144		---	---	ND	---	0.487

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Lab Sample ID        10131888001  
Filename               P100709B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.487
146		---	---	ND	---	0.487
147	147/149	---	---	ND	---	0.974
148		---	---	ND	---	0.487
149	147/149	---	---	ND	---	0.974
150		---	---	ND	---	0.487
151	135/151	---	---	ND	---	0.974
152		---	---	ND	---	0.487
153	153/168	---	---	ND	---	0.974
154		---	---	ND	---	0.487
155		---	---	ND	---	0.487
156	156/157	---	---	ND	---	0.974
157	156/157	---	---	ND	---	0.974
158		---	---	ND	---	0.487
159		---	---	ND	---	0.487
160		---	---	ND	---	0.487
161		---	---	ND	---	0.487
162		---	---	ND	---	0.487
163	129/138/163	---	---	ND	---	1.46
164		---	---	ND	---	0.487
165		---	---	ND	---	0.487
166	128/166	---	---	ND	---	0.974
167		---	---	ND	---	0.487
168	153/168	---	---	ND	---	0.974
169		---	---	ND	---	0.487
170		---	---	ND	---	0.487
171	171/173	---	---	ND	---	0.974
172		---	---	ND	---	0.487
173	171/173	---	---	ND	---	0.974
174		---	---	ND	---	0.487
175		---	---	ND	---	0.487
176		---	---	ND	---	0.487
177		---	---	ND	---	0.487
178		---	---	ND	---	0.487
179		---	---	ND	---	0.487
180	180/193	---	---	ND	---	0.974
181		---	---	ND	---	0.487
182		---	---	ND	---	0.487
183	183/185	---	---	ND	---	0.974
184		---	---	ND	---	0.487
185	183/185	---	---	ND	---	0.974
186		---	---	ND	---	0.487
187		---	---	ND	---	0.487
188		---	---	ND	---	0.487
189		---	---	ND	---	0.487
190		---	---	ND	---	0.487
191		---	---	ND	---	0.487
192		---	---	ND	---	0.487

Conc = Concentration  
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Lab Sample ID        10131888001  
Filename               P100709B\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	---	---	ND	---	0.974
194		---	---	ND	---	0.731
195		---	---	ND	---	0.731
196		---	---	ND	---	0.731
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	---	0.731
202		---	---	ND	---	0.731
203		---	---	ND	---	0.731
204		---	---	ND	---	0.731
205		---	---	ND	---	0.731
206		---	---	ND	---	0.731
207		---	---	ND	---	0.731
208		---	---	ND	---	0.731
209		---	---	ND	---	0.731

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

**REPORT OF LABORATORY ANALYSIS**

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID                      PTF0605-01 (FO105699)  
Lab Sample ID                        10131888001  
Filename                                P100709B\_08

<b>Congener Group</b>	<b>Concentration ng/L</b>
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

**REPORT OF LABORATORY ANALYSIS**

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## Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID	BLANK-25552		
Filename	P100702A_07		
Injected By	CVS	Matrix	Water
Total Amount Extracted	1020 mL	Extracted	06/30/2010 19:30
ICAL ID	P100702A02	Analyzed	07/02/2010 16:43
CCal Filename(s)	P100702A_01	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	9.552	3.03	2.0	0.0890	4	R
13C-4-MoCB	3	13.027	2.86	2.0	0.106	5	R
13C-2,2'-DiCB	4	13.399	1.61	2.0	0.100	5	R
13C-4,4'-DiCB	15	21.561	1.53	2.0	0.327	16	R
13C-2,2',6-TrCB	19	17.881	1.08	2.0	0.151	8	R
13C-3,4,4'-TrCB	37	29.854	1.04	2.0	1.08	54	
13C-2,2',6,6'-TeCB	54	21.920	0.80	2.0	0.294	15	R
13C-3,4,4',5-TeCB	81	37.118	0.79	2.0	1.91	96	
13C-3,3',4,4'-TeCB	77	37.705	0.79	2.0	1.96	98	
13C-2,2',4,6,6'-PeCB	104	28.462	1.62	2.0	0.841	42	
13C-2,3,3',4,4'-PeCB	105	41.312	1.63	2.0	2.19	110	
13C-2,3,4,4',5-PeCB	114	40.641	1.59	2.0	2.19	110	
13C-2,3',4,4',5-PeCB	118	40.088	1.63	2.0	2.17	109	
13C-2,3',4,4',5'-PeCB	123	39.752	1.59	2.0	2.14	107	
13C-3,3',4,4',5-PeCB	126	44.449	1.60	2.0	2.25	113	
13C-2,2',4,4',6,6'-HxCB	155	34.652	1.27	2.0	1.13	57	
13C-HxCB (156/157)	156/157	47.502	1.27	4.0	3.67	92	
13C-2,3',4,4',5,5'-HxCB	167	46.311	1.26	2.0	1.88	94	
13C-3,3',4,4',5,5'-HxCB	169	50.807	1.28	2.0	1.88	94	
13C-2,2',3,4',5,6,6'-HpCB	188	40.608	1.07	2.0	1.68	84	
13C-2,3,3',4,4',5,5'-HpCB	189	53.392	1.04	2.0	1.98	99	
13C-2,2',3,3',5,5',6,6'-OxCB	202	46.043	0.92	2.0	1.79	90	
13C-2,3,3',4,4',5,5',6-OxCB	205	56.497	0.91	2.0	1.89	94	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.977	0.77	2.0	1.77	88	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.853	0.79	2.0	1.74	87	
13C--DeCB	209	61.564	0.71	2.0	1.69	84	
Cleanup Standards							
13C-2,4,4'-TrCB	28	25.275	1.04	2.0	0.722	36	
13C-2,3,3',5,5'-PeCB	111	37.722	1.57	2.0	1.80	90	
13C-2,2',3,3',5,5',6-HpCB	178	43.711	1.05	2.0	1.82	91	
Recovery Standards							
13C-2,5-DiCB	9	16.311	1.60	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	27.405	0.79	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	34.904	1.61	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	43.275	1.28	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.872	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  
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

## REPORT OF LABORATORY ANALYSIS

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25552  
Filename P100702A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML 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		---	---	ND	---	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		---	---	ND	---	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	43/73	---	---	ND	---	0.984
44	44/47/65	---	---	ND	---	1.48
45	45/51	---	---	ND	---	0.984

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

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25552  
Filename P100702A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46		---	---	ND	---	0.492
47	44/47/65	---	---	ND	---	1.48
48		---	---	ND	---	0.492
49	49/69	---	---	ND	---	0.984
50	50/53	---	---	ND	---	0.984
51	45/51	---	---	ND	---	0.984
52		---	---	ND	---	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		---	---	ND	---	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	43/73	---	---	ND	---	0.984
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		---	---	ND	---	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	---	---	ND	---	1.48

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

**REPORT OF LABORATORY ANALYSIS**

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25552  
Filename P100702A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91	---	---	ND	---	0.984
92		---	---	ND	---	0.492
93	93/98/100/102	---	---	ND	---	1.97
94		---	---	ND	---	0.492
95		---	---	ND	---	0.492
96		---	---	ND	---	0.492
97	86/87/97/108/119/125	---	---	ND	---	2.95
98	93/98/100/102	---	---	ND	---	1.97
99		---	---	ND	---	0.492
100	93/98/100/102	---	---	ND	---	1.97
101	90/101/113	---	---	ND	---	1.48
102	93/98/100/102	---	---	ND	---	1.97
103		---	---	ND	---	0.492
104		---	---	ND	---	0.492
105		---	---	ND	---	0.492
106		---	---	ND	---	0.492
107	107/124	---	---	ND	---	0.984
108	86/87/97/108/119/125	---	---	ND	---	2.95
109		---	---	ND	---	0.492
110	110/115	---	---	ND	---	0.984
111		---	---	ND	---	0.492
112		---	---	ND	---	0.492
113	90/101/113	---	---	ND	---	1.48
114		---	---	ND	---	0.492
115	110/115	---	---	ND	---	0.984
116	85/116/117	---	---	ND	---	1.48
117	85/116/117	---	---	ND	---	1.48
118		---	---	ND	---	0.492
119	86/87/97/108/119/125	---	---	ND	---	2.95
120		---	---	ND	---	0.492
121		---	---	ND	---	0.492
122		---	---	ND	---	0.492
123		---	---	ND	---	0.492
124	107/124	---	---	ND	---	0.984
125	86/87/97/108/119/125	---	---	ND	---	2.95
126		---	---	ND	---	0.492
127		---	---	ND	---	0.492
128	128/166	---	---	ND	---	0.984
129	129/138/163	---	---	ND	---	1.48
130		---	---	ND	---	0.492
131		---	---	ND	---	0.492
132		---	---	ND	---	0.492
133		---	---	ND	---	0.492
134	134/143	---	---	ND	---	0.984
135	135/151	---	---	ND	---	0.984

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  
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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25552  
Filename P100702A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136		---	---	ND	---	0.492
137		---	---	ND	---	0.492
138	129/138/163	---	---	ND	---	1.48
139	139/140	---	---	ND	---	0.984
140	139/140	---	---	ND	---	0.984
141		---	---	ND	---	0.492
142		---	---	ND	---	0.492
143	134/143	---	---	ND	---	0.984
144		---	---	ND	---	0.492
145		---	---	ND	---	0.492
146		---	---	ND	---	0.492
147	147/149	---	---	ND	---	0.984
148		---	---	ND	---	0.492
149	147/149	---	---	ND	---	0.984
150		---	---	ND	---	0.492
151	135/151	---	---	ND	---	0.984
152		---	---	ND	---	0.492
153	153/168	---	---	ND	---	0.984
154		---	---	ND	---	0.492
155		---	---	ND	---	0.492
156	156/157	---	---	ND	---	0.984
157	156/157	---	---	ND	---	0.984
158		---	---	ND	---	0.492
159		---	---	ND	---	0.492
160		---	---	ND	---	0.492
161		---	---	ND	---	0.492
162		---	---	ND	---	0.492
163	129/138/163	---	---	ND	---	1.48
164		---	---	ND	---	0.492
165		---	---	ND	---	0.492
166	128/166	---	---	ND	---	0.984
167		---	---	ND	---	0.492
168	153/168	---	---	ND	---	0.984
169		---	---	ND	---	0.492
170		---	---	ND	---	0.492
171	171/173	---	---	ND	---	0.984
172		---	---	ND	---	0.492
173	171/173	---	---	ND	---	0.984
174		---	---	ND	---	0.492
175		---	---	ND	---	0.492
176		---	---	ND	---	0.492
177		---	---	ND	---	0.492
178		---	---	ND	---	0.492
179		---	---	ND	---	0.492
180	180/193	---	---	ND	---	0.984

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  
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X = Outside QC Limits  
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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-25552  
Filename P100702A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181		---	---	ND	---	0.492
182		---	---	ND	---	0.492
183	183/185	---	---	ND	---	0.984
184		---	---	ND	---	0.492
185	183/185	---	---	ND	---	0.984
186		---	---	ND	---	0.492
187		---	---	ND	---	0.492
188		---	---	ND	---	0.492
189		---	---	ND	---	0.492
190		---	---	ND	---	0.492
191		---	---	ND	---	0.492
192		---	---	ND	---	0.492
193	180/193	---	---	ND	---	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  
R = Recovery outside of Method 1668A control limits  
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ND = Not Detected  
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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Client Sample ID           DFBLKBN  
Lab Sample ID             BLANK-25552  
Filename                   P100702A\_07

<b>Congener Group</b>	<b>Concentration ng/L</b>
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

**REPORT OF LABORATORY ANALYSIS**

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-25553	
Filename	P100702A_03	Matrix
Total Amount Extracted	1020 mL	Dilution
ICAL ID	P100702A02	Extracted
CCal Filename(s)	P100702A_01	Analyzed
Method Blank ID	BLANK-25552	Injected By
		Water
		NA
		06/30/2010 19:30
		07/02/2010 12:22
		CVS

PCB Isomer	Native Analytes			Labeled Analytes			
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.02	102	2.0	0.147	7	R
3	1.0	1.02	102	2.0	0.224	11	R
4	1.0	1.04	104	2.0	0.214	11	R
15	1.0	0.987	99	2.0	0.452	23	R
19	1.0	0.985	99	2.0	0.309	15	R
37	1.0	0.981	98	2.0	1.06	53	
54	1.0	0.943	94	2.0	0.419	21	R
81	1.0	0.967	97	2.0	2.09	104	
77	1.0	0.981	98	2.0	2.20	110	
104	1.0	0.979	98	2.0	0.774	39	
105	1.0	0.997	100	2.0	2.14	107	
114	1.0	0.971	97	2.0	2.09	105	
118	1.0	0.983	98	2.0	2.09	105	
123	1.0	0.971	97	2.0	2.10	105	
126	1.0	0.980	98	2.0	2.25	113	
155	1.0	0.963	96	2.0	1.18	59	
156/157	2.0	1.99	100	4.0	3.88	97	
167	1.0	1.000	100	2.0	1.93	97	
169	1.0	0.993	99	2.0	1.92	96	
188	1.0	0.991	99	2.0	1.81	91	
189	1.0	1.01	101	2.0	2.08	104	
202	1.0	0.988	99	2.0	1.95	97	
205	1.0	0.983	98	2.0	1.98	99	
206	1.0	0.981	98	2.0	1.86	93	
208	1.0	0.969	97	2.0	1.90	95	
209	1.0	0.988	99	2.0	1.76	88	

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

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-25554	
Filename	P100702A_04	Matrix
Total Amount Extracted	1000 mL	Water
ICAL ID	P100702A02	Dilution
CCal Filename(s)	P100702A_01	Extracted
Method Blank ID	BLANK-25552	Analyzed
		Injected By
		CVS

PCB Isomer	Native Analytes			Labeled Analytes			
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.04	104	2.0	0.130	7	R
3	1.0	1.02	102	2.0	0.146	7	R
4	1.0	1.06	106	2.0	0.135	7	R
15	1.0	1.03	103	2.0	0.189	9	R
19	1.0	0.980	98	2.0	0.138	7	R
37	1.0	0.991	99	2.0	0.957	48	
54	1.0	0.935	94	2.0	0.181	9	R
81	1.0	0.998	100	2.0	2.04	102	
77	1.0	1.00	100	2.0	2.09	104	
104	1.0	0.978	98	2.0	0.669	33	
105	1.0	1.01	101	2.0	2.29	114	
114	1.0	0.978	98	2.0	2.23	111	
118	1.0	0.991	99	2.0	2.26	113	
123	1.0	0.977	98	2.0	2.27	114	
126	1.0	0.984	98	2.0	2.39	120	
155	1.0	0.956	96	2.0	1.17	58	
156/157	2.0	2.01	101	4.0	3.99	100	
167	1.0	0.988	99	2.0	2.03	101	
169	1.0	0.998	100	2.0	1.99	100	
188	1.0	0.990	99	2.0	1.92	96	
189	1.0	1.01	101	2.0	2.21	110	
202	1.0	0.992	99	2.0	2.09	104	
205	1.0	0.989	99	2.0	2.05	103	
206	1.0	0.970	97	2.0	1.92	96	
208	1.0	0.986	99	2.0	1.97	99	
209	1.0	0.973	97	2.0	1.80	90	

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

## REPORT OF LABORATORY ANALYSIS

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### Method 1668A

### Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

Spike 1 ID LCS-25553  
Spike 1 Filename P100702A\_03

Spike 2 ID LCSD-25554  
Spike 2 Filename P100702A\_04

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	102	104	1.9
4-MoCB	3	102	102	0.0
2,2'-DiCB	4	104	106	1.9
4,4'-DiCB	15	99	103	4.0
2,2',6-TrCB	19	99	98	1.0
3,4,4'-TrCB	37	98	99	1.0
2,2',6,6'-TeCB	54	94	94	0.0
3,3,4,4'-TeCB	77	98	100	2.0
3,4,4',5-TeCB	81	97	100	3.0
2,2',4,6,6'-PeCB	104	98	98	0.0
2,3,3',4,4'-PeCB	105	100	101	1.0
2,3,4,4',5-PeCB	114	97	98	1.0
2,3',4,4',5-PeCB	118	98	99	1.0
2,3,4,4',5'-PeCB	123	97	98	1.0
3,3',4,4',5-PeCB	126	98	98	0.0
2,2',4,4',6,6'-HxCB	155	96	96	0.0
(156/157)	156/157	100	101	1.0
2,3',4,4',5,5'-HxCB	167	100	99	1.0
3,3',4,4',5,5'-HxCB	169	99	100	1.0
2,2',3,4',5,6,6'-HpCB	188	99	99	0.0
2,3,3',4,4',5,5'-HpCB	189	101	101	0.0
2,2',3,3',5,5',6,6'-OcCB	202	99	99	0.0
2,3,3',4,4',5,5',6-OcCB	205	98	99	1.0
2,2',3,3',4,4',5,5',6-NoCB	206	98	97	1.0
2,2',3,3',4,5,5',6,6'-NoCB	208	97	99	2.0
Decachlorobiphenyl	209	99	97	2.0

%REC = Percent Recovered

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

## REPORT OF LABORATORY ANALYSIS

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## ***September 2010 Inline Solids Sampling***



55 SW Yamhill Street, Suite 400 Portland, OR 97204  
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info@gsiwatersolutions.com www.gsiwatersolutions.com

## **Laboratory Data QA/QC Review Inline Solids Investigation City Outfall Basin 52**

**To:** File  
**From:** Andrew Davidson, GSI Water Solutions, Inc. (GSI)  
**Date:** November 11, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from a source control investigation sampling event conducted by the City of Portland (City) in September 2010. Three inline solids samples (FO105870, FO105871, FO105872) and one duplicate sample (FO105873) were collected in Outfall Basin 52 on September 7 and 8, 2010.

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
  - Total Solids – SM 2540G
  - Polychlorinated Biphenyls (PCBs) Aroclors – EPA 8082
- Test America (TA)
  - Total Organic Carbon (TOC) – EPA 9060 MOD
- Pace Analytical Services (Pace)
  - PCB Congeners – EPA 1668A

The WPCL summary report and the subcontracted laboratory reports for all analyses associated with this sampling event 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 of the analytical data is based on the available documentation provided by the subcontracted laboratories 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 laboratory control limits
- Internal standard recoveries within accuracy control limits
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within laboratory control limits
- Laboratory control and duplicate laboratory control (LC/DLC) 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**

Samples for all analyses were extracted and analyzed within the recommended method-specific holding times.

## **Method Blanks**

Method blanks were processed during the subcontracted laboratory analyses of PCB congeners and TOC. No analytes were detected in the method blanks for either analysis.

## **Internal Standard Recoveries**

Isotopically-labeled internal standard recoveries were processed during the laboratory analysis of PCB congeners. Internal standard recoveries are within control limits with three exceptions in the QC samples, which are flagged “R” in the subcontracted laboratory report. All internal standards run with the field samples were recovered within control criteria, and the data are not qualified further.

Interfering background constituents impacted the measurement of some PCB congeners and internal standards. The affected values are flagged “I” in the subcontracted report to indicate that incorrect isotope ratios were obtained. Estimated maximum possible concentrations (EMPCs) are provided for affected congeners, and values are qualified with an EMPC flag. These values are not included in the total homolog and total PCB values.

Because estimated congener value(s) are not significant relative to the total PCB concentration (i.e. <1%), total homolog and total PCB concentrations are considered only slightly biased.

## **Matrix Spike/Matrix Spike Duplicate**

MS/MSD samples were processed during the subcontracted analysis of TOC. Analyte recoveries and relative percent differences (RPDs) are within laboratory control limits for all MS/MSD samples.

## **Laboratory Control Samples**

Two sets of LC/DLC samples were processed during the laboratory analysis of PCB congeners. All LC and DLC recoveries and RPDs are within laboratory control limits. An LC sample was processed during the laboratory analysis of TOC. The LC recovery is within the method-specified laboratory control limit.

## **Other**

WPCL reports that inconsistent results during the matrix QC for the PCB Aroclor analysis in sample FO105870 (sample SJB2) indicate a non-homogeneous sample matrix; therefore, PCB results are considered estimates.



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## **Laboratory Data QA/QC Review Inline Solids Investigation City Outfall Basin 52**

**To:** File  
**From:** Karen Demsey, GSI Water Solutions, Inc. (GSI)  
**Date:** December 12, 2011

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from a source control investigation sampling event conducted by the City of Portland (City) in September 2010. Three inline solids primary samples and one duplicate sample were collected in Outfall Basin 52 on September 7 and 8, 2010. The samples were initially analyzed for polychlorinated biphenyls and other parameters in September 2010 and then archived for potential additional analysis in the future. In November 2011, additional analyses were requested for the three primary samples (FO105870, FO105871, and FO105872). The samples were reanalyzed under new laboratory identification numbers (W11K141-01, W11K141-02 and W11K141-03, respectively). The City's Bureau of Environmental Services (BES) Water Pollution Control Laboratory (WPCL) conducted following analyses on these samples:

- Total Solids – SM 2540G
- Total Metals – EPA 6020

The following QA/QC review of the analytical data is based on the available documentation provided by WPCL. The QA/QC review of the analytical data consisted of reviewing the following elements, 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
- Standard reference sample recoveries within accuracy control limits
- Duplicate sample recoveries within laboratory control limits
- Matrix spike sample results 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 recommended method-specific holding time was exceeded due to delayed request for metals analysis. Because the samples were properly preserved, the results for detections above the method reporting limits are considered usable but biased slightly low. However, the detected results are considered acceptable for the purposes of this investigation.

## **Method Blanks**

A laboratory methods blank was processed during the metals analysis. No analytes were detected in the method blank.

## **Standard Reference**

A laboratory sample of standard reference material was analyzed during the metals analysis. Analyte recoveries were within laboratory control limits for the standard reference material sample.

## **Duplicate Analysis**

A duplicate analysis of one of the field samples was performed during the metals analysis. All relative percent differences between the duplicate analysis and primary analysis of the source sample were within laboratory control limits.

## **Matrix Spike**

A matrix spike sample was processed during the metals analysis. Analyte recoveries were within laboratory control limits for the matrix spike 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: 9/2/10  
Page: 1 of 1  
Collected By: ASA, PTB

Project Name: PORTLAND HARBOR INLINE SAMP  
File Number: 1020.001

Matrix: SEDIMENT

Basin 52 Inline

Requested Analyses

Organics

General

Metals

Field Comments

WPCL Sample I.D. Location Point Sample Sample  
Code Date Time Type

FO105870

IL-52-SJB2-0910  
DISCHARGE TO AAE665

52\_13

9/7/10

1145

C

PCB Aroclors - LL

PCB Congeners (All 209)

TOC

Total Solids

FO105871

IL-52-ANE911-0910  
NALTA & RR TRACKS

52\_8

9/7/10

1214

C

FO105872

IL-52-SJB1-0910  
ODOT-SJB-WQMH

52\_14

9/8/10

1001

C

FO105873

DUPLICATE

DUP

9/7/10

C

Relinquished By: 1.

Signature: [Signature]

Time: 1633

Printed Name: Andrew Arnsborg

Date: 9/8/10

Received By: [Signature]

Time: 1633

Signature: [Signature]

Date: 9/8/10

Printed Name: [Signature]

Date: 9/8/10

Relinquished By: 2.

Signature: [Signature]

Time:

Printed Name:

Date:

Received By: 2.

Time:

Signature:

Date:

Printed Name:

Date:

Relinquished By: 3.

Signature:

Time:

Printed Name:

Date:

Received By: 3.

Time:

Signature:

Date:

Printed Name:

Date:

Relinquished By: 4.

Signature:

Time:

Printed Name:

Date:

Received By: 4.

Time:

Signature:

Date:

Printed Name:

Date:



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: FO105870**

**Sample Collected:** 09/07/10 11:45  
**Sample Received:** 09/08/10

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-SJB2-0910  
ODOT MANHOLE DISCHARGING TO AAE685  
**Sample Point Code:** 52\_13  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AO07999  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** AJA/PTB

**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. Inconsistent results for matrix QC for PCB analysis indicate non-homogeneous sample matrix; PCB results should be considered estimates.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	86.9	% W/W	0.01	SM 2540 G	09/11/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/10/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1248	60	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1254	35	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	8710	mg/Kg dry wt	100	EPA 9060 MOD	09/16/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	09/29/10

End of Report for Sample ID: FO105870

Report Date: 10/18/10

Validated By:



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**Water Pollution Control Laboratory**  
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**LABORATORY ANALYSIS REPORT**

**Sample ID: FO105871**

**Sample Collected:** 09/07/10 12:14  
**Sample Received:** 09/08/10

**Sample Status: COMPLETE AND  
VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-ANE911-0910  
N ALTA & RR TRACKS  
**Sample Point Code:** 52\_8  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AO08000  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** AJA/PTB

**Comments:**

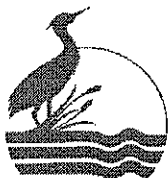
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	84.0	% W/W	0.01	SM 2540 G	09/11/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<200	µg/Kg dry wt	200	EPA 8082	09/10/10
Aroclor 1221	<400	µg/Kg dry wt	400	EPA 8082	09/10/10
Aroclor 1232	<200	µg/Kg dry wt	200	EPA 8082	09/10/10
Aroclor 1248	<200	µg/Kg dry wt	200	EPA 8082	09/10/10
Aroclor 1254	<200	µg/Kg dry wt	200	EPA 8082	09/10/10
Aroclor 1260	2860	µg/Kg dry wt	200	EPA 8082	09/10/10
Aroclor 1262	<200	µg/Kg dry wt	200	EPA 8082	09/10/10
Aroclor 1268	<200	µg/Kg dry wt	200	EPA 8082	09/10/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	28600	mg/Kg dry wt	100	EPA 9060 MOD	09/16/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	09/29/10

**End of Report for Sample ID: FO105871**

**Report Date:** 10/18/10

**Validated By:**



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**Water Pollution Control Laboratory**  
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**LABORATORY ANALYSIS REPORT**

**Sample ID: FO105872**

**Sample Collected:** 09/08/10 10:01  
**Sample Received:** 09/08/10

**Sample Status: COMPLETE AND VALIDATED**

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** IL-52-SJB1-0910  
SOLIDS FROM ST JOHNS BRIDGE WQ MANHOLE  
**Sample Point Code:** 52\_14  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**Report Page:** Page 1 of 1

**System ID:** AO08001  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** AJA/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.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	77.5	% W/W	0.01	SM 2540 G	09/11/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/10/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1248	97	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1254	66	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	20100	mg/Kg dry wt	100	EPA 9060 MOD	09/17/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/06/10

**End of Report for Sample ID: FO105872**

**Report Date:** 10/18/10

**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: FO105873**

**Sample Collected:** 09/07/10 00:00  
**Sample Received:** 09/08/10

**Sample Status:** COMPLETE AND  
VALIDATED

**Proj./Company Name:** PORTLAND HARBOR INLINE SAMP  
**Address/Location:** FIELD DUPLICATE

**Report Page:** Page 1 of 1

**Sample Point Code:** DUP  
**Sample Type:** COMPOSITE  
**Sample Matrix:** SEDIMENT

**System ID:** AO08002  
**EID File #:** 1020.001  
**LocCode:** PORTHARI  
**Collected By:** AJA/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.

Test Parameter	Result	Units	MRL	Method	Analysis Date
<b>GENERAL</b>					
TOTAL SOLIDS	85.7	% W/W	0.01	SM 2540 G	09/11/10
<b>GC ANALYSIS</b>					
<b>POLYCHLORINATED BIPHENYLS (PCB)</b>					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/10/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1248	76	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1254	26	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/10/10
<b>OUTSIDE ANALYSIS</b>					
TOTAL ORGANIC CARBON	7580	mg/Kg dry wt	100	EPA 9060 MOD	09/16/10
<b>POLYCHLORINATED BIPHENYL CONGENERS -PACE</b>					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	09/29/10

**End of Report for Sample ID: FO105873**

**Report Date:** 10/18/10

**Validated By:**

September 24, 2010

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


RE: Portland Harbor Inline

Enclosed are the results of analyses for samples received by the laboratory on 09/09/10 16:05.  
The following list is a summary of the Work Orders contained in this report, generated on 09/24/10 14:31.

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

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
PTI0295	Portland Harbor Inline	30001516

TestAmerica Portland



Darrell Auvil, 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**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor Inline**

Project Number:

30001516

Report Created:

Project Manager:

Jennifer Shackelford

09/24/10 14:31

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO105870	PTI0295-01	Soil	09/07/10 11:45	09/09/10 16:05
FO105871	PTI0295-02	Soil	09/07/10 12:14	09/09/10 16:05
FO105872	PTI0295-03	Soil	09/07/10 10:01	09/09/10 16:05
FO105873	PTI0295-04	Soil	09/07/10 00:00	09/09/10 16:05

TestAmerica Portland



Darrell Auvil, 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**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor Inline**

Project Number:

30001516

Project Manager:

Jennifer Shackelford

Report Created:

09/24/10 14:31

**Organic Carbon, Total (TOC)**

TestAmerica Connecticut

Analyte	Method	Result	MDL *	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>PTI0295-01 (FO105870)</b>				<b>Soil</b>			<b>Sampled: 09/07/10 11:45</b>			
Total Organic Carbon - Duplicates	9060	<b>8710</b>	30.0	100	mg/Kg	1x	42822	09/16/10 20:44	09/16/10 20:44	
<b>PTI0295-02 (FO105871)</b>				<b>Soil</b>			<b>Sampled: 09/07/10 12:14</b>			
Total Organic Carbon - Duplicates	9060	<b>28600</b>	30.0	100	mg/Kg	1x	42822	09/16/10 20:58	09/16/10 20:58	
<b>PTI0295-03 (FO105872)</b>				<b>Soil</b>			<b>Sampled: 09/07/10 10:01</b>			
Total Organic Carbon - Duplicates	9060	<b>20100</b>	30.0	100	mg/Kg	1x	42822	09/17/10 09:18	09/17/10 09:18	
<b>PTI0295-04 (FO105873)</b>				<b>Soil</b>			<b>Sampled: 09/07/10 00:00</b>			
Total Organic Carbon - Duplicates	9060	<b>7580</b>	30.0	100	mg/Kg	1x	42822	09/16/10 21:58	09/16/10 21:58	

TestAmerica Portland



Darrell Auvil, Project Manager

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**City of Portland Water Pollution Laboratory**

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor Inline**

Project Number:

30001516

Project Manager:

Jennifer Shackelford

Report Created:

09/24/10 14:31

**Organic Carbon, Total (TOC) - Laboratory Quality Control Results**


TestAmerica Connecticut

**QC Batch: 42822**

**Soil Preparation Method: NA**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Matrix Spike Dup (133083D)</b>			QC Source: PTI0295-03					Extracted: 09/16/10 21:51						
Total Organic Carbon - Duplicates	9060	137000	30.0	100	mg/Kg	1x	20100	124000	95%	(75-125)	0.1%	(20)	09/16/10 21:51	
<b>Matrix Spike (133083S)</b>			QC Source: PTI0295-03					Extracted: 09/16/10 21:44						
Total Organic Carbon - Duplicates	9060	137200	30.0	100	mg/Kg	1x	20100	122000	96%	(75-125)	--	--	09/16/10 21:44	
<b>LCS (220-42822-6)</b>			QC Source:					Extracted: 09/16/10 18:25						
Total Organic Carbon - Duplicates	9060	5134	30.0	100	mg/Kg	1x	--	4110	125%	(28-172)	--	--	09/16/10 18:25	
<b>Blank (220-42822-7)</b>			QC Source:					Extracted: 09/16/10 18:32						
Total Organic Carbon - Duplicates	9060	ND	30.0	100	mg/Kg	1x	--	--	--	--	--	--	09/16/10 18:32	

TestAmerica Portland



Darrell Auvil, Project Manager

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## City of Portland Water Pollution Laboratory

6543 N. Burlington Ave.  
Portland, OR 97203

Project Name:

**Portland Harbor Inline**

Project Number:

30001516

Project Manager:

Jennifer Shackelford

Report Created:

09/24/10 14:31

## 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.
- 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 - 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



Darrell Auvil, Project Manager

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## CERTIFICATION SUMMARY

### Subcontracted Laboratories

Pace Analytical Services, Inc - Minneapolis

1700 Elm Street Suite 200 - Minneapolis, MN 55414

Analysis Performed: 1668 PCB 209 Congeners - SUB

Samples: PTI0295-01, PTI0295-02, PTI0295-03, PTI0295-04

TestAmerica Connecticut


128 Long Hill Cross Road - Shelton, CT 06484

Method Performed: 9060

Samples: PTI0295-01, PTI0295-02, PTI0295-03, PTI0295-04

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TestAmerica Portland



Darrell Auvil, Project Manager

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## 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 #: 1710295

[illegible]

TestAmerica Portland  
Sample Receiving Checklist

Work Order #: PT10295 Date/Time Received: 9/9/10 1605  
Client Name and Project: City of Portland

Time Zone:  
☐ EDT/EST ☐ CDT/CST ☐ MDT/MST ☒ PDT/PST ☐ AK ☐ OTHER

Unpacking Checks:

Cooler #(s): 1  
Temperatures: 0.9  
Digi #1 ☐ Digi #2 ☐ IR Gun ☒ Plastic ☐ Glass

Temperature out of Range:

☐ Not enough or No Ice  
☐ Ice Melted  
☐ W/in 4 Hrs of collection  
☐ Other: jm

N/A Yes No

- ☒ ☐ ☐ 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 #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

Work Order #: PT10295

Login Checks:

Initials: dm

N/A Yes No

- ☒ ☒ ☐ 22. Sufficient volume provided for all analysis? If no, document on NOD & contact PM.
- ☒ ☐ ☐ 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:

Initials: dm

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?
- ☐ ☒ ☐ 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).

**Report Prepared for:**

Darrell Auvil  
Test America  
9405 SW Nimbus Avenue  
Beaverton OR 97008

**REPORT OF  
LABORATORY  
ANALYSIS  
FOR PCBs**

**Report Prepared Date:**

October 12, 2010

**Report Information:**

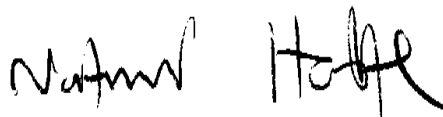
**Pace Project #: 10138002**  
**Sample Receipt Date: 09/14/2010**  
**Client Project #: Portland Harbor InlineB**  
**Client Sub PO #: N/A**  
**State Cert #: MN200001-005**

**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 Nate Habte, your Pace Project Manager.

**This report has been reviewed by:**



October 12, 2010

Nate Habte, Project Manager  
(612) 607-6407  
(612) 607-6444 (fax)  
natnael.habte@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.

## **DISCUSSION**

This report presents the results from the analyses performed on four 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 dry sample extracted.

The isotopically-labeled PCB internal standards in the sample extracts were recovered at 41-129%. With three exceptions, flagged "R" on the QC results tables, the labeled internal standard recoveries obtained for the sample extracts were within the target ranges specified in the method. Since the quantification of the native PCB congeners was based on internal standard and isotope dilution methodology, the data were automatically corrected for variation in recovery and accurate values were obtained.

In some cases, interfering substances impacted the determination of PCB congeners. The affected values were flagged "I" where incorrect isotope ratios were obtained.

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 be free of PCB congeners at the reporting limits. This indicates that the sample preparation procedures did not significantly contribute to the levels determined for the field samples.

Laboratory spike samples were also prepared with each sample batch using a reference matrix that had been fortified with native standards. The results show that the spiked native compounds were recovered at 88-136% with relative percent differences of 0.0-13.2%. These results indicate high levels of accuracy and precision for these analyses. Matrix spikes were not prepared with the samples.

## **REPORT OF LABORATORY ANALYSIS**

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## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN000642010A
Arkansas	88-0680	New Jersey (NE	MN002
California	01155CA	New Mexico	MN00064
Colorado	MN00064	New York (NEL	11647
Connecticut	PH-0256	North Carolina	27700
EPA Region 5	WD-15J	North Dakota	R-036
EPA Region 8	8TMS-Q	Ohio	4150
Florida (NELAP	E87605	Ohio VAP	CL101
Georgia (DNR)	959	Oklahoma	D9922
Guam	09-019r	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN200001-005
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennessee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	LA0900016	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q
Mississippi	MN00064		

## REPORT OF LABORATORY ANALYSIS

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Report No.....10138002

## **Appendix A**

### Sample Management

1136

SUBCONTRACT ORDER  
TestAmerica Portland

10138002

PTI0295

SENDING LABORATORY:

TestAmerica Portland  
9405 SW Nimbus Ave.  
Beaverton, OR 97008  
Phone: (503) 906-9200  
Fax: (503) 906-9210  
Project Manager: Darrell Auvil

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: °C Ice: Y / N

needs Excel EDD

Standard TAT is requested unless specific due date is requested. => Due Date: 3 weeks Initials: JA

Analysis	Units	Expires	Comments
----------	-------	---------	----------

Sample ID: PTI0295-01 (FO105870 - Soil)

Sampled: 09/07/10 11:45

10138002001

1668 Coplanar PCBs - SUB ug/l

03/06/11 11:45

\*\*\*209 Congeners\*\*\* to Pace

Containers Supplied:

4 oz. jar Amber (A)

Sample ID: PTI0295-02 (FO105871 - Soil)

Sampled: 09/07/10 12:14

002

1668 Coplanar PCBs - SUB ug/l

03/06/11 12:14

\*\*\*209 Congeners\*\*\* to Pace

Containers Supplied:

4 oz. jar Amber (A)

Sample ID: PTI0295-03 (FO105872 - Soil)

Sampled: 09/07/10 10:01

003

1668 Coplanar PCBs - SUB ug/l

03/06/11 10:01

\*\*\*209 Congeners\*\*\* to Pace

Containers Supplied:

4 oz. jar Amber (A)

Sample ID: PTI0295-04 (FO105873 - Soil)

Sampled: 09/07/10 00:00

004

1668 Coplanar PCBs - SUB ug/l

03/06/11 00:00

\*\*\*209 Congeners\*\*\* to Pace

Containers Supplied:

4 oz. jar Amber (A)

Janina Yn  
Released By

9/13/10  
Date/Time

Micki Pace MN  
Received By

9/14/10 1005 T=4.4  
Date/Time

## Sample Condition Upon Receipt

Pace Analytical

Client Name: Test AmericaProject # 10138002Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace OtherTracking #: 417075261642Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals Intact: ☒ yes ☐ no

Optional:
Proj. Due Date
Proj. Name

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other Temp Blank: Yes ☒ NoThermometer Used 80344042 or 179425Type of Ice: Wet Blue None☐ Samples on ice, cooling process has begunCooler Temperature 4.4

Biological Tissue Is Frozen: Yes No

Date and Initials of person examining contents: 9/14/10 MSB

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
		Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

## Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: Darrell Auvit Date/Time: 9/15/10 @ 11:00

Comments/ Resolution:

1668-209, despite note on COC  
4 WK stat TAT is fine

Project Manager Review:

N/A

Date:

9/15/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina Office, Inc.  
 F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Report No.....10138002\_1668A

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## 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
- I = 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

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Report No.....10138002

Report No.....10138002\_1668A

Page 7 of 56

## **Appendix B**

### Sample Analysis Summary

**Method 1668A Polychlorobiphenyl Sample Analysis Results**

Client - Test America

Client's Sample ID	PTI0295-01 (FO105870)		
Lab Sample ID	10138002001		
Filename	P101001A_06		
Injected By	BAL		
Total Amount Extracted	12.4 g	Matrix	Solid
% Moisture	18.4	Dilution	5
Dry Weight Extracted	10.1 g	Collected	09/07/2010 11:45
ICAL ID	P101001A02	Received	09/14/2010 10:05
CCal Filename(s)	P101001A_01	Extracted	09/29/2010 14:40
Method Blank ID	BLANK-26482	Analyzed	10/01/2010 08:46

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.120	3.60	2.0	1.19	60
13C-4-MoCB	3	12.547	3.48	2.0	1.38	69
13C-2,2'-DiCB	4	12.882	1.61	2.0	1.52	76
13C-4,4'-DiCB	15	21.077	1.60	2.0	1.41	71
13C-2,2',6-TrCB	19	17.363	0.93	2.0	1.48	74
13C-3,4,4'-TrCB	37	29.391	1.06	2.0	1.62	81
13C-2,2',6,6'-TeCB	54	21.377	0.80	2.0	1.62	81
13C-3,4,4',5-TeCB	81	36.685	0.83	2.0	1.47	73
13C-3,3',4,4'-TeCB	77	37.272	0.80	2.0	1.50	75
13C-2,2',4,6,6'-PeCB	104	27.933	1.67	2.0	1.71	86
13C-2,3,3',4,4'-PeCB	105	40.877	1.60	2.0	1.39	69
13C-2,3,4,4',5-PeCB	114	40.207	1.60	2.0	1.37	69
13C-2,3',4,4',5-PeCB	118	39.636	1.63	2.0	1.38	69
13C-2,3',4,4',5'-PeCB	123	39.301	1.59	2.0	1.37	69
13C-3,3',4,4',5-PeCB	126	44.046	1.41	2.0	1.44	72
13C-2,2',4,4',6,6'-HxCB	155	34.137	1.28	2.0	2.07	104
13C-HxCB (156/157)	156/157	47.065	1.25	4.0	2.50	62
13C-2,3',4,4',5,5'-HxCB	167	45.891	1.22	2.0	1.42	71
13C-3,3',4,4',5,5'-HxCB	169	50.418	1.26	2.0	1.21	61
13C-2,2',3,4',5,6,6'-HpCB	188	40.106	1.04	2.0	2.59	129
13C-2,3,3',4,4',5,5'-HpCB	189	52.981	1.01	2.0	1.50	75
13C-2,2',3,3',5,5',6,6'-OxCB	202	45.555	0.92	2.0	2.29	114
13C-2,3,3',4,4',5,5',6-OxCB	205	55.955	0.87	2.0	1.75	88
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.326	0.83	2.0	1.90	95
13C-2,2',3,3',4,4',5,5',6-NoCB	208	52.356	0.78	2.0	1.67	84
13C--DeCB	209	60.805	0.73	2.0	1.79	89
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.780	1.03	2.0	1.77	89
13C-2,3,3',5,5'-PeCB	111	37.272	1.58	2.0	1.71	86
13C-2,2',3,3',5,5',6-HpCB	178	43.241	1.06	2.0	2.00	100
Recovery Standards						
13C-2,5-DiCB	9	15.805	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.893	0.82	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.422	1.59	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.806	1.24	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.352	0.88	2.0	NA	NA

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Minneapolis, MN 55414

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Fax: 612- 607-6444

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-01 (FO105870)  
Lab Sample ID 10138002001  
Filename P101001A\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.132	3.14	47.7	---	24.8
2		---	---	ND	---	24.8
3		12.571	2.99	34.9	---	24.8
4		12.906	1.48	634	---	24.8
5		16.800	1.35	29.6	---	24.8
6		16.392	1.50	279	---	24.8
7		16.057	1.42	53.3	---	24.8
8		16.992	1.54	1340	---	24.8
9		15.841	1.47	94.4	---	24.8
10		13.182	1.40	43.3	---	24.8
11		---	---	ND	---	149
12	12/13	20.670	1.35	151	---	49.6
13	12/13	20.670	1.35	(151)	---	49.6
14		---	---	ND	---	24.8
15		21.101	1.53	1180	---	24.8
16		20.981	1.04	1250	---	24.8
17		20.418	1.05	1350	---	24.8
18	18/30	19.879	1.03	2750	---	49.6
19		17.387	1.06	343	---	24.8
20	20/28	24.797	1.03	4850	---	49.6
21	21/33	25.065	1.03	2610	---	49.6
22		25.535	1.04	1720	---	24.8
23		---	---	ND	---	24.8
24		20.825	1.04	75.6	---	24.8
25		24.076	1.03	348	---	24.8
26	26/29	23.791	1.05	815	---	49.6
27		20.682	1.06	237	---	24.8
28	20/28	24.797	1.03	(4850)	---	49.6
29	26/29	23.791	1.05	(815)	---	49.6
30	18/30	19.879	1.03	(2750)	---	49.6
31		24.445	1.04	4190	---	24.8
32		21.662	1.02	1060	---	24.8
33	21/33	25.065	1.03	(2610)	---	49.6
34		---	---	ND	---	24.8
35		28.955	1.03	72.0	---	24.8
36		---	---	ND	---	24.8
37		29.425	1.04	1300	---	24.8
38		---	---	ND	---	24.8
39		27.799	1.05	27.1	---	24.8
40	40/41/71	29.190	0.77	2310	---	149
41	40/41/71	29.190	0.77	(2310)	---	149
42		28.620	0.78	1070	---	49.6
43	43/73	27.161	0.79	136	---	99.1
44	44/47/65	28.033	0.78	4380	---	149
45	45/51	24.864	0.78	763	---	99.1
46		25.233	0.77	256	---	49.6
47	44/47/65	28.033	0.78	(4380)	---	149
48		27.782	0.79	868	---	49.6

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-01 (FO105870)  
Lab Sample ID 10138002001  
Filename P101001A\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.480	0.78	2520	---	99.1
50	50/53	24.076	0.79	549	---	99.1
51	45/51	24.864	0.78	(763)	---	99.1
52		26.927	0.78	7210	---	49.6
53	50/53	24.076	0.79	(549)	---	99.1
54		---	---	ND	---	49.6
55		32.795	0.68	69.5	---	49.6
56		33.332	0.79	1230	---	49.6
57		---	---	ND	---	49.6
58		---	---	ND	---	49.6
59	59/62/75	28.419	0.78	338	---	149
60		33.567	0.79	699	---	49.6
61	61/70/74/76	32.259	0.78	6430	---	198
62	59/62/75	28.419	0.78	(338)	---	149
63		31.907	0.73	132	---	49.6
64		29.442	0.78	1870	---	49.6
65	44/47/65	28.033	0.78	(4380)	---	149
66		32.611	0.79	2760	---	49.6
67		31.605	0.78	103	---	49.6
68		---	---	ND	---	49.6
69	49/69	27.480	0.78	(2520)	---	99.1
70	61/70/74/76	32.259	0.78	(6430)	---	198
71	40/41/71	29.190	0.77	(2310)	---	149
72		---	---	ND	---	49.6
73	43/73	27.161	0.79	(136)	---	99.1
74	61/70/74/76	32.259	0.78	(6430)	---	198
75	59/62/75	28.419	0.78	(338)	---	149
76	61/70/74/76	32.259	0.78	(6430)	---	198
77		37.306	0.78	206	---	49.6
78		---	---	ND	---	49.6
79		---	---	ND	---	49.6
80		---	---	ND	---	49.6
81		---	---	ND	---	49.6
82		36.870	1.56	736	---	49.6
83		34.925	1.55	320	---	49.6
84		32.460	1.58	2010	---	49.6
85	85/116/117	36.367	1.56	847	---	149
86	86/87/97/108/119/125	35.696	1.55	4340	---	297
87	86/87/97/108/119/125	35.696	1.55	(4340)	---	297
88	88/91	32.208	1.55	854	---	99.1
89		32.963	1.46	71.6	---	49.6
90	90/101/113	34.455	1.56	5860	---	149
91	88/91	32.208	1.55	(854)	---	99.1
92		33.835	1.58	1080	---	49.6
93	93/98/100/102	31.655	1.54	240	---	198
94		---	---	ND	---	49.6
95		31.286	1.56	5590	---	49.6
96		---	---	ND	---	49.6

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-01 (FO105870)  
Lab Sample ID 10138002001  
Filename P101001A\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.696	1.55	(4340)	---	297
98	93/98/100/102	31.655	1.54	(240)	---	198
99		35.059	1.55	2190	---	49.6
100	93/98/100/102	31.655	1.54	(240)	---	198
101	90/101/113	34.455	1.56	(5860)	---	149
102	93/98/100/102	31.655	1.54	(240)	---	198
103		---	---	ND	---	49.6
104		---	---	ND	---	49.6
105		40.894	1.59	1640	---	49.6
106		---	---	ND	---	49.6
107	107/124	38.966	1.58	180	---	99.1
108	86/87/97/108/119/125	35.696	1.55	(4340)	---	297
109		39.201	1.62	260	---	49.6
110	110/115	36.535	1.56	6390	---	99.1
111		---	---	ND	---	49.6
112		---	---	ND	---	49.6
113	90/101/113	34.455	1.56	(5860)	---	149
114		40.207	1.53	114	---	49.6
115	110/115	36.535	1.56	(6390)	---	99.1
116	85/116/117	36.367	1.56	(847)	---	149
117	85/116/117	36.367	1.56	(847)	---	149
118		39.670	1.58	4110	---	49.6
119	86/87/97/108/119/125	35.696	1.55	(4340)	---	297
120		---	---	ND	---	49.6
121		---	---	ND	---	49.6
122		40.005	1.65	57.7	---	49.6
123		39.318	1.70	93.1	---	49.6
124	107/124	38.966	1.58	(180)	---	99.1
125	86/87/97/108/119/125	35.696	1.55	(4340)	---	297
126		---	---	ND	---	49.6
127		---	---	ND	---	49.6
128	128/166	44.130	1.24	523	---	99.1
129	129/138/163	42.839	1.25	3500	---	149
130		42.168	1.25	235	---	49.6
131		39.268	1.29	80.8	---	49.6
132		39.737	1.26	1410	---	49.6
133		---	---	ND	---	49.6
134	134/143	38.647	1.26	281	---	99.1
135	135/151	37.507	1.25	1110	---	99.1
136		34.941	1.25	584	---	49.6
137		42.403	1.21	210	---	49.6
138	129/138/163	42.839	1.25	(3500)	---	149
139	139/140	---	---	ND	---	99.1
140	139/140	---	---	ND	---	99.1
141		41.766	1.25	586	---	49.6
142		---	---	ND	---	49.6
143	134/143	38.647	1.26	(281)	---	99.1
144		38.077	1.28	196	---	49.6

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-01 (FO105870)  
Lab Sample ID 10138002001  
Filename P101001A\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.6
146		40.928	1.26	400	---	49.6
147	147/149	38.429	1.25	2690	---	99.1
148		---	---	ND	---	49.6
149	147/149	38.429	1.25	(2690)	---	99.1
150		---	---	ND	---	49.6
151	135/151	37.507	1.25	(1110)	---	99.1
152		---	---	ND	---	49.6
153	153/168	41.565	1.25	2340	---	99.1
154		---	---	ND	---	49.6
155		---	---	ND	---	49.6
156	156/157	47.081	1.25	364	---	99.1
157	156/157	47.081	1.25	(364)	---	99.1
158		43.241	1.24	348	---	49.6
159		---	---	ND	---	49.6
160		---	---	ND	---	49.6
161		---	---	ND	---	49.6
162		---	---	ND	---	49.6
163	129/138/163	42.839	1.25	(3500)	---	149
164		42.520	1.28	215	---	49.6
165		---	---	ND	---	49.6
166	128/166	44.130	1.24	(523)	---	99.1
167		45.924	1.23	108	---	49.6
168	153/168	41.565	1.25	(2340)	---	99.1
169		---	---	ND	---	49.6
170		49.764	0.98	226	---	49.6
171	171/173	46.142	1.15	100	---	99.1
172		---	---	ND	---	49.6
173	171/173	46.142	1.15	(100)	---	99.1
174		45.052	1.03	269	---	49.6
175		---	---	ND	---	49.6
176		41.380	1.03	53.7	---	49.6
177		45.505	1.05	162	---	49.6
178		43.275	1.11	65.5	---	49.6
179		40.475	1.03	162	---	49.6
180	180/193	48.473	1.04	477	---	99.1
181		---	---	ND	---	49.6
182		---	---	ND	---	49.6
183	183/185	44.801	1.02	236	---	99.1
184		---	---	ND	---	49.6
185	183/185	44.801	1.02	(236)	---	99.1
186		---	---	ND	---	49.6
187		44.180	1.04	356	---	49.6
188		---	---	ND	---	49.6
189		---	---	ND	---	49.6
190		---	---	ND	---	49.6
191		---	---	ND	---	49.6
192		---	---	ND	---	49.6

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-01 (FO105870)  
Lab Sample ID 10138002001  
Filename P101001A\_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.473	1.04	(477)	---	99.1
194		---	---	ND	---	74.4
195		---	---	ND	---	74.4
196		---	---	ND	---	74.4
197	197/200	---	---	ND	---	149
198	198/199	---	---	ND	---	149
199	198/199	---	---	ND	---	149
200	197/200	---	---	ND	---	149
201		---	---	ND	---	74.4
202		---	---	ND	---	74.4
203		---	---	ND	---	74.4
204		---	---	ND	---	74.4
205		---	---	ND	---	74.4
206		---	---	ND	---	74.4
207		---	---	ND	---	74.4
208		---	---	ND	---	74.4
209		---	---	ND	---	74.4

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-01 (FO105870)  
Lab Sample ID 10138002001  
Filename P101001A\_06

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	82.6
Total Dichloro Biphenyls	3800
Total Trichloro Biphenyls	23000
Total Tetrachloro Biphenyls	33900
Total Pentachloro Biphenyls	37000
Total Hexachloro Biphenyls	15200
Total Heptachloro Biphenyls	2110
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	115000

ND = Not Detected

Results reported on a dry weight basis

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0295-02 (FO105871)		
Lab Sample ID	10138002002		
Filename	P101001A_07		
Injected By	BAL		
Total Amount Extracted	13.1 g	Matrix	Solid
% Moisture	19.0	Dilution	5
Dry Weight Extracted	10.6 g	Collected	09/07/2010 12:14
ICAL ID	P101001A02	Received	09/14/2010 10:05
CCal Filename(s)	P101001A_01	Extracted	09/29/2010 14:40
Method Blank ID	BLANK-26482	Analyzed	10/01/2010 09:51

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.061	3.15	2.0	1.28	64
13C-4-MoCB	3	12.500	3.01	2.0	1.38	69
13C-2,2'-DiCB	4	12.835	1.49	2.0	1.54	77
13C-4,4'-DiCB	15	21.054	1.81	2.0	1.25	63
13C-2,2',6-TrCB	19	17.316	1.00	2.0	1.28	64
13C-3,4,4'-TrCB	37	29.393	1.12	2.0	1.23	62
13C-2,2',6,6'-TeCB	54	21.360	0.79	2.0	1.24	62
13C-3,4,4',5-TeCB	81	36.671	0.81	2.0	1.03	52
13C-3,3',4,4'-TeCB	77	37.258	0.82	2.0	1.01	51
13C-2,2',4,6,6'-PeCB	104	27.917	1.54	2.0	1.38	69
13C-2,3,3',4,4'-PeCB	105	40.846	1.59	2.0	0.976	49
13C-2,3,4,4',5-PeCB	114	40.175	1.61	2.0	0.983	49
13C-2,3',4,4',5-PeCB	118	39.639	1.59	2.0	0.981	49
13C-2,3',4,4',5'-PeCB	123	39.287	1.55	2.0	0.977	49
13C-3,3',4,4',5-PeCB	126	44.032	1.58	2.0	0.969	48
13C-2,2',4,4',6,6'-HxCB	155	34.122	1.27	2.0	1.32	66
13C-HxCB (156/157)	156/157	47.067	1.23	4.0	1.74	43
13C-2,3',4,4',5,5'-HxCB	167	45.877	1.24	2.0	0.889	44
13C-3,3',4,4',5,5'-HxCB	169	50.404	1.15	2.0	0.813	41
13C-2,2',3,4',5,6,6'-HpCB	188	40.092	1.04	2.0	1.67	83
13C-2,3,3',4,4',5,5'-HpCB	189	52.984	1.00	2.0	1.02	51
13C-2,2',3,3',5,5',6'-OxCB	202	45.558	0.91	2.0	1.53	76
13C-2,3,3',4,4',5,5',6-OxCB	205	55.980	0.88	2.0	1.07	54
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.351	0.86	2.0	1.17	58
13C-2,2',3,3',4,4',5,5',6-NoCB	208	52.359	0.83	2.0	1.14	57
13C--DeCB	209	60.765	0.73	2.0	1.04	52
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.748	1.05	2.0	1.69	85
13C-2,3,3',5,5'-PeCB	111	37.258	1.57	2.0	1.74	87
13C-2,2',3,3',5,5',6-HpCB	178	43.227	1.04	2.0	1.91	95
Recovery Standards						
13C-2,5-DiCB	9	15.771	1.61	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.861	0.81	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.407	1.56	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.791	1.29	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.355	0.88	2.0	NA	NA

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Minneapolis, MN 55414

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-02 (FO105871)  
Lab Sample ID 10138002002  
Filename P101001A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	23.5
2		12.260	2.76	24.4	---	23.5
3		---	---	ND	---	23.5
4		12.883	1.37	78.8	---	23.5
5		---	---	ND	---	23.5
6		16.370	1.36	44.6	---	23.5
7		---	---	ND	---	23.5
8		16.969	1.46	173	---	23.5
9		---	---	ND	---	23.5
10		---	---	ND	---	23.5
11		20.263	1.40	168	---	141
12	12/13	---	---	ND	---	47.0
13	12/13	---	---	ND	---	47.0
14		---	---	ND	---	23.5
15		21.066	1.52	130	---	23.5
16		20.958	1.06	158	---	23.5
17		20.371	1.06	178	---	23.5
18	18/30	19.844	1.06	380	---	47.0
19		17.340	1.04	54.0	---	23.5
20	20/28	24.781	1.03	697	---	47.0
21	21/33	25.050	1.04	350	---	47.0
22		25.502	1.04	241	---	23.5
23		---	---	ND	---	23.5
24		---	---	ND	---	23.5
25		24.044	1.00	46.2	---	23.5
26	26/29	23.775	1.02	106	---	47.0
27		20.670	1.03	34.5	---	23.5
28	20/28	24.781	1.03	(697)	---	47.0
29	26/29	23.775	1.02	(106)	---	47.0
30	18/30	19.844	1.06	(380)	---	47.0
31		24.429	1.03	562	---	23.5
32		21.629	1.06	154	---	23.5
33	21/33	25.050	1.04	(350)	---	47.0
34		---	---	ND	---	23.5
35		28.940	1.12	23.9	---	23.5
36		---	---	ND	---	23.5
37		29.410	1.05	223	---	23.5
38		---	---	ND	---	23.5
39		---	---	ND	---	23.5
40	40/41/71	29.158	0.79	528	---	141
41	40/41/71	29.158	0.79	(528)	---	141
42		28.605	0.75	232	---	47.0
43	43/73	---	---	ND	---	94.1
44	44/47/65	28.018	0.78	856	---	141
45	45/51	24.832	0.76	163	---	94.1
46		25.217	0.70	57.6	---	47.0
47	44/47/65	28.018	0.78	(856)	---	141
48		27.766	0.79	171	---	47.0

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Fax: 612- 607-6444

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-02 (FO105871)  
Lab Sample ID 10138002002  
Filename P101001A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.464	0.79	502	---	94.1
50	50/53	24.060	0.80	139	---	94.1
51	45/51	24.832	0.76	(163)	---	94.1
52		26.894	0.79	2850	---	47.0
53	50/53	24.060	0.80	(139)	---	94.1
54		---	---	ND	---	47.0
55		---	---	ND	---	47.0
56		33.317	0.75	347	---	47.0
57		---	---	ND	---	47.0
58		---	---	ND	---	47.0
59	59/62/75	---	---	ND	---	141
60		33.552	0.78	156	---	47.0
61	61/70/74/76	32.244	0.77	1430	---	188
62	59/62/75	---	---	ND	---	141
63		---	---	ND	---	47.0
64		29.426	0.78	426	---	47.0
65	44/47/65	28.018	0.78	(856)	---	141
66		32.596	0.78	684	---	47.0
67		---	---	ND	---	47.0
68		---	---	ND	---	47.0
69	49/69	27.464	0.79	(502)	---	94.1
70	61/70/74/76	32.244	0.77	(1430)	---	188
71	40/41/71	29.158	0.79	(528)	---	141
72		---	---	ND	---	47.0
73	43/73	---	---	ND	---	94.1
74	61/70/74/76	32.244	0.77	(1430)	---	188
75	59/62/75	---	---	ND	---	141
76	61/70/74/76	32.244	0.77	(1430)	---	188
77		37.274	0.76	366	---	47.0
78		---	---	ND	---	47.0
79		35.581	0.81	110	---	47.0
80		---	---	ND	---	47.0
81		---	---	ND	---	47.0
82		36.838	1.64	379	---	47.0
83		34.910	1.53	913	---	47.0
84		32.428	1.55	2560	---	47.0
85	85/116/117	36.335	1.50	584	---	141
86	86/87/97/108/119/125	35.681	1.57	11200	---	282
87	86/87/97/108/119/125	35.681	1.57	(11200)	---	282
88	88/91	32.193	1.57	688	---	94.1
89		32.931	1.47	104	---	47.0
90	90/101/113	34.440	1.56	58300	---	141
91	88/91	32.193	1.57	(688)	---	94.1
92		33.803	1.57	7350	---	47.0
93	93/98/100/102	31.640	1.59	278	---	188
94		---	---	ND	---	47.0
95		31.271	1.56	42300	---	47.0
96		28.353	1.63	56.3	---	47.0

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTI0295-02 (FO105871)  
Lab Sample ID 10138002002  
Filename P101001A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.681	1.57	(11200)	---	282
98	93/98/100/102	31.640	1.59	(278)	---	188
99		35.044	1.56	1940	---	47.0
100	93/98/100/102	31.640	1.59	(278)	---	188
101	90/101/113	34.440	1.56	(58300)	---	141
102	93/98/100/102	31.640	1.59	(278)	---	188
103		30.533	1.53	101	---	47.0
104		---	---	ND	---	47.0
105		40.896	1.55	3050	---	47.0
106		---	---	ND	---	47.0
107	107/124	38.951	1.53	516	---	94.1
108	86/87/97/108/119/125	35.681	1.57	(11200)	---	282
109		39.203	1.54	1050	---	47.0
110	110/115	36.520	1.56	37900	---	94.1
111		---	---	ND	---	47.0
112		---	---	ND	---	47.0
113	90/101/113	34.440	1.56	(58300)	---	141
114		40.242	1.42	189	---	47.0
115	110/115	36.520	1.56	(37900)	---	94.1
116	85/116/117	36.335	1.50	(584)	---	141
117	85/116/117	36.335	1.50	(584)	---	141
118		39.672	1.56	18000	---	47.0
119	86/87/97/108/119/125	35.681	1.57	(11200)	---	282
120		37.744	1.58	162	---	47.0
121		---	---	ND	---	47.0
122		40.008	1.47	82.1	---	47.0
123		39.286	1.56	184	---	47.0
124	107/124	38.951	1.53	(516)	---	94.1
125	86/87/97/108/119/125	35.681	1.57	(11200)	---	282
126		44.049	1.99 I	---	588	47.0
127		42.389	1.55	56.5	---	47.0
128	128/166	44.133	1.24	19800	---	94.1
129	129/138/163	42.825	1.25	284000	---	141
130		42.171	1.25	10100	---	47.0
131		39.253	1.25	1660	---	47.0
132		39.739	1.25	72800	---	47.0
133		40.259	1.25	2590	---	47.0
134	134/143	38.633	1.25	9630	---	94.1
135	135/151	37.459	1.24	96400	---	94.1
136		34.927	1.26	30300	---	47.0
137		42.372	1.22	1070	---	47.0
138	129/138/163	42.825	1.25	(284000)	---	141
139	139/140	39.035	1.27	862	---	94.1
140	139/140	39.035	1.27	(862)	---	94.1
141		41.752	1.25	69200	---	47.0
142		---	---	ND	---	47.0
143	134/143	38.633	1.25	(9630)	---	94.1
144		38.046	1.24	15900	---	47.0

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-02 (FO105871)  
Lab Sample ID 10138002002  
Filename P101001A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	47.0
146		40.913	1.25	35000	---	47.0
147	147/149	38.431	1.25	215000	---	94.1
148		36.838	1.20	84.1	---	47.0
149	147/149	38.431	1.25	(215000)	---	94.1
150		34.541	1.24	181	---	47.0
151	135/151	37.459	1.24	(96400)	---	94.1
152		---	---	ND	---	47.0
153	153/168	41.550	1.25	269000	---	94.1
154		37.727	1.25	1030	---	47.0
155		---	---	ND	---	47.0
156	156/157	47.067	1.26	17200	---	94.1
157	156/157	47.067	1.26	(17200)	---	94.1
158		43.227	1.25	23500	---	47.0
159		45.122	0.74 I	---	542	47.0
160		---	---	ND	---	47.0
161		---	---	ND	---	47.0
162		45.374	0.68 I	---	173	47.0
163	129/138/163	42.825	1.25	(284000)	---	141
164		42.506	1.25	17700	---	47.0
165		---	---	ND	---	47.0
166	128/166	44.133	1.24	(19800)	---	94.1
167		45.910	1.25	8220	---	47.0
168	153/168	41.550	1.25	(269000)	---	94.1
169		50.438	1.40	486	---	47.0
170		49.750	1.04	102000	---	47.0
171	171/173	46.128	1.05	35700	---	94.1
172		47.788	1.04	17000	---	47.0
173	171/173	46.128	1.05	(35700)	---	94.1
174		45.038	1.05	101000	---	47.0
175		43.898	1.04	4910	---	47.0
176		41.366	1.06	14500	---	47.0
177		45.491	1.04	61000	---	47.0
178		43.244	1.05	19200	---	47.0
179		40.477	1.04	40400	---	47.0
180	180/193	48.459	1.03	212000	---	94.1
181		45.910	1.01	439	---	47.0
182		---	---	ND	---	47.0
183	183/185	44.787	1.03	78600	---	94.1
184		40.997	1.09	78.0	---	47.0
185	183/185	44.787	1.03	(78600)	---	94.1
186		---	---	ND	---	47.0
187		44.166	1.04	108000	---	47.0
188		40.125	1.01	96.5	---	47.0
189		52.984	1.04	4210	---	47.0
190		50.304	1.05	17400	---	47.0
191		48.828	1.05	4340	---	47.0
192		---	---	ND	---	47.0

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTI0295-02 (FO105871)  
Lab Sample ID 10138002002  
Filename P101001A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.459	1.03	(212000)	---	94.1
194		55.377	0.89	28000	---	70.6
195		52.682	0.89	13400	---	70.6
196		51.092	0.89	18500	---	70.6
197	197/200	47.554	0.88	5940	---	141
198	198/199	50.438	0.90	28600	---	141
199	198/199	50.438	0.90	(28600)	---	141
200	197/200	47.554	0.88	(5940)	---	141
201		46.514	0.89	4510	---	70.6
202		45.575	0.89	4160	---	70.6
203		51.310	0.90	17800	---	70.6
204		---	---	ND	---	70.6
205		56.002	0.89	1910	---	70.6
206		58.351	0.78	4290	---	70.6
207		53.372	0.78	624	---	70.6
208		52.402	0.79	620	---	70.6
209		60.830	0.71	116	---	70.6

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTI0295-02 (FO105871)  
Lab Sample ID 10138002002  
Filename P101001A\_07

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	24.4
Total Dichloro Biphenyls	594
Total Trichloro Biphenyls	3210
Total Tetrachloro Biphenyls	9020
Total Pentachloro Biphenyls	188000
Total Hexachloro Biphenyls	1200000
Total Heptachloro Biphenyls	821000
Total Octachloro Biphenyls	123000
Total Nonachloro Biphenyls	5530
Decachloro Biphenyls	116
Total PCBs	2350000

ND = Not Detected

Results reported on a dry weight basis

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0295-03 (FO105872)		
Lab Sample ID	10138002003		
Filename	P101009A_07		
Injected By	BAL		
Total Amount Extracted	13.4 g	Matrix	Solid
% Moisture	23.5	Dilution	5
Dry Weight Extracted	10.3 g	Collected	09/07/2010 10:01
ICAL ID	P101009A02	Received	09/14/2010 10:05
CCal Filename(s)	P101009A_01	Extracted	10/06/2010 16:40
Method Blank ID	BLANK-26574	Analyzed	10/09/2010 07:28

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.378	2.97	2.0	1.32	66
13C-4-MoCB	3	11.720	2.02	2.0	1.38	78
13C-2,2'-DiCB	4	12.055	1.60	2.0	1.40	70
13C-4,4'-DiCB	15	20.118	1.60	2.0	1.61	81
13C-2,2',6-TrCB	19	16.428	1.15	2.0	1.37	68
13C-3,4,4'-TrCB	37	28.408	1.07	2.0	1.59	80
13C-2,2',6,6'-TeCB	54	20.427	0.81	2.0	1.50	75
13C-3,4,4',5-TeCB	81	35.668	0.77	2.0	1.42	71
13C-3,3',4,4'-TeCB	77	36.289	0.81	2.0	1.42	71
13C-2,2',4,6,6'-PeCB	104	26.949	1.54	2.0	1.58	79
13C-2,3,3',4,4'-PeCB	105	39.860	1.56	2.0	1.31	66
13C-2,3,4,4',5-PeCB	114	39.206	1.60	2.0	1.36	68
13C-2,3',4,4',5-PeCB	118	38.670	1.61	2.0	1.35	68
13C-2,3',4,4',5'-PeCB	123	38.334	1.57	2.0	1.34	67
13C-3,3',4,4',5-PeCB	126	43.063	1.55	2.0	1.30	65
13C-2,2',4,4',6,6'-HxCB	155	33.170	1.29	2.0	1.79	89
13C-HxCB (156/157)	156/157	46.081	1.26	4.0	2.67	67
13C-2,3',4,4',5,5'-HxCB	167	44.924	1.27	2.0	1.41	71
13C-3,3',4,4',5,5'-HxCB	169	49.434	1.24	2.0	1.33	66
13C-2,2',3,4',5,6,6'-HpCB	188	39.139	1.06	2.0	1.96	98
13C-2,3,3',4,4',5,5'-HpCB	189	51.959	1.03	2.0	1.56	78
13C-2,2',3,3',5,5',6,6'-OxCB	202	44.589	0.91	2.0	1.81	90
13C-2,3,3',4,4',5,5',6-OxCB	205	54.739	0.90	2.0	1.58	79
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.915	0.76	2.0	1.67	83
13C-2,2',3,3',4,4',5,5',6-NoCB	208	51.377	0.84	2.0	1.55	77
13C--DeCB	209	59.243	0.71	2.0	1.43	71
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.797	1.06	2.0	1.59	80
13C-2,3,3',5,5'-PeCB	111	36.305	1.59	2.0	1.47	73
13C-2,2',3,3',5,5',6-HpCB	178	42.275	1.03	2.0	1.61	80
Recovery Standards						
13C-2,5-DiCB	9	14.931	1.60	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.926	0.82	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.438	1.66	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.822	1.29	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	54.178	0.89	2.0	NA	NA

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

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-03 (FO105872)  
Lab Sample ID 10138002003  
Filename P101009A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		8.402	3.19	79.2	---	24.4
2		11.480	3.34	25.2	---	24.4
3		11.732	3.22	64.1	---	24.4
4		12.079	1.53	987	---	24.4
5		15.877	1.63	35.8	---	24.4
6		15.506	1.56	399	---	24.4
7		15.158	1.51	71.6	---	24.4
8		16.093	1.60	1910	---	24.4
9		14.931	1.67	111	---	24.4
10		12.343	1.47	62.4	---	24.4
11		19.351	1.54	401	---	146
12	12/13	19.723	1.57	310	---	48.7
13	12/13	19.723	1.57	(310)	---	48.7
14		---	---	ND	---	24.4
15		20.142	1.58	3330	---	24.4
16		20.034	1.07	3730	---	24.4
17		19.471	1.04	3450	---	24.4
18	18/30	18.944	1.05	6030	---	48.7
19		16.464	1.08	1010	---	24.4
20	20/28	23.831	1.03	12300	---	48.7
21	21/33	24.099	1.04	5660	---	48.7
22		24.552	1.04	4070	---	24.4
23		---	---	ND	---	24.4
24		---	---	ND	---	24.4
25		23.093	1.02	877	---	24.4
26	26/29	22.825	1.04	1960	---	48.7
27		19.747	1.12	945	---	24.4
28	20/28	23.831	1.03	(12300)	---	48.7
29	26/29	22.825	1.04	(1960)	---	48.7
30	18/30	18.944	1.05	(6030)	---	48.7
31		23.479	1.04	8900	---	24.4
32		20.712	1.04	3320	---	24.4
33	21/33	24.099	1.04	(5660)	---	48.7
34		22.271	1.14	34.4	---	24.4
35		27.972	1.01	233	---	24.4
36		---	---	ND	---	24.4
37		28.425	1.03	3310	---	24.4
38		---	---	ND	---	24.4
39		26.798	0.92	52.3	---	24.4
40	40/41/71	28.190	0.78	8110	---	146
41	40/41/71	28.190	0.78	(8110)	---	146
42		27.653	0.80	3880	---	48.7
43	43/73	26.195	0.79	423	---	97.4
44	44/47/65	27.050	0.79	13500	---	146
45	45/51	23.881	0.78	3160	---	97.4
46		24.250	0.76	1040	---	48.7
47	44/47/65	27.050	0.79	(13500)	---	146
48		26.798	0.78	2830	---	48.7

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Fax: 612- 607-6444

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-03 (FO105872)  
Lab Sample ID 10138002003  
Filename P101009A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.497	0.79	7910	---	97.4
50	50/53	23.110	0.78	2160	---	97.4
51	45/51	23.881	0.78	(3160)	---	97.4
52		25.960	0.79	16900	---	48.7
53	50/53	23.110	0.78	(2160)	---	97.4
54		---	---	ND	---	48.7
55		---	---	ND	---	48.7
56		32.332	0.78	2990	---	48.7
57		---	---	ND	---	48.7
58		---	---	ND	---	48.7
59	59/62/75	27.435	0.80	1400	---	146
60		32.566	0.78	1590	---	48.7
61	61/70/74/76	31.275	0.78	11900	---	195
62	59/62/75	27.435	0.80	(1400)	---	146
63		30.923	0.77	317	---	48.7
64		28.458	0.78	6220	---	48.7
65	44/47/65	27.050	0.79	(13500)	---	146
66		31.627	0.78	6710	---	48.7
67		30.621	0.78	302	---	48.7
68		---	---	ND	---	48.7
69	49/69	26.497	0.79	(7910)	---	97.4
70	61/70/74/76	31.275	0.78	(11900)	---	195
71	40/41/71	28.190	0.78	(8110)	---	146
72		29.431	0.74	51.9	---	48.7
73	43/73	26.195	0.79	(423)	---	97.4
74	61/70/74/76	31.275	0.78	(11900)	---	195
75	59/62/75	27.435	0.80	(1400)	---	146
76	61/70/74/76	31.275	0.78	(11900)	---	195
77		36.305	0.79	571	---	48.7
78		---	---	ND	---	48.7
79		34.595	0.79	73.5	---	48.7
80		---	---	ND	---	48.7
81		---	---	ND	---	48.7
82		35.853	1.61	1330	---	48.7
83		33.941	1.65	699	---	48.7
84		31.460	1.56	3900	---	48.7
85	85/116/117	35.366	1.58	1590	---	146
86	86/87/97/108/119/125	34.696	1.56	9470	---	292
87	86/87/97/108/119/125	34.696	1.56	(9470)	---	292
88	88/91	31.225	1.59	1950	---	97.4
89		31.963	1.56	190	---	48.7
90	90/101/113	33.472	1.57	13100	---	146
91	88/91	31.225	1.59	(1950)	---	97.4
92		32.851	1.57	2270	---	48.7
93	93/98/100/102	30.688	1.57	515	---	195
94		29.833	1.46	82.0	---	48.7
95		30.286	1.56	11400	---	48.7
96		27.385	1.69	153	---	48.7

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-03 (FO105872)  
Lab Sample ID 10138002003  
Filename P101009A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.696	1.56	(9470)	---	292
98	93/98/100/102	30.688	1.57	(515)	---	195
99		34.092	1.61	4730	---	48.7
100	93/98/100/102	30.688	1.57	(515)	---	195
101	90/101/113	33.472	1.57	(13100)	---	146
102	93/98/100/102	30.688	1.57	(515)	---	195
103		29.598	1.62	74.3	---	48.7
104		---	---	ND	---	48.7
105		39.894	1.57	3790	---	48.7
106		---	---	ND	---	48.7
107	107/124	37.982	1.60	323	---	97.4
108	86/87/97/108/119/125	34.696	1.56	(9470)	---	292
109		38.234	1.57	500	---	48.7
110	110/115	35.551	1.57	11100	---	97.4
111		---	---	ND	---	48.7
112		---	---	ND	---	48.7
113	90/101/113	33.472	1.57	(13100)	---	146
114		39.240	1.59	236	---	48.7
115	110/115	35.551	1.57	(11100)	---	97.4
116	85/116/117	35.366	1.58	(1590)	---	146
117	85/116/117	35.366	1.58	(1590)	---	146
118		38.686	1.54	8620	---	48.7
119	86/87/97/108/119/125	34.696	1.56	(9470)	---	292
120		---	---	ND	---	48.7
121		---	---	ND	---	48.7
122		39.022	1.75	104	---	48.7
123		38.351	1.60	158	---	48.7
124	107/124	37.982	1.60	(323)	---	97.4
125	86/87/97/108/119/125	34.696	1.56	(9470)	---	292
126		---	---	ND	---	48.7
127		---	---	ND	---	48.7
128	128/166	43.130	1.23	1340	---	97.4
129	129/138/163	41.856	1.24	8760	---	146
130		41.218	1.24	534	---	48.7
131		38.267	1.30	166	---	48.7
132		38.753	1.24	3000	---	48.7
133		39.290	1.18	96.2	---	48.7
134	134/143	37.664	1.08	484	---	97.4
135	135/151	36.507	1.28	2460	---	97.4
136		33.941	1.27	1450	---	48.7
137		41.403	1.24	457	---	48.7
138	129/138/163	41.856	1.24	(8760)	---	146
139	139/140	38.049	1.22	154	---	97.4
140	139/140	38.049	1.22	(154)	---	97.4
141		40.782	1.25	1390	---	48.7
142		---	---	ND	---	48.7
143	134/143	37.664	1.08	(484)	---	97.4
144		37.077	1.21	370	---	48.7

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-03 (FO105872)  
Lab Sample ID 10138002003  
Filename P101009A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	48.7
146		39.961	1.24	973	---	48.7
147	147/149	37.462	1.26	5840	---	97.4
148		---	---	ND	---	48.7
149	147/149	37.462	1.26	(5840)	---	97.4
150		---	---	ND	---	48.7
151	135/151	36.507	1.28	(2460)	---	97.4
152		---	---	ND	---	48.7
153	153/168	40.581	1.26	6160	---	97.4
154		---	---	ND	---	48.7
155		---	---	ND	---	48.7
156	156/157	46.081	1.24	1240	---	97.4
157	156/157	46.081	1.24	(1240)	---	97.4
158		42.258	1.22	870	---	48.7
159		---	---	ND	---	48.7
160		---	---	ND	---	48.7
161		---	---	ND	---	48.7
162		44.488	1.22	51.0	---	48.7
163	129/138/163	41.856	1.24	(8760)	---	146
164		41.537	1.25	482	---	48.7
165		---	---	ND	---	48.7
166	128/166	43.130	1.23	(1340)	---	97.4
167		44.924	1.22	369	---	48.7
168	153/168	40.581	1.26	(6160)	---	97.4
169		---	---	ND	---	48.7
170		48.747	1.05	1250	---	48.7
171	171/173	45.159	1.03	417	---	97.4
172		46.819	1.02	207	---	48.7
173	171/173	45.159	1.03	(417)	---	97.4
174		44.069	1.00	1140	---	48.7
175		42.945	1.06	57.2	---	48.7
176		40.397	1.01	174	---	48.7
177		44.522	1.05	686	---	48.7
178		42.291	1.06	232	---	48.7
179		39.491	1.05	528	---	48.7
180	180/193	47.489	1.04	2520	---	97.4
181		---	---	ND	---	48.7
182		---	---	ND	---	48.7
183	183/185	43.834	1.07	930	---	97.4
184		---	---	ND	---	48.7
185	183/185	43.834	1.07	(930)	---	97.4
186		---	---	ND	---	48.7
187		43.214	1.06	1270	---	48.7
188		---	---	ND	---	48.7
189		51.980	1.11	59.0	---	48.7
190		49.300	1.05	252	---	48.7
191		47.841	1.06	50.8	---	48.7
192		---	---	ND	---	48.7

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTI0295-03 (FO105872)  
Lab Sample ID 10138002003  
Filename P101009A\_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.489	1.04	(2520)	---	97.4
194		54.200	0.92	547	---	73.1
195		51.678	0.94	202	---	73.1
196		50.105	0.89	297	---	73.1
197	197/200	---	---	ND	---	146
198	198/199	49.434	0.89	657	---	146
199	198/199	49.434	0.89	(657)	---	146
200	197/200	---	---	ND	---	146
201		45.544	0.91	78.0	---	73.1
202		44.605	0.90	144	---	73.1
203		50.323	0.91	440	---	73.1
204		---	---	ND	---	73.1
205		---	---	ND	---	73.1
206		56.959	0.77	395	---	73.1
207		---	---	ND	---	73.1
208		51.398	0.79	122	---	73.1
209		59.286	0.75	137	---	73.1

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTI0295-03 (FO105872)  
Lab Sample ID 10138002003  
Filename P101009A\_07

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	168
Total Dichloro Biphenyls	7620
Total Trichloro Biphenyls	55900
Total Tetrachloro Biphenyls	92000
Total Pentachloro Biphenyls	76300
Total Hexachloro Biphenyls	36600
Total Heptachloro Biphenyls	9770
Total Octachloro Biphenyls	2360
Total Nonachloro Biphenyls	517
Decachloro Biphenyls	137
Total PCBs	281000

ND = Not Detected

Results reported on a dry weight basis

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0295-04 (FO105873)		
Lab Sample ID	10138002004		
Filename	P101001A_08		
Injected By	BAL		
Total Amount Extracted	12.3 g	Matrix	Solid
% Moisture	16.2	Dilution	5
Dry Weight Extracted	10.3 g	Collected	09/07/2010
ICAL ID	P101001A02	Received	09/14/2010 10:05
CCal Filename(s)	P101001A_01	Extracted	09/29/2010 14:40
Method Blank ID	BLANK-26482	Analyzed	10/01/2010 10:57

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.120	3.05	2.0	1.38	69
13C-4-MoCB	3	12.559	2.82	2.0	1.58	79
13C-2,2'-DiCB	4	12.894	1.69	2.0	1.78	89
13C-4,4'-DiCB	15	21.077	1.59	2.0	1.55	77
13C-2,2',6-TrCB	19	17.339	1.02	2.0	1.57	79
13C-3,4,4'-TrCB	37	29.407	1.11	2.0	1.66	83
13C-2,2',6,6'-TeCB	54	21.393	0.81	2.0	1.57	78
13C-3,4,4',5-TeCB	81	36.684	0.81	2.0	1.53	77
13C-3,3',4,4'-TeCB	77	37.271	0.80	2.0	1.54	77
13C-2,2',4,6,6'-PeCB	104	27.932	1.61	2.0	1.78	89
13C-2,3,3',4,4'-PeCB	105	40.859	1.61	2.0	1.47	73
13C-2,3,4,4',5-PeCB	114	40.205	1.62	2.0	1.50	75
13C-2,3',4,4',5-PeCB	118	39.652	1.59	2.0	1.46	73
13C-2,3',4,4',5'-PeCB	123	39.300	1.55	2.0	1.49	74
13C-3,3',4,4',5-PeCB	126	44.045	1.57	2.0	1.53	76
13C-2,2',4,4',6,6'-HxCB	155	34.136	1.27	2.0	1.87	94
13C-HxCB (156/157)	156/157	47.080	1.25	4.0	2.96	74
13C-2,3',4,4',5,5'-HxCB	167	45.889	1.24	2.0	1.52	76
13C-3,3',4,4',5,5'-HxCB	169	50.433	1.25	2.0	1.52	76
13C-2,2',3,4',5,6,6'-HpCB	188	40.105	1.07	2.0	1.95	98
13C-2,3,3',4,4',5,5'-HpCB	189	52.979	1.02	2.0	1.63	81
13C-2,2',3,3',5,5',6,6'-OxCB	202	45.554	0.91	2.0	1.86	93
13C-2,3,3',4,4',5,5',6-OxCB	205	55.975	0.91	2.0	1.72	86
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.302	0.79	2.0	1.82	91
13C-2,2',3,3',4,4',5,5',6-NoCB	208	52.375	0.78	2.0	1.72	86
13C--DeCB	209	60.781	0.70	2.0	1.72	86
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.780	1.08	2.0	1.72	86
13C-2,3,3',5,5'-PeCB	111	37.271	1.61	2.0	1.75	87
13C-2,2',3,3',5,5',6-HpCB	178	43.240	1.06	2.0	2.00	100
Recovery Standards						
13C-2,5-DiCB	9	15.817	1.64	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.892	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.421	1.56	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.804	1.26	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.350	0.91	2.0	NA	NA

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1700 Elm Street - Suite 200  
Minneapolis, MN 55414

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

## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTI0295-04 (FO105873)  
Lab Sample ID 10138002004  
Filename P101001A\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		9.132	2.91	37.8	---	24.2
2		---	---	ND	---	24.2
3		12.571	3.00	30.6	---	24.2
4		12.918	1.49	479	---	24.2
5		---	---	ND	---	24.2
6		16.404	1.55	236	---	24.2
7		16.057	1.55	46.4	---	24.2
8		16.991	1.53	1090	---	24.2
9		15.829	1.45	78.9	---	24.2
10		13.182	1.39	33.0	---	24.2
11		---	---	ND	---	145
12	12/13	20.670	1.38	117	---	48.5
13	12/13	20.670	1.38	(117)	---	48.5
14		---	---	ND	---	24.2
15		21.101	1.53	921	---	24.2
16		20.981	1.07	938	---	24.2
17		20.406	1.04	1010	---	24.2
18	18/30	19.879	1.04	2020	---	48.5
19		17.375	1.07	265	---	24.2
20	20/28	24.797	1.04	3320	---	48.5
21	21/33	25.065	1.04	1780	---	48.5
22		25.534	1.05	1190	---	24.2
23		---	---	ND	---	24.2
24		20.837	0.92	33.5	---	24.2
25		24.076	1.04	235	---	24.2
26	26/29	23.791	1.04	558	---	48.5
27		20.682	1.10	182	---	24.2
28	20/28	24.797	1.04	(3320)	---	48.5
29	26/29	23.791	1.04	(558)	---	48.5
30	18/30	19.879	1.04	(2020)	---	48.5
31		24.444	1.02	2810	---	24.2
32		21.661	1.04	787	---	24.2
33	21/33	25.065	1.04	(1780)	---	48.5
34		---	---	ND	---	24.2
35		28.955	1.02	60.5	---	24.2
36		---	---	ND	---	24.2
37		29.424	1.05	816	---	24.2
38		---	---	ND	---	24.2
39		---	---	ND	---	24.2
40	40/41/71	29.189	0.79	1380	---	145
41	40/41/71	29.189	0.79	(1380)	---	145
42		28.636	0.78	649	---	48.5
43	43/73	---	---	ND	---	96.9
44	44/47/65	28.032	0.78	2310	---	145
45	45/51	24.864	0.81	515	---	96.9
46		25.232	0.79	175	---	48.5
47	44/47/65	28.032	0.78	(2310)	---	145
48		27.781	0.78	539	---	48.5

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1700 Elm Street - Suite 200  
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Tel: 612-607-1700  
Fax: 612- 607-6444

**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-04 (FO105873)  
Lab Sample ID 10138002004  
Filename P101001A\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	27.479	0.78	1380	---	96.9
50	50/53	24.076	0.79	345	---	96.9
51	45/51	24.864	0.81	(515)	---	96.9
52		26.926	0.78	3110	---	48.5
53	50/53	24.076	0.79	(345)	---	96.9
54		---	---	ND	---	48.5
55		---	---	ND	---	48.5
56		33.331	0.79	571	---	48.5
57		---	---	ND	---	48.5
58		---	---	ND	---	48.5
59	59/62/75	28.418	0.77	213	---	145
60		33.582	0.78	334	---	48.5
61	61/70/74/76	32.258	0.79	2850	---	194
62	59/62/75	28.418	0.77	(213)	---	145
63		31.906	0.79	67.8	---	48.5
64		29.441	0.78	1040	---	48.5
65	44/47/65	28.032	0.78	(2310)	---	145
66		32.626	0.79	1320	---	48.5
67		31.604	0.79	57.8	---	48.5
68		---	---	ND	---	48.5
69	49/69	27.479	0.78	(1380)	---	96.9
70	61/70/74/76	32.258	0.79	(2850)	---	194
71	40/41/71	29.189	0.79	(1380)	---	145
72		---	---	ND	---	48.5
73	43/73	---	---	ND	---	96.9
74	61/70/74/76	32.258	0.79	(2850)	---	194
75	59/62/75	28.418	0.77	(213)	---	145
76	61/70/74/76	32.258	0.79	(2850)	---	194
77		37.288	0.79	103	---	48.5
78		---	---	ND	---	48.5
79		---	---	ND	---	48.5
80		---	---	ND	---	48.5
81		---	---	ND	---	48.5
82		36.852	1.57	327	---	48.5
83		34.924	1.54	142	---	48.5
84		32.459	1.57	767	---	48.5
85	85/116/117	36.366	1.56	396	---	145
86	86/87/97/108/119/125	35.695	1.57	1880	---	291
87	86/87/97/108/119/125	35.695	1.57	(1880)	---	291
88	88/91	32.224	1.56	361	---	96.9
89		---	---	ND	---	48.5
90	90/101/113	34.454	1.57	2500	---	145
91	88/91	32.224	1.56	(361)	---	96.9
92		33.834	1.55	468	---	48.5
93	93/98/100/102	---	---	ND	---	194
94		---	---	ND	---	48.5
95		31.285	1.55	2170	---	48.5
96		---	---	ND	---	48.5

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTI0295-04 (FO105873)  
Lab Sample ID 10138002004  
Filename P101001A\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	35.695	1.57	(1880)	---	291
98	93/98/100/102	---	---	ND	---	194
99		35.058	1.59	992	---	48.5
100	93/98/100/102	---	---	ND	---	194
101	90/101/113	34.454	1.57	(2500)	---	145
102	93/98/100/102	---	---	ND	---	194
103		---	---	ND	---	48.5
104		---	---	ND	---	48.5
105		40.893	1.58	1030	---	48.5
106		---	---	ND	---	48.5
107	107/124	38.964	1.62	103	---	96.9
108	86/87/97/108/119/125	35.695	1.57	(1880)	---	291
109		39.216	1.55	165	---	48.5
110	110/115	36.533	1.57	2940	---	96.9
111		---	---	ND	---	48.5
112		---	---	ND	---	48.5
113	90/101/113	34.454	1.57	(2500)	---	145
114		40.205	1.58	66.1	---	48.5
115	110/115	36.533	1.57	(2940)	---	96.9
116	85/116/117	36.366	1.56	(396)	---	145
117	85/116/117	36.366	1.56	(396)	---	145
118		39.669	1.58	2440	---	48.5
119	86/87/97/108/119/125	35.695	1.57	(1880)	---	291
120		---	---	ND	---	48.5
121		---	---	ND	---	48.5
122		---	---	ND	---	48.5
123		---	---	ND	---	48.5
124	107/124	38.964	1.62	(103)	---	96.9
125	86/87/97/108/119/125	35.695	1.57	(1880)	---	291
126		---	---	ND	---	48.5
127		---	---	ND	---	48.5
128	128/166	44.129	1.23	441	---	96.9
129	129/138/163	42.838	1.25	2860	---	145
130		42.184	1.30	183	---	48.5
131		---	---	ND	---	48.5
132		39.736	1.24	877	---	48.5
133		---	---	ND	---	48.5
134	134/143	38.646	1.27	163	---	96.9
135	135/151	37.472	1.24	632	---	96.9
136		34.940	1.29	278	---	48.5
137		42.402	1.25	157	---	48.5
138	129/138/163	42.838	1.25	(2860)	---	145
139	139/140	---	---	ND	---	96.9
140	139/140	---	---	ND	---	96.9
141		41.748	1.22	493	---	48.5
142		---	---	ND	---	48.5
143	134/143	38.646	1.27	(163)	---	96.9
144		38.076	1.20	112	---	48.5

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-04 (FO105873)  
Lab Sample ID 10138002004  
Filename P101001A\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	48.5
146		40.926	1.25	314	---	48.5
147	147/149	38.445	1.24	1670	---	96.9
148		---	---	ND	---	48.5
149	147/149	38.445	1.24	(1670)	---	96.9
150		---	---	ND	---	48.5
151	135/151	37.472	1.24	(632)	---	96.9
152		---	---	ND	---	48.5
153	153/168	41.547	1.25	1860	---	96.9
154		---	---	ND	---	48.5
155		---	---	ND	---	48.5
156	156/157	47.080	1.27	387	---	96.9
157	156/157	47.080	1.27	(387)	---	96.9
158		43.240	1.26	290	---	48.5
159		---	---	ND	---	48.5
160		---	---	ND	---	48.5
161		---	---	ND	---	48.5
162		---	---	ND	---	48.5
163	129/138/163	42.838	1.25	(2860)	---	145
164		42.519	1.27	175	---	48.5
165		---	---	ND	---	48.5
166	128/166	44.129	1.23	(441)	---	96.9
167		45.923	1.28	123	---	48.5
168	153/168	41.547	1.25	(1860)	---	96.9
169		---	---	ND	---	48.5
170		49.762	1.03	487	---	48.5
171	171/173	46.141	1.09	149	---	96.9
172		47.801	1.03	81.7	---	48.5
173	171/173	46.141	1.09	(149)	---	96.9
174		45.051	1.05	403	---	48.5
175		---	---	ND	---	48.5
176		41.396	1.02	52.8	---	48.5
177		45.503	1.02	250	---	48.5
178		43.257	1.02	77.2	---	48.5
179		40.490	1.08	139	---	48.5
180	180/193	48.471	1.04	869	---	96.9
181		---	---	ND	---	48.5
182		---	---	ND	---	48.5
183	183/185	44.799	1.03	282	---	96.9
184		---	---	ND	---	48.5
185	183/185	44.799	1.03	(282)	---	96.9
186		---	---	ND	---	48.5
187		44.179	1.04	411	---	48.5
188		---	---	ND	---	48.5
189		---	---	ND	---	48.5
190		50.299	1.07	71.2	---	48.5
191		---	---	ND	---	48.5
192		---	---	ND	---	48.5

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**Method 1668A Polychlorobiphenyl  
Sample Analysis Results**

Client Sample ID PTI0295-04 (FO105873)  
Lab Sample ID 10138002004  
Filename P101001A\_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	48.471	1.04	(869)	---	96.9
194		55.393	0.86	145	---	72.7
195		---	---	ND	---	72.7
196		51.104	0.88	80.2	---	72.7
197	197/200	---	---	ND	---	145
198	198/199	50.450	0.90	155	---	145
199	198/199	50.450	0.90	(155)	---	145
200	197/200	---	---	ND	---	145
201		---	---	ND	---	72.7
202		---	---	ND	---	72.7
203		51.322	0.92	88.3	---	72.7
204		---	---	ND	---	72.7
205		---	---	ND	---	72.7
206		---	---	ND	---	72.7
207		---	---	ND	---	72.7
208		---	---	ND	---	72.7
209		---	---	ND	---	72.7

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## Method 1668A Polychlorobiphenyl Sample Analysis Results

Client Sample ID PTI0295-04 (FO105873)  
Lab Sample ID 10138002004  
Filename P101001A\_08

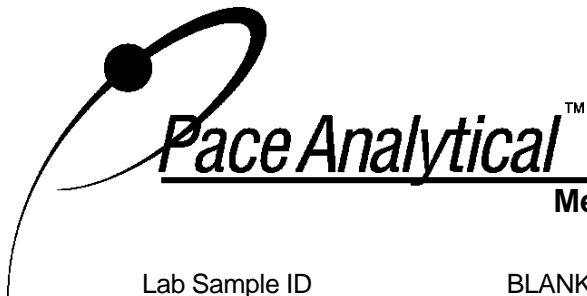
Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	68.4
Total Dichloro Biphenyls	3000
Total Trichloro Biphenyls	16000
Total Tetrachloro Biphenyls	17000
Total Pentachloro Biphenyls	16700
Total Hexachloro Biphenyls	11000
Total Heptachloro Biphenyls	3270
Total Octachloro Biphenyls	468
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	67500

ND = Not Detected

Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID	BLANK-26482		
Filename	P100930B_09		
Injected By	BAL	Matrix	Solid
Total Amount Extracted	10.4 g	Extracted	09/29/2010 14:40
ICAL ID	P100930B02	Analyzed	09/30/2010 22:55
CCal Filename(s)	P100930B_01	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.061	3.18	2.0	1.30	65
13C-4-MoCB	3	12.487	3.06	2.0	1.42	71
13C-2,2'-DiCB	4	12.834	1.59	2.0	1.62	81
13C-4,4'-DiCB	15	21.006	1.54	2.0	1.43	71
13C-2,2',6-TrCB	19	17.279	1.08	2.0	1.67	83
13C-3,4,4'-TrCB	37	29.359	1.06	2.0	1.49	74
13C-2,2',6,6'-TeCB	54	21.310	0.79	2.0	1.54	77
13C-3,4,4',5-TeCB	81	36.837	0.82	2.0	0.553	28
13C-3,3',4,4'-TeCB	77	37.441	0.80	2.0	0.540	27
13C-2,2',4,6,6'-PeCB	104	27.883	1.58	2.0	4.44	222 R
13C-2,3,3',4,4'-PeCB	105	41.046	1.60	2.0	1.43	71
13C-2,3,4,4',5-PeCB	114	40.375	1.56	2.0	1.37	68
13C-2,3',4,4',5-PeCB	118	39.839	1.66	2.0	1.26	63
13C-2,3',4,4',5'-PeCB	123	39.504	1.52	2.0	1.29	65
13C-3,3',4,4',5-PeCB	126	44.165	1.49	2.0	2.07	103
13C-2,2',4,4',6,6'-HxCB	155	34.255	1.23	2.0	1.58	79
13C-HxCB (156/157)	156/157	47.116	1.26	4.0	5.41	135
13C-2,3',4,4',5,5'-HxCB	167	45.959	1.24	2.0	2.45	122
13C-3,3',4,4',5,5'-HxCB	169	50.386	1.26	2.0	2.90	145
13C-2,2',3,4',5,6,6'-HpCB	188	40.275	1.09	2.0	0.770	38
13C-2,3,3',4,4',5,5'-HpCB	189	52.896	1.06	2.0	1.77	89
13C-2,2',3,3',5,5',6,6'-OxCB	202	45.641	0.91	2.0	1.58	79
13C-2,3,3',4,4',5,5',6-OxCB	205	55.827	0.90	2.0	1.82	91
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.177	0.77	2.0	1.88	94
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.314	0.79	2.0	1.85	92
13C--DeCB	209	60.634	0.69	2.0	1.77	88
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.714	1.05	2.0	1.65	83
13C-2,3,3',5,5'-PeCB	111	37.458	1.60	2.0	1.34	67
13C-2,2',3,3',5,5',6-HpCB	178	43.377	1.08	2.0	2.06	103
Recovery Standards						
13C-2,5-DiCB	9	15.734	1.57	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.844	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.523	1.62	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.941	1.25	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OxCB	194	55.224	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  
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

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26482  
Filename P100930B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.1
2		---	---	ND	---	24.1
3		---	---	ND	---	24.1
4		---	---	ND	---	24.1
5		---	---	ND	---	24.1
6		---	---	ND	---	24.1
7		---	---	ND	---	24.1
8		---	---	ND	---	24.1
9		---	---	ND	---	24.1
10		---	---	ND	---	24.1
11		---	---	ND	---	144
12	12/13	---	---	ND	---	48.1
13	12/13	---	---	ND	---	48.1
14		---	---	ND	---	24.1
15		---	---	ND	---	24.1
16		---	---	ND	---	24.1
17		---	---	ND	---	24.1
18	18/30	---	---	ND	---	48.1
19		---	---	ND	---	24.1
20	20/28	---	---	ND	---	48.1
21	21/33	---	---	ND	---	48.1
22		---	---	ND	---	24.1
23		---	---	ND	---	24.1
24		---	---	ND	---	24.1
25		---	---	ND	---	24.1
26	26/29	---	---	ND	---	48.1
27		---	---	ND	---	24.1
28	20/28	---	---	ND	---	48.1
29	26/29	---	---	ND	---	48.1
30	18/30	---	---	ND	---	48.1
31		---	---	ND	---	24.1
32		---	---	ND	---	24.1
33	21/33	---	---	ND	---	48.1
34		---	---	ND	---	24.1
35		---	---	ND	---	24.1
36		---	---	ND	---	24.1
37		---	---	ND	---	24.1
38		---	---	ND	---	24.1
39		---	---	ND	---	24.1
40	40/41/71	---	---	ND	---	144
41	40/41/71	---	---	ND	---	144
42		---	---	ND	---	48.1
43	43/73	---	---	ND	---	96.2
44	44/47/65	---	---	ND	---	144
45	45/51	---	---	ND	---	96.2

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

Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26482  
Filename P100930B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46		---	---	ND	---	48.1
47	44/47/65	---	---	ND	---	144
48		---	---	ND	---	48.1
49	49/69	---	---	ND	---	96.2
50	50/53	---	---	ND	---	96.2
51	45/51	---	---	ND	---	96.2
52		---	---	ND	---	48.1
53	50/53	---	---	ND	---	96.2
54		---	---	ND	---	48.1
55		---	---	ND	---	48.1
56		---	---	ND	---	48.1
57		---	---	ND	---	48.1
58		---	---	ND	---	48.1
59	59/62/75	---	---	ND	---	144
60		---	---	ND	---	48.1
61	61/70/74/76	---	---	ND	---	192
62	59/62/75	---	---	ND	---	144
63		---	---	ND	---	48.1
64		---	---	ND	---	48.1
65	44/47/65	---	---	ND	---	144
66		---	---	ND	---	48.1
67		---	---	ND	---	48.1
68		---	---	ND	---	48.1
69	49/69	---	---	ND	---	96.2
70	61/70/74/76	---	---	ND	---	192
71	40/41/71	---	---	ND	---	144
72		---	---	ND	---	48.1
73	43/73	---	---	ND	---	96.2
74	61/70/74/76	---	---	ND	---	192
75	59/62/75	---	---	ND	---	144
76	61/70/74/76	---	---	ND	---	192
77		---	---	ND	---	48.1
78		---	---	ND	---	48.1
79		---	---	ND	---	48.1
80		---	---	ND	---	48.1
81		---	---	ND	---	48.1
82		---	---	ND	---	48.1
83		---	---	ND	---	48.1
84		---	---	ND	---	48.1
85	85/116/117	---	---	ND	---	144
86	86/87/97/108/119/125	---	---	ND	---	289
87	86/87/97/108/119/125	---	---	ND	---	289
88	88/91	---	---	ND	---	96.2
89		---	---	ND	---	48.1
90	90/101/113	---	---	ND	---	144

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

Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26482  
Filename P100930B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
91	88/91	---	---	ND	---	96.2
92		---	---	ND	---	48.1
93	93/98/100/102	---	---	ND	---	192
94		---	---	ND	---	48.1
95		---	---	ND	---	48.1
96		---	---	ND	---	48.1
97	86/87/97/108/119/125	---	---	ND	---	289
98	93/98/100/102	---	---	ND	---	192
99		---	---	ND	---	48.1
100	93/98/100/102	---	---	ND	---	192
101	90/101/113	---	---	ND	---	144
102	93/98/100/102	---	---	ND	---	192
103		---	---	ND	---	48.1
104		---	---	ND	---	48.1
105		---	---	ND	---	48.1
106		---	---	ND	---	48.1
107	107/124	---	---	ND	---	96.2
108	86/87/97/108/119/125	---	---	ND	---	289
109		---	---	ND	---	48.1
110	110/115	---	---	ND	---	96.2
111		---	---	ND	---	48.1
112		---	---	ND	---	48.1
113	90/101/113	---	---	ND	---	144
114		---	---	ND	---	48.1
115	110/115	---	---	ND	---	96.2
116	85/116/117	---	---	ND	---	144
117	85/116/117	---	---	ND	---	144
118		---	---	ND	---	48.1
119	86/87/97/108/119/125	---	---	ND	---	289
120		---	---	ND	---	48.1
121		---	---	ND	---	48.1
122		---	---	ND	---	48.1
123		---	---	ND	---	48.1
124	107/124	---	---	ND	---	96.2
125	86/87/97/108/119/125	---	---	ND	---	289
126		---	---	ND	---	48.1
127		---	---	ND	---	48.1
128	128/166	---	---	ND	---	96.2
129	129/138/163	---	---	ND	---	144
130		---	---	ND	---	48.1
131		---	---	ND	---	48.1
132		---	---	ND	---	48.1
133		---	---	ND	---	48.1
134	134/143	---	---	ND	---	96.2
135	135/151	---	---	ND	---	96.2

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  
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Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26482  
Filename P100930B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
136		---	---	ND	---	48.1
137		---	---	ND	---	48.1
138	129/138/163	---	---	ND	---	144
139	139/140	---	---	ND	---	96.2
140	139/140	---	---	ND	---	96.2
141		---	---	ND	---	48.1
142		---	---	ND	---	48.1
143	134/143	---	---	ND	---	96.2
144		---	---	ND	---	48.1
145		---	---	ND	---	48.1
146		---	---	ND	---	48.1
147	147/149	---	---	ND	---	96.2
148		---	---	ND	---	48.1
149	147/149	---	---	ND	---	96.2
150		---	---	ND	---	48.1
151	135/151	---	---	ND	---	96.2
152		---	---	ND	---	48.1
153	153/168	---	---	ND	---	96.2
154		---	---	ND	---	48.1
155		---	---	ND	---	48.1
156	156/157	---	---	ND	---	96.2
157	156/157	---	---	ND	---	96.2
158		---	---	ND	---	48.1
159		---	---	ND	---	48.1
160		---	---	ND	---	48.1
161		---	---	ND	---	48.1
162		---	---	ND	---	48.1
163	129/138/163	---	---	ND	---	144
164		---	---	ND	---	48.1
165		---	---	ND	---	48.1
166	128/166	---	---	ND	---	96.2
167		---	---	ND	---	48.1
168	153/168	---	---	ND	---	96.2
169		---	---	ND	---	48.1
170		---	---	ND	---	48.1
171	171/173	---	---	ND	---	96.2
172		---	---	ND	---	48.1
173	171/173	---	---	ND	---	96.2
174		---	---	ND	---	48.1
175		---	---	ND	---	48.1
176		---	---	ND	---	48.1
177		---	---	ND	---	48.1
178		---	---	ND	---	48.1
179		---	---	ND	---	48.1
180	180/193	---	---	ND	---	96.2

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  
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RT = Retention Time  
I = Interference

Results reported on a dry weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26482  
Filename P100930B\_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
181		---	---	ND	---	48.1
182		---	---	ND	---	48.1
183	183/185	---	---	ND	---	96.2
184		---	---	ND	---	48.1
185	183/185	---	---	ND	---	96.2
186		---	---	ND	---	48.1
187		---	---	ND	---	48.1
188		---	---	ND	---	48.1
189		---	---	ND	---	48.1
190		---	---	ND	---	48.1
191		---	---	ND	---	48.1
192		---	---	ND	---	48.1
193	180/193	---	---	ND	---	96.2
194		---	---	ND	---	72.2
195		---	---	ND	---	72.2
196		---	---	ND	---	72.2
197	197/200	---	---	ND	---	144
198	198/199	---	---	ND	---	144
199	198/199	---	---	ND	---	144
200	197/200	---	---	ND	---	144
201		---	---	ND	---	72.2
202		---	---	ND	---	72.2
203		---	---	ND	---	72.2
204		---	---	ND	---	72.2
205		---	---	ND	---	72.2
206		---	---	ND	---	72.2
207		---	---	ND	---	72.2
208		---	---	ND	---	72.2
209		---	---	ND	---	72.2

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

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Client Sample ID           DFBLKNV  
Lab Sample ID             BLANK-26482  
Filename                   P100930B\_09

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 dry weight basis

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## Method 1668A Polychlorobiphenyl Blank Analysis Results

Lab Sample ID	BLANK-26574	Matrix	Solid
Filename	P101008A_04	Extracted	10/06/2010 16:40
Injected By	BAL	Analyzed	10/08/2010 16:25
Total Amount Extracted	10.4 g	Dilution	NA
ICAL ID	P101008A02		
CCal Filename(s)	P101008A_01		

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
------------	-------	----	-------	------------	------------	------------

### Labeled Analytes

13C-2-MoCB	1	8.390	3.12	2.0	1.32	66
13C-4-MoCB	3	11.733	3.11	2.0	1.46	73
13C-2,2'-DiCB	4	12.057	1.58	2.0	1.45	73
13C-4,4'-DiCB	15	20.109	1.54	2.0	1.32	66
13C-2,2',6-TrCB	19	16.442	1.04	2.0	1.49	75
13C-3,4,4'-TrCB	37	28.412	1.11	2.0	1.40	70
13C-2,2',6,6'-TeCB	54	20.413	0.79	2.0	1.56	78
13C-3,4,4',5-TeCB	81	35.823	0.83	2.0	0.787	39
13C-3,3',4,4'-TeCB	77	36.410	0.79	2.0	0.808	40
13C-2,2',4,6,6'-PeCB	104	26.953	1.59	2.0	2.87	144
13C-2,3,3',4,4'-PeCB	105	39.999	1.61	2.0	1.42	71
13C-2,3,4,4',5-PeCB	114	39.345	1.57	2.0	1.43	72
13C-2,3',4,4',5-PeCB	118	38.792	1.62	2.0	1.36	68
13C-2,3',4,4',5'-PeCB	123	38.473	1.61	2.0	1.40	70
13C-3,3',4,4',5-PeCB	126	43.118	1.54	2.0	1.79	90
13C-2,2',4,4',6,6'-HxCB	155	33.274	1.22	2.0	1.55	77
13C-HxCB (156/157)	156/157	46.086	1.27	4.0	4.10	103
13C-2,3',4,4',5,5'-HxCB	167	44.929	1.24	2.0	1.94	97
13C-3,3',4,4',5,5'-HxCB	169	49.339	1.26	2.0	2.36	118
13C-2,2',3,4',5,6,6'-HpCB	188	39.261	1.07	2.0	0.960	48
13C-2,3,3',4,4',5,5'-HpCB	189	51.835	1.06	2.0	1.64	82
13C-2,2',3,3',5,5',6-OcCB	202	44.627	0.92	2.0	1.37	68
13C-2,3,3',4,4',5,5',6-OcCB	205	54.594	0.87	2.0	1.73	87
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.749	0.80	2.0	1.59	79
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.275	0.80	2.0	1.63	82
13C--DeCB	209	59.013	0.70	2.0	1.44	72

### Cleanup Standards

13C-2,4,4'-TrCB	28	23.784	1.03	2.0	1.61	80
13C-2,3,3',5,5'-PeCB	111	36.461	1.57	2.0	1.39	69
13C-2,2',3,3',5,5',6-HpCB	178	42.363	1.02	2.0	1.80	90

### Recovery Standards

13C-2,5-DiCB	9	14.968	1.57	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.913	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.543	1.60	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.927	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.034	0.88	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 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

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26574  
Filename P101008A\_04

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		---	---	ND	---	24.0
5		---	---	ND	---	24.0
6		---	---	ND	---	24.0
7		---	---	ND	---	24.0
8		---	---	ND	---	24.0
9		---	---	ND	---	24.0
10		---	---	ND	---	24.0
11		---	---	ND	---	144
12	12/13	---	---	ND	---	48.0
13	12/13	---	---	ND	---	48.0
14		---	---	ND	---	24.0
15		---	---	ND	---	24.0
16		---	---	ND	---	24.0
17		---	---	ND	---	24.0
18	18/30	---	---	ND	---	48.0
19		---	---	ND	---	24.0
20	20/28	---	---	ND	---	48.0
21	21/33	---	---	ND	---	48.0
22		---	---	ND	---	24.0
23		---	---	ND	---	24.0
24		---	---	ND	---	24.0
25		---	---	ND	---	24.0
26	26/29	---	---	ND	---	48.0
27		---	---	ND	---	24.0
28	20/28	---	---	ND	---	48.0
29	26/29	---	---	ND	---	48.0
30	18/30	---	---	ND	---	48.0
31		---	---	ND	---	24.0
32		---	---	ND	---	24.0
33	21/33	---	---	ND	---	48.0
34		---	---	ND	---	24.0
35		---	---	ND	---	24.0
36		---	---	ND	---	24.0
37		---	---	ND	---	24.0
38		---	---	ND	---	24.0
39		---	---	ND	---	24.0
40	40/41/71	---	---	ND	---	144
41	40/41/71	---	---	ND	---	144
42		---	---	ND	---	48.0
43	43/73	---	---	ND	---	96.1
44	44/47/65	---	---	ND	---	144
45	45/51	---	---	ND	---	96.1

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  
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

Results reported on a total weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26574  
Filename P101008A\_04

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46		---	---	ND	---	48.0
47	44/47/65	---	---	ND	---	144
48		---	---	ND	---	48.0
49	49/69	---	---	ND	---	96.1
50	50/53	---	---	ND	---	96.1
51	45/51	---	---	ND	---	96.1
52		---	---	ND	---	48.0
53	50/53	---	---	ND	---	96.1
54		---	---	ND	---	48.0
55		---	---	ND	---	48.0
56		---	---	ND	---	48.0
57		---	---	ND	---	48.0
58		---	---	ND	---	48.0
59	59/62/75	---	---	ND	---	144
60		---	---	ND	---	48.0
61	61/70/74/76	---	---	ND	---	192
62	59/62/75	---	---	ND	---	144
63		---	---	ND	---	48.0
64		---	---	ND	---	48.0
65	44/47/65	---	---	ND	---	144
66		---	---	ND	---	48.0
67		---	---	ND	---	48.0
68		---	---	ND	---	48.0
69	49/69	---	---	ND	---	96.1
70	61/70/74/76	---	---	ND	---	192
71	40/41/71	---	---	ND	---	144
72		---	---	ND	---	48.0
73	43/73	---	---	ND	---	96.1
74	61/70/74/76	---	---	ND	---	192
75	59/62/75	---	---	ND	---	144
76	61/70/74/76	---	---	ND	---	192
77		---	---	ND	---	48.0
78		---	---	ND	---	48.0
79		---	---	ND	---	48.0
80		---	---	ND	---	48.0
81		---	---	ND	---	48.0
82		---	---	ND	---	48.0
83		---	---	ND	---	48.0
84		---	---	ND	---	48.0
85	85/116/117	---	---	ND	---	144
86	86/87/97/108/119/125	---	---	ND	---	288
87	86/87/97/108/119/125	---	---	ND	---	288
88	88/91	---	---	ND	---	96.1
89		---	---	ND	---	48.0
90	90/101/113	---	---	ND	---	144

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

Results reported on a total weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26574  
Filename P101008A\_04

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
91	88/91	---	---	ND	---	96.1
92		---	---	ND	---	48.0
93	93/98/100/102	---	---	ND	---	192
94		---	---	ND	---	48.0
95		---	---	ND	---	48.0
96		---	---	ND	---	48.0
97	86/87/97/108/119/125	---	---	ND	---	288
98	93/98/100/102	---	---	ND	---	192
99		---	---	ND	---	48.0
100	93/98/100/102	---	---	ND	---	192
101	90/101/113	---	---	ND	---	144
102	93/98/100/102	---	---	ND	---	192
103		---	---	ND	---	48.0
104		---	---	ND	---	48.0
105		---	---	ND	---	48.0
106		---	---	ND	---	48.0
107	107/124	---	---	ND	---	96.1
108	86/87/97/108/119/125	---	---	ND	---	288
109		---	---	ND	---	48.0
110	110/115	---	---	ND	---	96.1
111		---	---	ND	---	48.0
112		---	---	ND	---	48.0
113	90/101/113	---	---	ND	---	144
114		---	---	ND	---	48.0
115	110/115	---	---	ND	---	96.1
116	85/116/117	---	---	ND	---	144
117	85/116/117	---	---	ND	---	144
118		---	---	ND	---	48.0
119	86/87/97/108/119/125	---	---	ND	---	288
120		---	---	ND	---	48.0
121		---	---	ND	---	48.0
122		---	---	ND	---	48.0
123		---	---	ND	---	48.0
124	107/124	---	---	ND	---	96.1
125	86/87/97/108/119/125	---	---	ND	---	288
126		---	---	ND	---	48.0
127		---	---	ND	---	48.0
128	128/166	---	---	ND	---	96.1
129	129/138/163	---	---	ND	---	144
130		---	---	ND	---	48.0
131		---	---	ND	---	48.0
132		---	---	ND	---	48.0
133		---	---	ND	---	48.0
134	134/143	---	---	ND	---	96.1
135	135/151	---	---	ND	---	96.1

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  
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

Results reported on a total weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26574  
Filename P101008A\_04

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
136		---	---	ND	---	48.0
137		---	---	ND	---	48.0
138	129/138/163	---	---	ND	---	144
139	139/140	---	---	ND	---	96.1
140	139/140	---	---	ND	---	96.1
141		---	---	ND	---	48.0
142		---	---	ND	---	48.0
143	134/143	---	---	ND	---	96.1
144		---	---	ND	---	48.0
145		---	---	ND	---	48.0
146		---	---	ND	---	48.0
147	147/149	---	---	ND	---	96.1
148		---	---	ND	---	48.0
149	147/149	---	---	ND	---	96.1
150		---	---	ND	---	48.0
151	135/151	---	---	ND	---	96.1
152		---	---	ND	---	48.0
153	153/168	---	---	ND	---	96.1
154		---	---	ND	---	48.0
155		---	---	ND	---	48.0
156	156/157	---	---	ND	---	96.1
157	156/157	---	---	ND	---	96.1
158		---	---	ND	---	48.0
159		---	---	ND	---	48.0
160		---	---	ND	---	48.0
161		---	---	ND	---	48.0
162		---	---	ND	---	48.0
163	129/138/163	---	---	ND	---	144
164		---	---	ND	---	48.0
165		---	---	ND	---	48.0
166	128/166	---	---	ND	---	96.1
167		---	---	ND	---	48.0
168	153/168	---	---	ND	---	96.1
169		---	---	ND	---	48.0
170		---	---	ND	---	48.0
171	171/173	---	---	ND	---	96.1
172		---	---	ND	---	48.0
173	171/173	---	---	ND	---	96.1
174		---	---	ND	---	48.0
175		---	---	ND	---	48.0
176		---	---	ND	---	48.0
177		---	---	ND	---	48.0
178		---	---	ND	---	48.0
179		---	---	ND	---	48.0
180	180/193	---	---	ND	---	96.1

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  
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

Results reported on a total weight basis

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Lab Sample ID BLANK-26574  
Filename P101008A\_04

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
181		---	---	ND	---	48.0
182		---	---	ND	---	48.0
183	183/185	---	---	ND	---	96.1
184		---	---	ND	---	48.0
185	183/185	---	---	ND	---	96.1
186		---	---	ND	---	48.0
187		---	---	ND	---	48.0
188		---	---	ND	---	48.0
189		---	---	ND	---	48.0
190		---	---	ND	---	48.0
191		---	---	ND	---	48.0
192		---	---	ND	---	48.0
193	180/193	---	---	ND	---	96.1
194		---	---	ND	---	72.0
195		---	---	ND	---	72.0
196		---	---	ND	---	72.0
197	197/200	---	---	ND	---	144
198	198/199	---	---	ND	---	144
199	198/199	---	---	ND	---	144
200	197/200	---	---	ND	---	144
201		---	---	ND	---	72.0
202		---	---	ND	---	72.0
203		---	---	ND	---	72.0
204		---	---	ND	---	72.0
205		---	---	ND	---	72.0
206		---	---	ND	---	72.0
207		---	---	ND	---	72.0
208		---	---	ND	---	72.0
209		---	---	ND	---	72.0

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  
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

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**Method 1668A Polychlorobiphenyl  
Blank Analysis Results**

Client Sample ID           DFBLKOO  
Lab Sample ID             BLANK-26574  
Filename                   P101008A\_04

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

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-26483	
Filename	P100930B_10	Matrix
Total Amount Extracted	10.2 g	Solid
ICAL ID	P100930B02	Dilution
CCal Filename(s)	P100930B_01	Extracted
Method Blank ID	BLANK-26482	Analyzed
		Injected By
		10/01/2010 00:01
		BAL

PCB Isomer	Native Analytes			Labeled Analytes			
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	0.990	99	2.0	1.47	73	
3	1.0	1.06	106	2.0	1.54	77	
4	1.0	0.979	98	2.0	1.72	86	
15	1.0	1.14	114	2.0	1.41	70	
19	1.0	0.876	88	2.0	1.66	83	
37	1.0	0.992	99	2.0	1.52	76	
54	1.0	0.962	96	2.0	1.59	79	
81	1.0	1.06	106	2.0	0.680	34	
77	1.0	0.953	95	2.0	0.663	33	
104	1.0	0.955	96	2.0	3.37	169	R
105	1.0	1.02	102	2.0	1.39	69	
114	1.0	1.09	109	2.0	1.31	66	
118	1.0	1.14	114	2.0	1.24	62	
123	1.0	1.06	106	2.0	1.22	61	
126	1.0	1.01	101	2.0	1.95	97	
155	1.0	0.955	96	2.0	1.66	83	
156/157	2.0	2.11	105	4.0	4.28	107	
167	1.0	1.06	106	2.0	2.11	106	
169	1.0	1.05	105	2.0	2.24	112	
188	1.0	1.02	102	2.0	0.939	47	
189	1.0	1.06	106	2.0	1.66	83	
202	1.0	0.970	97	2.0	1.79	90	
205	1.0	1.01	101	2.0	1.75	88	
206	1.0	0.978	98	2.0	1.80	90	
208	1.0	1.03	103	2.0	1.73	86	
209	1.0	1.32	132	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

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-26575	
Filename	P101009A_04	Matrix
Total Amount Extracted	10.2 g	Solid
ICAL ID	P101009A02	Dilution
CCal Filename(s)	P101009A_01	Extracted
Method Blank ID	BLANK-26574	Analyzed
		Injected By
		BAL

PCB Isomer	Native Analytes			Labeled Analytes		
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.11	111	2.0	1.34	67
3	1.0	1.13	113	2.0	1.52	76
4	1.0	0.992	99	2.0	1.45	72
15	1.0	1.13	113	2.0	1.71	85
19	1.0	1.01	101	2.0	1.36	68
37	1.0	1.07	107	2.0	1.71	85
54	1.0	0.983	98	2.0	1.67	83
81	1.0	1.04	104	2.0	1.01	51
77	1.0	1.01	101	2.0	1.05	53
104	1.0	1.02	102	2.0	2.13	107
105	1.0	1.10	110	2.0	1.42	71
114	1.0	1.03	103	2.0	1.39	69
118	1.0	1.24	124	2.0	1.32	66
123	1.0	1.10	110	2.0	1.36	68
126	1.0	1.04	104	2.0	1.72	86
155	1.0	1.00	100	2.0	1.62	81
156/157	2.0	2.17	109	4.0	3.40	85
167	1.0	1.10	110	2.0	1.70	85
169	1.0	1.03	103	2.0	1.70	85
188	1.0	1.00	100	2.0	1.45	73
189	1.0	1.08	108	2.0	1.70	85
202	1.0	0.979	98	2.0	1.92	96
205	1.0	1.05	105	2.0	1.66	83
206	1.0	1.02	102	2.0	1.77	89
208	1.0	0.983	98	2.0	1.65	82
209	1.0	1.21	121	2.0	1.63	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

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-26484	Matrix	Solid
Filename	P100930B_11	Dilution	NA
Total Amount Extracted	10.4 g	Extracted	09/29/2010 14:40
ICAL ID	P100930B02	Analyzed	10/01/2010 01:06
CCal Filename(s)	P100930B_01	Injected By	BAL
Method Blank ID	BLANK-26482		

PCB Isomer	Native Analytes			Labeled Analytes			
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.04	104	2.0	1.42	71	
3	1.0	1.05	105	2.0	1.53	76	
4	1.0	1.06	106	2.0	1.71	85	
15	1.0	1.11	111	2.0	1.44	72	
19	1.0	0.977	98	2.0	1.58	79	
37	1.0	1.02	102	2.0	1.60	80	
54	1.0	0.984	98	2.0	1.62	81	
81	1.0	1.07	107	2.0	0.736	37	
77	1.0	0.989	99	2.0	0.698	35	
104	1.0	0.943	94	2.0	3.48	174	R
105	1.0	1.09	109	2.0	1.46	73	
114	1.0	1.07	107	2.0	1.37	68	
118	1.0	1.14	114	2.0	1.29	64	
123	1.0	1.09	109	2.0	1.30	65	
126	1.0	1.01	101	2.0	2.02	101	
155	1.0	1.01	101	2.0	1.64	82	
156/157	2.0	2.18	109	4.0	4.30	108	
167	1.0	1.10	110	2.0	2.13	107	
169	1.0	1.06	106	2.0	2.31	115	
188	1.0	1.05	105	2.0	0.981	49	
189	1.0	1.07	107	2.0	1.81	90	
202	1.0	0.960	96	2.0	1.96	98	
205	1.0	1.01	101	2.0	1.86	93	
206	1.0	0.990	99	2.0	1.95	97	
208	1.0	0.976	98	2.0	1.88	94	
209	1.0	1.36	136	2.0	1.78	89	

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

## REPORT OF LABORATORY ANALYSIS

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## Method 1668A Polychlorobiphenyls Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-26576	
Filename	P101009A_05	Matrix
Total Amount Extracted	10.2 g	Solid
ICAL ID	P101009A02	Dilution
CCal Filename(s)	P101009A_01	Extracted
Method Blank ID	BLANK-26574	Analyzed
		Injected By
		BAL

PCB Isomer	Native Analytes			Labeled Analytes		
	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery
1	1.0	1.14	114	2.0	1.45	73
3	1.0	1.19	119	2.0	1.59	79
4	1.0	1.02	102	2.0	1.53	77
15	1.0	0.991	99	2.0	1.48	74
19	1.0	1.01	101	2.0	1.43	72
37	1.0	1.09	109	2.0	1.62	81
54	1.0	1.01	101	2.0	1.26	63
81	1.0	1.05	105	2.0	0.925	46
77	1.0	1.02	102	2.0	0.957	48
104	1.0	1.01	101	2.0	2.54	127
105	1.0	1.11	111	2.0	1.24	62
114	1.0	1.08	108	2.0	1.34	67
118	1.0	1.19	119	2.0	1.34	67
123	1.0	1.15	115	2.0	1.33	66
126	1.0	1.07	107	2.0	1.26	63
155	1.0	1.01	101	2.0	2.04	102
156/157	2.0	2.21	111	4.0	3.64	91
167	1.0	1.11	111	2.0	1.76	88
169	1.0	1.09	109	2.0	2.14	107
188	1.0	0.994	99	2.0	1.36	68
189	1.0	1.07	107	2.0	1.68	84
202	1.0	1.03	103	2.0	1.23	61
205	1.0	0.997	100	2.0	1.71	85
206	1.0	0.979	98	2.0	1.71	85
208	1.0	1.04	104	2.0	1.56	78
209	1.0	1.28	128	2.0	1.84	92

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

## REPORT OF LABORATORY ANALYSIS

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### Method 1668A

### Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

Spike 1 ID LCS-26483  
Spike 1 Filename P100930B\_10

Spike 2 ID LCSD-26484  
Spike 2 Filename P100930B\_11

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	99	104	4.9
4-MoCB	3	106	105	0.9
2,2'-DiCB	4	98	106	7.8
4,4'-DiCB	15	114	111	2.7
2,2',6-TrCB	19	88	98	10.8
3,4,4'-TrCB	37	99	102	3.0
2,2',6,6'-TeCB	54	96	98	2.1
3,3,4,4'-TeCB	77	95	99	4.1
3,4,4',5-TeCB	81	106	107	0.9
2,2',4,6,6'-PeCB	104	96	94	2.1
2,3,3',4,4'-PeCB	105	102	109	6.6
2,3,4,4',5-PeCB	114	109	107	1.9
2,3',4,4',5-PeCB	118	114	114	0.0
2,3,4,4',5'-PeCB	123	106	109	2.8
3,3',4,4',5-PeCB	126	101	101	0.0
2,2',4,4',6,6'-HxCB	155	96	101	5.1
(156/157)	156/157	105	109	3.7
2,3',4,4',5,5'-HxCB	167	106	110	3.7
3,3',4,4',5,5'-HxCB	169	105	106	0.9
2,2',3,4',5,6,6'-HpCB	188	102	105	2.9
2,3,3',4,4',5,5'-HpCB	189	106	107	0.9
2,2',3,3',5,5',6,6'-OcCB	202	97	96	1.0
2,3,3',4,4',5,5',6-OcCB	205	101	101	0.0
2,2',3,3',4,4',5,5',6-NoCB	206	98	99	1.0
2,2',3,3',4,5,5',6,6'-NoCB	208	103	98	5.0
Decachlorobiphenyl	209	132	136	3.0

%REC = Percent Recovered

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

## REPORT OF LABORATORY ANALYSIS

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### Method 1668A

### Spike Recovery Relative Percent Difference (RPD) Results

Client Test America

Spike 1 ID LCS-26575  
Spike 1 Filename P101009A\_04

Spike 2 ID LCSD-26576  
Spike 2 Filename P101009A\_05

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	111	114	2.7
4-MoCB	3	113	119	5.2
2,2'-DiCB	4	99	102	3.0
4,4'-DiCB	15	113	99	13.2
2,2',6-TrCB	19	101	101	0.0
3,4,4'-TrCB	37	107	109	1.9
2,2',6,6'-TeCB	54	98	101	3.0
3,3,4,4'-TeCB	77	101	102	1.0
3,4,4',5-TeCB	81	104	105	1.0
2,2',4,6,6'-PeCB	104	102	101	1.0
2,3,3',4,4'-PeCB	105	110	111	0.9
2,3,4,4',5-PeCB	114	103	108	4.7
2,3',4,4',5-PeCB	118	124	119	4.1
2,3,4,4',5'-PeCB	123	110	115	4.4
3,3',4,4',5-PeCB	126	104	107	2.8
2,2',4,4',6,6'-HxCB	155	100	101	1.0
(156/157)	156/157	109	111	1.8
2,3',4,4',5,5'-HxCB	167	110	111	0.9
3,3',4,4',5,5'-HxCB	169	103	109	5.7
2,2',3,4',5,6,6'-HpCB	188	100	99	1.0
2,3,3',4,4',5,5'-HpCB	189	108	107	0.9
2,2',3,3',5,5',6,6'-OcCB	202	98	103	5.0
2,3,3',4,4',5,5',6-OcCB	205	105	100	4.9
2,2',3,3',4,4',5,5',6-NoCB	206	102	98	4.0
2,2',3,3',4,5,5',6,6'-NoCB	208	98	104	5.9
Decachlorobiphenyl	209	121	128	5.6

%REC = Percent Recovered

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

## REPORT OF LABORATORY ANALYSIS

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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



December 08, 2011

Linda Scheffler  
Director's Office

---

Work Order  
**W11K141**

Project  
**Portland Harbor**

Received  
09/08/10 16:33

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Enclosed are the results of analysis for the above work order. If you have questions concerning this report, please contact your project coordinator Peter Abrams at 503-823-5533.

Renee Chauvin  
Laboratory Coordinator QA/QC



City of Portland  
Water Pollution Control Laboratory

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



LABORATORY ANALYSIS REPORT

Project: **Portland Harbor**  
Work Order: **W11K141**  
Received: 9/8/10 16:33  
Submitted By: Field Operations

Client: Director's Office  
Project Mgr: Linda Scheffler  
WQDB #: Janus329

Sample	Laboratory ID	Matrix	Type	Sample Collection Date		Qualifier
				Start	End	
52_13	W11K141-01	Sediment	Composite	09/07/10 11:45	09/07/10 11:45	
52_8	W11K141-02	Sediment	Composite	09/07/10 12:14	09/07/10 12:14	
52_14	W11K141-03	Sediment	Composite	09/08/10 10:01	09/08/10 10:01	

Case Narrative

These samples were originally analyzed for PCB Aroclors, PCB Congeners, TOC, and Total Solids in September 2010.

Request for Metals analysis was received on 11/16/11. To ensure accurate dry-weight correction for Metals analysis, each sample was re-analyzed for Total Solids using sample from the same container used for the Metals analysis.

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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General Chemistry

Total Solids									
52_13 : W11K141-01									
Total solids	83.2	% W/W	0.01		B11K285	11/17/11	11/18/11	SM 2540G	H5
52_8 : W11K141-02									
Total solids	81.6	% W/W	0.01		B11K285	11/17/11	11/18/11	SM 2540G	H5
52_14 : W11K141-03									
Total solids	77.9	% W/W	0.01		B11K285	11/17/11	11/18/11	SM 2540G	H5

Reported: 12/08/11 15:17

Renee Chauvin, Laboratory Coordinator QA/QC

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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



Project: **Portland Harbor**  
Work Order: **W11K141**

Client: Director's Office  
Project Mgr: Linda Scheffler

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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### Total Metals

#### Total Metals by ICPMS

##### 52\_13 : W11K141-01

Arsenic	2.18	mg/kg dry	0.500	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Cadmium	0.351	mg/kg dry	0.100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Chromium	89.8	mg/kg dry	0.500	100	B11K417	11/26/11	12/03/11	EPA 6020	H5
Copper	44.8	mg/kg dry	0.200	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Lead	40.3	mg/kg dry	0.100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Mercury	0.0168	mg/kg dry	0.0100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Nickel	27.1	mg/kg dry	0.200	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Silver	ND	mg/kg dry	0.100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Zinc	332	mg/kg dry	0.500	100	B11K417	11/26/11	12/03/11	EPA 6020	H5

##### 52\_8 : W11K141-02

Arsenic	4.61	mg/kg dry	0.500	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Cadmium	0.464	mg/kg dry	0.100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Chromium	659	mg/kg dry	0.500	400	B11K417	11/26/11	12/03/11	EPA 6020	H5
Copper	873	mg/kg dry	0.200	400	B11K417	11/26/11	12/03/11	EPA 6020	H5
Lead	105	mg/kg dry	0.100	100	B11K417	11/26/11	12/03/11	EPA 6020	H5
Mercury	0.0173	mg/kg dry	0.0100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Nickel	431	mg/kg dry	0.200	100	B11K417	11/26/11	12/03/11	EPA 6020	H5
Silver	0.235	mg/kg dry	0.100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Zinc	316	mg/kg dry	0.500	100	B11K417	11/26/11	12/03/11	EPA 6020	H5

##### 52\_14 : W11K141-03

Arsenic	4.03	mg/kg dry	0.500	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Cadmium	1.02	mg/kg dry	0.100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Chromium	159	mg/kg dry	0.500	100	B11K417	11/26/11	12/03/11	EPA 6020	H5
Copper	188	mg/kg dry	0.200	100	B11K417	11/26/11	12/03/11	EPA 6020	H5
Lead	151	mg/kg dry	0.100	100	B11K417	11/26/11	12/03/11	EPA 6020	H5
Mercury	0.0466	mg/kg dry	0.0100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Nickel	41.8	mg/kg dry	0.200	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Silver	0.202	mg/kg dry	0.100	20	B11K417	11/26/11	12/03/11	EPA 6020	H5
Zinc	632	mg/kg dry	0.500	100	B11K417	11/26/11	12/03/11	EPA 6020	H5

Reported: 12/08/11 15:17

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Renee Chauvin, Laboratory Coordinator QA/QC



City of Portland  
Water Pollution Control Laboratory

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



Project: **Portland Harbor**  
Work Order: **W11K141**

Client: Director's Office  
Project Mgr: Linda Scheffler

**Quality Control Report**

**General Chemistry - QC**

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
<b>Total Solids - Batch B11K285</b>									
<b>Duplicate (B11K285-DUP1)</b>			<b>Source: W11K124-02</b>						
Total solids	97.4	% W/W	0.01		97.4		0.03 (5)	11/17/11 :11/18/11	
<b>Duplicate (B11K285-DUP2)</b>			<b>Source: W11K141-03</b>						
Total solids	77.0	% W/W	0.01		77.9		1 (5)	11/17/11 :11/18/11	

**Total Metals - QC**

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
<b>Total Metals by ICPMS - Batch B11K417</b>									
<b>Blank (B11K417-BLK1)</b>									
Arsenic	ND	mg/kg wet	0.500					11/26/11 :12/03/11	
Cadmium	ND	mg/kg wet	0.100					11/26/11 :12/03/11	
Chromium	ND	mg/kg wet	0.500					11/26/11 :12/03/11	
Copper	ND	mg/kg wet	0.200					11/26/11 :12/03/11	
Lead	ND	mg/kg wet	0.100					11/26/11 :12/03/11	
Mercury	ND	mg/kg wet	0.0100					11/26/11 :12/03/11	
Nickel	ND	mg/kg wet	0.200					11/26/11 :12/03/11	
Silver	ND	mg/kg wet	0.100					11/26/11 :12/03/11	
Zinc	ND	mg/kg wet	0.500					11/26/11 :12/03/11	
<b>Standard Reference Material (B11K417-SRM1)</b>									
Arsenic	236	mg/kg wet	0.500	225		105 (75-125)		11/26/11 :12/03/11	
Cadmium	76.1	mg/kg wet	0.100	69.1		110 (75-125)		11/26/11 :12/03/11	
Chromium	142	mg/kg wet	0.500	124		115 (75-125)		11/26/11 :12/03/11	
Copper	72.5	mg/kg wet	0.200	78.8		92 (75-125)		11/26/11 :12/03/11	
Lead	238	mg/kg wet	0.100	223		107 (75-125)		11/26/11 :12/03/11	
Mercury	5.303	mg/kg wet	0.0100	5.15		103 (75-125)		11/26/11 :12/03/11	
Nickel	196	mg/kg wet	0.200	172		114 (75-125)		11/26/11 :12/03/11	
Silver	36.2	mg/kg wet	0.100	35.2		103 (75-125)		11/26/11 :12/03/11	
Zinc	394	mg/kg wet	0.500	349		113 (75-125)		11/26/11 :12/03/11	
<b>Duplicate (B11K417-DUP1)</b>			<b>Source: W11K141-01</b>						
Arsenic	2.27	mg/kg dry	0.500		2.18		4 (20)	11/26/11 :12/03/11	
Cadmium	0.338	mg/kg dry	0.100		0.351		4 (20)	11/26/11 :12/03/11	
Chromium	90.0	mg/kg dry	0.500		89.8		0.3 (20)	11/26/11 :12/03/11	
Copper	44.5	mg/kg dry	0.200		44.8		0.6 (20)	11/26/11 :12/03/11	
Lead	42.2	mg/kg dry	0.100		40.3		5 (20)	11/26/11 :12/03/11	
Mercury	0.01585	mg/kg dry	0.0100		0.01677		6 (20)	11/26/11 :12/03/11	
Nickel	28.0	mg/kg dry	0.200		27.1		3 (20)	11/26/11 :12/03/11	

Reported: 12/08/11 15:17

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Renee Chauvin, Laboratory Coordinator QA/QC



City of Portland  
Water Pollution Control Laboratory

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



Project: **Portland Harbor**  
Work Order: **W11K141**

Client: Director's Office  
Project Mgr: Linda Scheffler

**Total Metals - QC**

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
<b>Total Metals by ICPMS - Batch B11K417</b>									
<b>Duplicate (B11K417-DUP1)</b>			<b>Source: W11K141-01</b>						
Silver	ND	mg/kg dry	0.100		ND		(20)	11/26/11 :12/03/11	
Zinc	321	mg/kg dry	0.500		332		4 (20)	11/26/11 :12/03/11	
<b>Matrix Spike (B11K417-MS1)</b>			<b>Source: W11K141-01</b>						
Arsenic	15.1	mg/kg dry	0.500	12.3	2.18	105 (75-125)		11/26/11 :12/03/11	
Cadmium	13.0	mg/kg dry	0.100	12.9	0.351	98 (75-125)		11/26/11 :12/03/11	
Chromium	134	mg/kg dry	0.500	38.8	89.8	113 (75-125)		11/26/11 :12/03/11	
Copper	112	mg/kg dry	0.200	64.6	44.8	104 (75-125)		11/26/11 :12/03/11	
Lead	107	mg/kg dry	0.100	64.6	40.3	103 (75-125)		11/26/11 :12/03/11	
Mercury	0.6771	mg/kg dry	0.0100	0.646	0.01677	102 (75-125)		11/26/11 :12/03/11	
Nickel	93.9	mg/kg dry	0.200	64.6	27.1	103 (75-125)		11/26/11 :12/03/11	
Silver	10.4	mg/kg dry	0.100	11.6	ND	89 (75-125)		11/26/11 :12/03/11	
Zinc	410	mg/kg dry	0.500	64.6	332	119 (75-125)		11/26/11 :12/03/11	

**Qualifiers**

H5 Holding time was exceeded due to delayed request for analysis.

**Definitions**

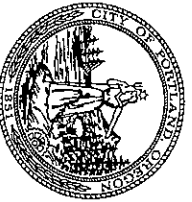
DET	Analyte Detected	ND	Analyte Not Detected at or above the reporting limit
MRL	Method Reporting Limit	MDL	Method Detection Limit
NR	Not Reportable	dry	Sample results reported on a dry weight basis
% Rec.	Percent Recovery	RPD	Relative Percent Difference

Reported: 12/08/11 15:17

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Renee Chauvin, Laboratory Coordinator QA/QC

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: 9/29/10  
Page: 1 of 1

Collected By: ASA, PDB

Work Order: W1116141

Project Name: PORTLAND HARBOR INLINE SAMP

File Number: 1020.001

Matrix: SEDIMENT

Basin 52 Inline

Client: Director's Office  
Project: Portland Harbor

Sample name & alias

WPCL Sample I.D.

Location

Point Code Sample Date Sample Time Sample Type

PCB Aroclors - LL  
PCB Congeners (All 209)  
TOC

Total Solids

Total Metals: As Cd  
Cr Cu Pb Hg Ni Ag  
Zn

Element

11/11/10 - Samples were archived 9/20/10. Metals analyzed requested 11/15/11. The samples were initially received using Labworks. Metals analyzed were logged in using Element.  
Samples logged in 11/16/11 - MZ

FO105870

IL-52-SJB2-0910  
DISCHARGE TO AAE885

52\_13 9/7/10 1145 C

• • •

•

•

-01

FO105871

IL-52-ANE911-0910  
N ALTA & RR TRACKS

52\_8 9/7/10 1214 C

• • •

•

•

-02

FO105872

IL-52-SJB1-0910  
ODOT-SJB-WQMH

52\_14 9/8/10 1001 C

• • •

•

•

-03

FO105873

DUPLICATE

DUP 9/7/10

C

• • •

•

Relinquished By: 1.

Signature: *C. L. Cady* Time: 1/6/33

Relinquished By: 2.

Signature:

Relinquished By: 3.

Signature:

Relinquished By: 4.

Signature:

Printed Name: Andrew Arnsberg

Date: 9/8/10

Printed Name:

Date:

Printed Name:

Date:

Printed Name:

Date:

Received By: 1.

Signature: *W. A. H.* Time: 1/6/33

Received By: 2.

Signature:

Received By: 3.

Signature:

Received By: 4.

Signature:

Printed Name: W. A. H.

Date: 9/8/10

Printed Name:

Date:

Printed Name:

Date:

Printed Name:

Date:

## ***2011 Surface Soil Sampling***



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P: 503.239.8799 F: 503.239.8940  
info@gsiwatersolutions.com www.gsiwatersolutions.com

## **Laboratory Data QA/QC Review 2011 Surface Soil Sampling City Outfall Basin 52**

**To:** File  
**From:** Andrew Davidson, GSI Water Solutions, Inc. (GSI)  
**Date:** June 24, 2011

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from a source control investigation sampling event conducted by the City of Portland (City) in January 2011. Nine composited, surface soil samples (W11A060-01 – W11A060-08, W11A060-10) and one duplicate sample (W11A060-09) were collected in portions of City right-of-way (ROW) in Outfall Basin 52.

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 a subcontracted laboratory. The following laboratories conducted the analyses listed:

- BES WPCL
  - Metals – EPA 6020
  - Polychlorinated Biphenyls (PCBs) Aroclors – EPA 8082
  - Total Solids – SM 2540G
- Test America (TA)
  - Total Organic Carbon (TOC) – EPA 9060

The WPCL summary report and the subcontracted laboratory report for all analyses associated with this sampling event are attached.

The following QA/QC review of the analytical data is based on the available documentation provided by WPCL and the subcontracted laboratory. 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 laboratory control limits
- Internal standard recoveries within accuracy control limits
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within laboratory control limits
- Laboratory control and duplicate laboratory control (LC/DLC) sample recoveries within laboratory control limits
- Relative percent differences (RPDs) for laboratory duplicate samples 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**

Samples for all analyses were extracted and analyzed within the recommended method-specific holding times with two exceptions. WPCL reports that because of a delayed request for analysis of archived sample, W11A060-10, TOC and Total Solids were analyzed after the recommended method holding times had expired. However, because the sample analysis date (1/27/11) was less than one month after the collection date (1/6/11), the results are not expected to be significantly impacted, and the data is not further qualified.

## **Method Blanks**

Method blanks were processed during the analyses of metals, PCB Aroclors, and TOC for the initial batch of samples (W11A060-01 – W11A060-09). No analytes were detected in any of the method blanks for the initial batch of samples.

A second set of method blanks was processed during the analyses of metals, PCB Aroclors, and TOC for archived sample, W11A060-10. No analytes were detected in the second set of method blanks except for copper, which was detected in the method blank processed during the metals analysis. However, because the concentration of copper in sample W11A060-10 was greater than ten times the concentration detected in the associated method blank, the data are not further qualified.

## **Surrogate Recoveries**

Surrogate recoveries were completed during the analysis of PCB Aroclors. All surrogate recoveries were within laboratory control limits.

## **Matrix Spike/Matrix Spike Duplicate**

For the initial batch of samples (W11A060-01 – W11A060-09), MS samples were processed during the analyses of metals, PCB Aroclors, and TOC, and MSD samples were processed during the analyses of PCB Aroclors and TOC. During the metals analysis, MS recoveries for chromium and copper were outside laboratory control limits. WPCL also reports that MS recovery results for zinc are not applicable because the sample concentration is greater than four times the spike amount. Aroclor 1016/1242 and Aroclor 1260 were spiked in MS/MSD samples processed during the PCB Aroclor analysis. MS/MSD recoveries and RPDs for Aroclor 1016/1242 were within laboratory control limits. WPCL reports that calculated recoveries for Aroclor 1260 are not applicable because of the high concentration of 1260 in the source sample. MS/MSD recoveries and relative percent differences (RPDs) were within laboratory control limits for the TOC analysis.

For archived sample, W11A060-10, MS samples were processed during the analyses of metals, PCB Aroclors, and TOC, and MSD samples were processed during the analysis of PCB Aroclors. During the metals analysis, the MS recovery for zinc was slightly above laboratory control limits. However, because all other metals QC data were within laboratory control limits, the associated sample result for zinc is not further qualified. Aroclor 1016/1242 and Aroclor 1260 were spiked in MS/MSD samples processed during the PCB Aroclor analysis. MS/MSD recoveries and RPDs for Aroclor 1016/1242 were within laboratory control limits. WPCL reports that calculated recoveries for Aroclor 1260 are not applicable because of the high concentration of 1260 in the source sample. The MS recovery of TOC was within laboratory control limits.

## **Laboratory Control Samples**

LC samples were processed during the analyses of PCB Aroclors and TOC for the initial batch of samples (W11A060-01 – W11A060-09) and the archived sample, W11A060-10. All LC sample recoveries were within laboratory control limits.

## **Laboratory Duplicate Samples**

For the initial batch of samples (W11A060-01 – W11A060-09), laboratory duplicate samples were processed during the analyses of total solids, metals, and TOC. RPDs for laboratory duplicate samples processed during the total solids and TOC analyses were within laboratory control limits. For the laboratory duplicate sample processed during the metals analysis (duplicate of W11A060-01), RPDs for chromium and nickel were above laboratory control limits. Accordingly, WPCL reports that results for chromium and nickel in sample W11A060-01 should be considered estimates due to non-homogenous sample matrix. These results are flagged as estimates (“J”) in the accompanying data table.

Laboratory duplicate samples were processed during the total solids, metals, and TOC analyses of archived sample, W11A060-10. RPDs for all analyses were within laboratory control limits.

## **Other**

WPCL reports that MS/MSD and duplicate sample results for sample W11A060-01 indicate non-homogenous sample matrix. Additionally, WPCL reports that a high matrix spike recovery for zinc in sample W11A060-10 indicates a non-homogenous sample matrix.



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Bureau of Environmental Services



Work Order #: W11A060

Collected By: FO

Date: 1/6/11

Client Name: Director's Office

Matrix: Soil

Project Name: Portland Harbor

### Requested Analyses

Special Instructions:					Requested Analyses									
Basin 52 Surface Soils														
Lab Number	Location ID	Sample Date	Sample Time	Sample Type	TOC	Totals Metals (Cr, Cu, Pb, Ni, Zn)	PCB Aroclors							
01	52_15	1/6/2011	1400	C	●	●	●							
02	52_16	1/6/2011	1435	C	●	●	●							
03	52_17	1/6/2011	1330	C	●	●	●							
04	52_18	1/6/2011	1200	C	●	●	●							
05	52_19	1/6/2011	1230	C	●	●	●							
06	52_20	1/6/2011	1258	C	●	●	●							
07	52_21	1/6/2011	1518	C	●	●	●							
08	52_22	1/6/2011	1535	C	●	●	●							
09	DUP	1/6/2011		C	●	●	●							
10	52_23	1/6/2011	1500	C				●						



City of Portland  
Chain-of-Custody

Bureau of Environmental Services



Date: 1/6/11

Work Order #: W11A060

Collected By: FO, PTB

Client Name: Director's Office  
Project Name: Portland Harbor  
Matrix: Soil

Requested Analyses

Special Instructions:				Requested Analyses										# of Containers	Remarks
Lab Number	Location ID	Sample Date	Sample Time	Sample Type	TOC	Totals Metals (Cr, Cu, Pb, Ni, Zn)	PCB Aroclors								
01	52_15	1/6/2011	1400	C	●	●	●							5	Area 1
02	52_16	1/6/2011	1435	C	●	●	●								Area 2
03	52_17	1/6/2011	1330	C	●	●	●								Area 3
04	52_18	1/6/2011	1200	C	●	●	●								Area 4
05	52_19	1/6/2011	1230	C	●	●	●								Area 5
06	52_20	1/6/2011	1258	C	●	●	●								Area 6
07	52_21	1/6/2011	1518	C	●	●	●								Area 7
08	52_22	1/6/2011	1535	C	●	●	●								Area 9
09	DUP	1/6/2011		C	●	●	●								
10	52_23	1/6/2011	1500	C	●	●	●								Area 8 TO BE ARCHIVED

Received By: *[Signature]* Date: 1/6/11  
Relinquished By: *[Signature]* Date: 1/6/11  
Signature: *[Signature]* Date: 1/6/11  
Printed Name: Peter Bryant Time: 1600  
Printed Name: Makenzie Lisk Time: 1600



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**Water Pollution Control Laboratory**

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February 14, 2011

Linda Scheffler  
Director's Office

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Work Order  
**W11A060**

Project  
**Portland Harbor**

Received  
01/06/11 16:06

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Enclosed are the results of analysis for the above work order. If you have questions concerning this report, please contact your project coordinator Peter Abrams at 503-823-5533.

Renee Chauvin  
Laboratory Coordinator QA/QC



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Water Pollution Control Laboratory

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LABORATORY ANALYSIS REPORT

Project: **Portland Harbor**  
Work Order: **W11A060**  
Received: 1/6/11 16:06  
Submitted By: Field Operations

Client: Director's Office  
Project Mgr: Linda Scheffler  
WQDB #: Janus329

Sample	Laboratory ID	Matrix	Type	Sample Collection Date		Qualifier
				Start	End	
52_15	W11A060-01	Soil	Composite	01/06/11 14:00	01/06/11 14:00	
52_16	W11A060-02	Soil	Composite	01/06/11 14:35	01/06/11 14:35	
52_17	W11A060-03	Soil	Composite	01/06/11 13:30	01/06/11 13:30	
52_18	W11A060-04	Soil	Composite	01/06/11 12:00	01/06/11 12:00	
52_19	W11A060-05	Soil	Composite	01/06/11 12:30	01/06/11 12:30	
52_20	W11A060-06	Soil	Composite	01/06/11 12:58	01/06/11 12:58	
52_21	W11A060-07	Soil	Composite	01/06/11 15:18	01/06/11 15:18	
52_22	W11A060-08	Soil	Composite	01/06/11 15:35	01/06/11 15:35	
DUP	W11A060-09	Soil	Composite	01/06/11 00:00	01/06/11 00:00	
52_23	W11A060-10	Soil	Composite	01/06/11 15:00	01/06/11 15:00	

Case Narrative

Sample 52\_23 (W11A060-10):

Request for analysis was made on 1/26/11 for this sample, originally labelled as an archive sample. Because of the delayed request for analysis, TOC and Total Solids were analyzed after the method holding times had expired.

Metals:

Matrix duplicate and spike results for sample 52\_15 (W11A060-01) indicate non-homogenous sample matrix. A second duplicate also produced high RPDs for several elements. For sample 52\_23 (W11A060-10), high matrix spike recovery for Zinc indicates non-homogeneous sample matrix. Analytical system QC results show that the analysis was in control for both batches, and the RPDs and recoveries outside of acceptance limits were due to the matrix.

PCB Aroclor matrix QC:

The matrix spike and matrix spike duplicate samples were fortified with Aroclors 1016/1242 and 1260. Calculated recoveries for Aroclor 1260 are not applicable because of the high concentration of 1260 in the source sample.

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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General Chemistry

Total Solids

52\_15 : W11A060-01

Total solids	80.1	% W/W	0.01	B11A115	01/08/11	01/09/11	SM 2540G
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Reported: 02/14/11 14:52

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Renee Chauvin, Laboratory Coordinator QA/QC



City of Portland  
Water Pollution Control Laboratory

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Project: **Portland Harbor**  
Work Order: **W11A060**

Client: Director's Office  
Project Mgr: Linda Scheffler

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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### General Chemistry

#### Total Solids

52_16 : W11A060-02									
Total solids	91.9	% W/W	0.01		B11A115	01/08/11	01/09/11	SM 2540G	
52_17 : W11A060-03									
Total solids	89.7	% W/W	0.01		B11A115	01/08/11	01/09/11	SM 2540G	
52_18 : W11A060-04									
Total solids	88.3	% W/W	0.01		B11A115	01/08/11	01/09/11	SM 2540G	
52_19 : W11A060-05									
Total solids	69.6	% W/W	0.01		B11A115	01/08/11	01/09/11	SM 2540G	
52_20 : W11A060-06									
Total solids	73.9	% W/W	0.01		B11A115	01/08/11	01/09/11	SM 2540G	
52_21 : W11A060-07									
Total solids	76.7	% W/W	0.01		B11A115	01/08/11	01/09/11	SM 2540G	
52_22 : W11A060-08									
Total solids	89.6	% W/W	0.01		B11A115	01/08/11	01/09/11	SM 2540G	
DUP : W11A060-09									
Total solids	92.1	% W/W	0.01		B11A115	01/08/11	01/09/11	SM 2540G	
52_23 : W11A060-10									
Total solids	85.3	% W/W	0.01		B11A368	01/26/11	01/27/11	SM 2540G	N

Reported: 02/14/11 14:52

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Renee Chauvin, Laboratory Coordinator QA/QC



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Water Pollution Control Laboratory

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Project: **Portland Harbor**  
Work Order: **W11A060**

Client: Director's Office  
Project Mgr: Linda Scheffler

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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### Total Metals

#### Total Metals by ICPMS

##### 52\_15 : W11A060-01

Chromium	131	mg/kg dry	0.500	200	B11A113	01/08/11	01/12/11	EPA 6020	M1
Copper	169	mg/kg dry	0.200	200	B11A113	01/08/11	01/12/11	EPA 6020	
Lead	181	mg/kg dry	0.100	200	B11A113	01/08/11	01/12/11	EPA 6020	
Nickel	49.3	mg/kg dry	0.200	20	B11A113	01/08/11	01/12/11	EPA 6020	M1
Zinc	358	mg/kg dry	0.500	200	B11A113	01/08/11	01/12/11	EPA 6020	

##### 52\_16 : W11A060-02

Chromium	296	mg/kg dry	0.500	200	B11A113	01/08/11	01/13/11	EPA 6020	
Copper	415	mg/kg dry	0.200	200	B11A113	01/08/11	01/13/11	EPA 6020	
Lead	84.2	mg/kg dry	0.100	20	B11A113	01/08/11	01/12/11	EPA 6020	
Nickel	113	mg/kg dry	0.200	200	B11A113	01/08/11	01/13/11	EPA 6020	
Zinc	142	mg/kg dry	0.500	20	B11A113	01/08/11	01/12/11	EPA 6020	

##### 52\_17 : W11A060-03

Chromium	549	mg/kg dry	0.500	300	B11A113	01/08/11	01/13/11	EPA 6020	
Copper	444	mg/kg dry	0.200	300	B11A113	01/08/11	01/13/11	EPA 6020	
Lead	56.3	mg/kg dry	0.100	20	B11A113	01/08/11	01/12/11	EPA 6020	
Nickel	302	mg/kg dry	0.200	300	B11A113	01/08/11	01/13/11	EPA 6020	
Zinc	198	mg/kg dry	0.500	300	B11A113	01/08/11	01/13/11	EPA 6020	

##### 52\_18 : W11A060-04

Chromium	31.1	mg/kg dry	0.500	20	B11A113	01/08/11	01/12/11	EPA 6020	
Copper	57.0	mg/kg dry	0.200	20	B11A113	01/08/11	01/12/11	EPA 6020	
Lead	172	mg/kg dry	0.100	40	B11A113	01/08/11	01/13/11	EPA 6020	
Nickel	32.7	mg/kg dry	0.200	20	B11A113	01/08/11	01/12/11	EPA 6020	
Zinc	211	mg/kg dry	0.500	20	B11A113	01/08/11	01/12/11	EPA 6020	

##### 52\_19 : W11A060-05

Chromium	57.1	mg/kg dry	0.500	20	B11A113	01/08/11	01/12/11	EPA 6020	
Copper	161	mg/kg dry	0.200	20	B11A113	01/08/11	01/12/11	EPA 6020	
Lead	149	mg/kg dry	0.100	20	B11A113	01/08/11	01/12/11	EPA 6020	
Nickel	57.5	mg/kg dry	0.200	20	B11A113	01/08/11	01/12/11	EPA 6020	
Zinc	273	mg/kg dry	0.500	20	B11A113	01/08/11	01/12/11	EPA 6020	

##### 52\_20 : W11A060-06

Chromium	136	mg/kg dry	0.500	80	B11A113	01/08/11	01/13/11	EPA 6020	
Copper	422	mg/kg dry	0.200	80	B11A113	01/08/11	01/13/11	EPA 6020	
Lead	113	mg/kg dry	0.100	20	B11A113	01/08/11	01/12/11	EPA 6020	
Nickel	99.7	mg/kg dry	0.200	80	B11A113	01/08/11	01/13/11	EPA 6020	
Zinc	408	mg/kg dry	0.500	80	B11A113	01/08/11	01/13/11	EPA 6020	

##### 52\_21 : W11A060-07

Chromium	216	mg/kg dry	0.500	100	B11A113	01/08/11	01/13/11	EPA 6020	
Copper	224	mg/kg dry	0.200	100	B11A113	01/08/11	01/13/11	EPA 6020	

Reported: 02/14/11 14:52

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Renee Chauvin, Laboratory Coordinator QA/QC



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Water Pollution Control Laboratory

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Project: **Portland Harbor**  
Work Order: **W11A060**

Client: Director's Office  
Project Mgr: Linda Scheffler

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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### Total Metals

#### Total Metals by ICPMS

##### 52\_21 : W11A060-07

Lead	75.9	mg/kg dry	0.100	20	B11A113	01/08/11	01/12/11	EPA 6020
Nickel	144	mg/kg dry	0.200	100	B11A113	01/08/11	01/13/11	EPA 6020
Zinc	523	mg/kg dry	0.500	100	B11A113	01/08/11	01/13/11	EPA 6020

##### 52\_22 : W11A060-08

Chromium	304	mg/kg dry	0.500	200	B11A113	01/08/11	01/13/11	EPA 6020
Copper	541	mg/kg dry	0.200	200	B11A113	01/08/11	01/13/11	EPA 6020
Lead	47.1	mg/kg dry	0.100	20	B11A113	01/08/11	01/13/11	EPA 6020
Nickel	144	mg/kg dry	0.200	200	B11A113	01/08/11	01/13/11	EPA 6020
Zinc	178	mg/kg dry	0.500	200	B11A113	01/08/11	01/13/11	EPA 6020

##### DUP : W11A060-09

Chromium	104	mg/kg dry	0.500	80	B11A113	01/08/11	01/13/11	EPA 6020
Copper	436	mg/kg dry	0.200	80	B11A113	01/08/11	01/13/11	EPA 6020
Lead	96.7	mg/kg dry	0.100	20	B11A113	01/08/11	01/12/11	EPA 6020
Nickel	81.8	mg/kg dry	0.200	80	B11A113	01/08/11	01/13/11	EPA 6020
Zinc	146	mg/kg dry	0.500	20	B11A113	01/08/11	01/12/11	EPA 6020

##### 52\_23 : W11A060-10

Chromium	40.0	mg/kg dry	0.500	20	B11A371	01/27/11	01/27/11	EPA 6020
Copper	69.8	mg/kg dry	0.200	20	B11A371	01/27/11	01/27/11	EPA 6020
Lead	101	mg/kg dry	0.100	20	B11A371	01/27/11	01/27/11	EPA 6020
Nickel	25.6	mg/kg dry	0.200	20	B11A371	01/27/11	01/27/11	EPA 6020
Zinc	164	mg/kg dry	0.500	20	B11A371	01/27/11	01/27/11	EPA 6020

Reported: 02/14/11 14:52

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Renee Chauvin, Laboratory Coordinator QA/QC



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Water Pollution Control Laboratory

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Project: **Portland Harbor**  
Work Order: **W11A060**

Client: **Director's Office**  
Project Mgr: **Linda Scheffler**

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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**Polychlorinated Biphenyls (PCBs)**

PCB Aroclors by GC-ECD

52\_15 : W11A060-01

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	21700	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	18.7		24.2	78%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	27.7		24.2	115%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

52\_16 : W11A060-02

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	11900	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	17.3		21.0	82%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	17.5		21.0	83%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

52\_17 : W11A060-03

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	10700	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	14.9		18.4	81%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	15.1		18.4	82%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

52\_18 : W11A060-04

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	

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Renee Chauvin, Laboratory Coordinator QA/QC



City of Portland  
Water Pollution Control Laboratory

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



Project: **Portland Harbor**  
Work Order: **W11A060**

Client: **Director's Office**  
Project Mgr: **Linda Scheffler**

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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**Polychlorinated Biphenyls (PCBs)**

PCB Aroclors by GC-ECD

52\_18 : W11A060-04

Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	<b>606</b>	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	16.3		20.0	82%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	21.5		20.0	108%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

52\_19 : W11A060-05

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	<b>1170</b>	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	23.4		27.8	84%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	22.3		27.8	80%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

52\_20 : W11A060-06

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	<b>846</b>	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	50.0	5	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	24.4		22.8	107%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	19.6		22.8	86%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

52\_21 : W11A060-07

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	100	10	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	<b>1940</b>	ug/kg dry	100	10	B11A124	01/10/11	01/11/11	EPA 8082	D2

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Renee Chauvin, Laboratory Coordinator QA/QC



City of Portland  
Water Pollution Control Laboratory

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



Project: **Portland Harbor**  
Work Order: **W11A060**

Client: **Director's Office**  
Project Mgr: **Linda Scheffler**

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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**Polychlorinated Biphenyls (PCBs)**

PCB Aroclors by GC-ECD

52\_21 : W11A060-07

Aroclor 1262	ND	ug/kg dry	100	10	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	100	10	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	20.8		24.6	84%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	26.6		24.6	108%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

52\_22 : W11A060-08

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	100	10	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	1240	ug/kg dry	100	10	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	100	10	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	100	10	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	14.7		20.5	72%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	14.6		20.5	71%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

DUP : W11A060-09

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A124	01/10/11	01/11/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1260	10500	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	1000	100	B11A124	01/10/11	01/11/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				
Tetrachloro-m-xylene	13.1		18.4	71%	62.5-132	B11A124	01/10/11	01/11/11	EPA 8082
Decachlorobiphenyl	12.7		18.4	69%	43.5-150	B11A124	01/10/11	01/11/11	EPA 8082

52\_23 : W11A060-10

Aroclor 1016/1242	ND	ug/kg dry	10.0	1	B11A384	01/27/11	01/27/11	EPA 8082	
Aroclor 1221	ND	ug/kg dry	20.0	1	B11A384	01/27/11	01/27/11	EPA 8082	
Aroclor 1232	ND	ug/kg dry	10.0	1	B11A384	01/27/11	01/27/11	EPA 8082	
Aroclor 1248	ND	ug/kg dry	10.0	1	B11A384	01/27/11	01/27/11	EPA 8082	
Aroclor 1254	ND	ug/kg dry	1000	1	B11A384	01/27/11	01/27/11	EPA 8082	D2
Aroclor 1260	7120	ug/kg dry	1000	100	B11A384	01/27/11	01/27/11	EPA 8082	D2
Aroclor 1262	ND	ug/kg dry	1000	1	B11A384	01/27/11	01/27/11	EPA 8082	D2
Aroclor 1268	ND	ug/kg dry	1000	1	B11A384	01/27/11	01/27/11	EPA 8082	D2
<b>Surrogate</b>	<b>Result</b>		<b>Expected</b>	<b>%Rec</b>	<b>Limits(%)</b>				

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Water Pollution Control Laboratory

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Project: **Portland Harbor**  
Work Order: **W11A060**

Client: Director's Office  
Project Mgr: Linda Scheffler

Analyte	Result	Units	MRL	Dilution	Batch	Prepared	Analyzed	Method	Qualifier
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**Polychlorinated Biphenyls (PCBs)**

PCB Aroclors by GC-ECD

52\_23 : W11A060-10

Surrogate	Result	Expected	%Rec	Limits(%)
Tetrachloro-m-xylene	18.5	22.1	83%	62.5-132 B11A384 01/27/11 01/27/11 EPA 8082
Decachlorobiphenyl	24.2	22.1	109%	43.5-150 B11A384 01/27/11 01/27/11 EPA 8082

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Water Pollution Control Laboratory

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Project: **Portland Harbor**  
Work Order: **W11A060**

Client: Director's Office  
Project Mgr: Linda Scheffler

**Quality Control Report**

**General Chemistry - QC**

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
<b>Total Solids - Batch B11A115</b>									
<b>Duplicate (B11A115-DUP1)</b>			<b>Source: W11A060-01</b>						
Total solids	82.2	% W/W	0.01		80.1		3 (20)	01/08/11 :01/09/11	
<b>Total Solids - Batch B11A368</b>									
<b>Duplicate (B11A368-DUP1)</b>			<b>Source: W11A060-10</b>						
Total solids	84.8	% W/W	0.01		85.3		0.6 (20)	01/26/11 :01/27/11	

**Total Metals - QC**

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
<b>Total Metals by ICPMS - Batch B11A113</b>									
<b>Blank (B11A113-BLK1)</b>									
Chromium	ND	mg/kg wet	0.500					01/08/11 :01/12/11	
Copper	ND	mg/kg wet	0.200					01/08/11 :01/12/11	
Lead	ND	mg/kg wet	0.100					01/08/11 :01/12/11	
Nickel	ND	mg/kg wet	0.200					01/08/11 :01/12/11	
Zinc	ND	mg/kg wet	0.500					01/08/11 :01/12/11	
<b>Standard Reference Material (B11A113-SRM1)</b>									
Chromium	129.0	mg/kg wet	0.500	124		104 (75-125)		01/08/11 :01/12/11	
Copper	69.68	mg/kg wet	0.200	66.7		104 (75-125)		01/08/11 :01/12/11	
Lead	221.4	mg/kg wet	0.100	223		99 (75-125)		01/08/11 :01/12/11	
Nickel	181.7	mg/kg wet	0.200	172		106 (75-125)		01/08/11 :01/12/11	
Zinc	397.9	mg/kg wet	0.500	349		114 (75-125)		01/08/11 :01/12/11	
<b>Duplicate (B11A113-DUP1)</b>			<b>Source: W11A060-01</b>						
Chromium	59.28	mg/kg dry	0.500		130.9		75 (20)	01/08/11 :01/12/11	M1, N
Copper	146.1	mg/kg dry	0.200		169.2		15 (20)	01/08/11 :01/12/11	
Lead	196.5	mg/kg dry	0.100		181.0		8 (20)	01/08/11 :01/12/11	
Nickel	34.11	mg/kg dry	0.200		49.25		36 (20)	01/08/11 :01/12/11	M1, N
Zinc	332.6	mg/kg dry	0.500		357.9		7 (20)	01/08/11 :01/12/11	
<b>Matrix Spike (B11A113-MS1)</b>			<b>Source: W11A060-01</b>						
Chromium	88.67	mg/kg dry	0.500	45.7	130.9	-92 (75-125)		01/08/11 :01/12/11	M4, N
Copper	169.9	mg/kg dry	0.200	76.1	169.2	0.9 (75-125)		01/08/11 :01/12/11	M4, N
Lead	239.1	mg/kg dry	0.100	76.1	181.0	76 (75-125)		01/08/11 :01/12/11	
Nickel	107.9	mg/kg dry	0.200	76.1	49.25	77 (75-125)		01/08/11 :01/12/11	
Zinc	395.1	mg/kg dry	0.500	76.1	357.9	49 (75-125)		01/08/11 :01/12/11	M9
<b>Total Metals by ICPMS - Batch B11A371</b>									
<b>Blank (B11A371-BLK1)</b>									

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Project: **Portland Harbor**  
Work Order: **W11A060**

Client: Director's Office  
Project Mgr: Linda Scheffler

**Total Metals - QC**

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
<b>Total Metals by ICPMS - Batch B11A371</b>									
<b>Blank (B11A371-BLK1)</b>									
Chromium	ND	mg/kg wet	0.500					01/27/11 :01/27/11	
Copper	0.212	mg/kg wet	0.200					01/27/11 :01/27/11	B2
Lead	ND	mg/kg wet	0.100					01/27/11 :01/27/11	
Nickel	ND	mg/kg wet	0.200					01/27/11 :01/27/11	
Zinc	ND	mg/kg wet	0.500					01/27/11 :01/27/11	
<b>Standard Reference Material (B11A371-SRM1)</b>									
Chromium	127.7	mg/kg wet	0.500	124		103 (75-125)		01/27/11 :01/27/11	
Copper	68.93	mg/kg wet	0.200	66.7		103 (75-125)		01/27/11 :01/27/11	
Lead	218.3	mg/kg wet	0.100	223		98 (75-125)		01/27/11 :01/27/11	
Nickel	174.2	mg/kg wet	0.200	172		101 (75-125)		01/27/11 :01/27/11	
Zinc	377.4	mg/kg wet	0.500	349		108 (75-125)		01/27/11 :01/27/11	
<b>Duplicate (B11A371-DUP2) Source: W11A060-10</b>									
Chromium	37.43	mg/kg dry	0.500		40.04		7 (20)	01/27/11 :01/27/11	
Copper	74.20	mg/kg dry	0.200		69.76		6 (20)	01/27/11 :01/27/11	
Lead	98.17	mg/kg dry	0.100		100.7		3 (20)	01/27/11 :01/27/11	
Nickel	25.43	mg/kg dry	0.200		25.61		0.7 (20)	01/27/11 :01/27/11	
Zinc	166.6	mg/kg dry	0.500		164.0		2 (20)	01/27/11 :01/27/11	
<b>Matrix Spike (B11A371-MS1) Source: W11A060-10</b>									
Chromium	71.50	mg/kg dry	0.500	35.9	40.04	88 (75-125)		01/27/11 :01/27/11	
Copper	131.1	mg/kg dry	0.200	59.8	69.76	103 (75-125)		01/27/11 :01/27/11	
Lead	165.6	mg/kg dry	0.100	59.8	100.7	109 (75-125)		01/27/11 :01/27/11	
Nickel	80.73	mg/kg dry	0.200	59.8	25.61	92 (75-125)		01/27/11 :01/27/11	
Zinc	241.1	mg/kg dry	0.500	59.8	164.0	129 (75-125)		01/27/11 :01/27/11	M5, N

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Project: **Portland Harbor**  
Work Order: **W11A060**

Client: Director's Office  
Project Mgr: Linda Scheffler

**Polychlorinated Biphenyls (PCBs) - QC**

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
<b>PCB Aroclors by GC-ECD - Batch B11A124</b>									
<b>Blank (B11A124-BLK1)</b>									
Aroclor 1016/1242	ND	ug/kg wet	10.0					01/10/11 :01/11/11	
Aroclor 1221	ND	ug/kg wet	20.0					01/10/11 :01/11/11	
Aroclor 1232	ND	ug/kg wet	10.0					01/10/11 :01/11/11	
Aroclor 1248	ND	ug/kg wet	10.0					01/10/11 :01/11/11	
Aroclor 1254	ND	ug/kg wet	10.0					01/10/11 :01/11/11	
Aroclor 1260	ND	ug/kg wet	10.0					01/10/11 :01/11/11	
Aroclor 1262	ND	ug/kg wet	10.0					01/10/11 :01/11/11	
Aroclor 1268	ND	ug/kg wet	10.0					01/10/11 :01/11/11	
<b>Surrogate</b>									
Tetrachloro-m-xylene	19.0		ug/kg wet	19.9		95		01/10/11 :01/11/11	
Decachlorobiphenyl	20.1		ug/kg wet	19.9		101		01/10/11 :01/11/11	
<b>LCS (B11A124-BS1)</b>									
Aroclor 1016/1242	101.9	ug/kg wet	10.0	100		102 (85.4-116.4)		01/10/11 :01/11/11	
Aroclor 1260	94.60	ug/kg wet	10.0	100		95 (64.1-133.6)		01/10/11 :01/11/11	
<b>Surrogate</b>									
Tetrachloro-m-xylene	19.3		ug/kg wet	20.0		97 (62.5-132)		01/10/11 :01/11/11	
Decachlorobiphenyl	20.5		ug/kg wet	20.0		102 (43.5-150)		01/10/11 :01/11/11	
<b>Matrix Spike (B11A124-MS1) Source: W11A060-09</b>									
Aroclor 1016/1242	86.71	ug/kg dry	10.0	94.7	ND	92 (55.2-135.4)		01/10/11 :01/11/11	N
<b>Surrogate</b>									
Tetrachloro-m-xylene	17.1		ug/kg dry	18.9		90 (62.5-132)		01/10/11 :01/11/11	
Decachlorobiphenyl	17.6		ug/kg dry	18.9		93 (43.5-150)		01/10/11 :01/11/11	
<b>Matrix Spike Dup (B11A124-MSD1) Source: W11A060-09</b>									
Aroclor 1016/1242	80.45	ug/kg dry	10.0	103	ND	78 (55.2-135.4)	7 (20)	01/10/11 :01/11/11	N
<b>Surrogate</b>									
Tetrachloro-m-xylene	17.4		ug/kg dry	20.6		85 (62.5-132)		01/10/11 :01/11/11	
Decachlorobiphenyl	18.8		ug/kg dry	20.6		92 (43.5-150)		01/10/11 :01/11/11	
<b>PCB Aroclors by GC-ECD - Batch B11A384</b>									
<b>Blank (B11A384-BLK1)</b>									
Aroclor 1016/1242	ND	ug/kg wet	10.0					01/27/11 :01/27/11	
Aroclor 1221	ND	ug/kg wet	20.0					01/27/11 :01/27/11	
Aroclor 1232	ND	ug/kg wet	10.0					01/27/11 :01/27/11	
Aroclor 1248	ND	ug/kg wet	10.0					01/27/11 :01/27/11	
Aroclor 1254	ND	ug/kg wet	10.0					01/27/11 :01/27/11	
Aroclor 1260	ND	ug/kg wet	10.0					01/27/11 :01/27/11	
Aroclor 1262	ND	ug/kg wet	10.0					01/27/11 :01/27/11	
Aroclor 1268	ND	ug/kg wet	10.0					01/27/11 :01/27/11	
<b>Surrogate</b>									
Tetrachloro-m-xylene	18.7		ug/kg wet	20.0		94		01/27/11 :01/27/11	
Decachlorobiphenyl	17.8		ug/kg wet	20.0		89		01/27/11 :01/27/11	

Reported: 02/14/11 14:52

Renee Chauvin, Laboratory Coordinator QA/QC

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.



City of Portland  
Water Pollution Control Laboratory

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



Project: **Portland Harbor**  
Work Order: **W11A060**

Client: Director's Office  
Project Mgr: Linda Scheffler

**Polychlorinated Biphenyls (PCBs) - QC**

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
<b>PCB Aroclors by GC-ECD - Batch B11A384</b>									
<b>LCS (B11A384-BS1)</b>									
Aroclor 1016/1242	95.74	ug/kg wet	10.0	100		96 (80-120)		01/27/11 :01/27/11	
Aroclor 1260	85.42	ug/kg wet	10.0	100		85 (64.1-133)		01/27/11 :01/27/11	
<b>Surrogate</b>									
Tetrachloro-m-xylene	17.7	ug/kg wet		20.0		88 (62.5-132)		01/27/11 :01/27/11	
Decachlorobiphenyl	17.2	ug/kg wet		20.0		86 (43.5-150)		01/27/11 :01/27/11	
<b>Matrix Spike (B11A384-MS1) Source: W11A060-10</b>									
Aroclor 1016/1242	90.92	ug/kg dry	10.0	118	ND	77 (55.2-135.4)		01/27/11 :01/27/11	N
<b>Surrogate</b>									
Tetrachloro-m-xylene	17.5	ug/kg dry		23.6		74 (62.5-132)		01/27/11 :01/27/11	
Decachlorobiphenyl	25.7	ug/kg dry		23.6		109 (43.5-150)		01/27/11 :01/27/11	
<b>Matrix Spike Dup (B11A384-MSD1) Source: W11A060-10</b>									
Aroclor 1016/1242	107.3	ug/kg dry	10.0	118	ND	91 (55.2-135.4)	17 (20)	01/27/11 :01/27/11	N
<b>Surrogate</b>									
Tetrachloro-m-xylene	19.9	ug/kg dry		23.5		84 (62.5-132)		01/27/11 :01/27/11	
Decachlorobiphenyl	18.9	ug/kg dry		23.5		80 (43.5-150)		01/27/11 :01/27/11	

**Qualifiers**

B2	Analyte was detected in the Method Blank, but at a concentration less than one tenth the amount in the sample.
D2	The sample required dilution due to high levels of target analytes.
M1	Matrix duplicate precision measurement indicates non-homogenous sample matrix. The result should be considered an estimate.
M4	Based on low matrix spike recovery, the sample result may be a low estimate due to matrix interference.
M5	Based on high matrix spike recovery, the sample result should be considered an estimate due to matrix effect and/or non-homogeneous matrix.
M9	Matrix spike recovery control limits are not applicable because the sample concentration is greater than 4 times the spike amount.
N	Refer to case narrative.

**Definitions**

DET	Analyte Detected	ND	Analyte Not Detected at or above the reporting limit
MRL	Method Reporting Limit	MDL	Method Detection Limit
NR	Not Reportable	dry	Sample results reported on a dry weight basis
% Rec.	Percent Recovery	RPD	Relative Percent Difference

Reported: 02/14/11 14:52

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

Renee Chauvin, Laboratory Coordinator QA/QC

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: PUA0215

TestAmerica Sample Delivery Group: PUA0215

Client Project/Site: W11A060

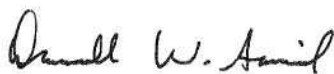
Client Project Description: Portland Harbor

Revision: 1

For:

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

Attn: Jennifer Shackelford



Authorized for release by:  
2/14/2011 1:31 PM

Darrell Auvil  
Project Manager  
[darrell.auvil@testamericainc.com](mailto:darrell.auvil@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

Results relate only to the items tested and the sample(s) as received by the laboratory. The test results in this report meet all 2003 NELAC requirements for accredited parameters, exceptions are noted in this report. Pursuant to NELAC, this report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.



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# Sample Summary

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
PUA0215-01	W11A060-01	Soil	01/06/11 14:00	01/07/11 18:01
PUA0215-02	W11A060-02	Soil	01/06/11 14:35	01/07/11 18:01
PUA0215-03	W11A060-03	Soil	01/06/11 13:30	01/07/11 18:01
PUA0215-04	W11A060-04	Soil	01/06/11 12:00	01/07/11 18:01
PUA0215-05	W11A060-05	Soil	01/06/11 12:30	01/07/11 18:01
PUA0215-06	W11A060-06	Soil	01/06/11 12:58	01/07/11 18:01
PUA0215-07	W11A060-07	Soil	01/06/11 15:18	01/07/11 18:01
PUA0215-08	W11A060-08	Soil	01/06/11 15:35	01/07/11 18:01
PUA0215-09	W11A060-09	Soil	01/06/11 00:00	01/07/11 18:01
PUA0215-10	W11A060-10	Soil	01/06/11 15:00	01/07/11 18:01

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Case Narrative

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215  
SDG: PUA0215

Job ID: PUA0215

Laboratory: TestAmerica Portland

Narrative

Amended report to reflect addition of sample #10 for TOC analysis.

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Qualifier Definition/Glossary

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215  
SDG: PUA0215

Glossary

Glossary	Glossary Description
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.

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## Detection Summary

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215  
SDG: PUA0215

### Client Sample ID: W11A060-01

### Lab Sample ID: PUA0215-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	23000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-02

### Lab Sample ID: PUA0215-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	13000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-03

### Lab Sample ID: PUA0215-03

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	13000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-04

### Lab Sample ID: PUA0215-04

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	34000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-05

### Lab Sample ID: PUA0215-05

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	84000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-06

### Lab Sample ID: PUA0215-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	45000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-07

### Lab Sample ID: PUA0215-07

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	70000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-08

### Lab Sample ID: PUA0215-08

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	20000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-09

### Lab Sample ID: PUA0215-09

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	15000		100		mg/Kg	1		9060	total

### Client Sample ID: W11A060-10

### Lab Sample ID: PUA0215-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Duplicates	25000		100		mg/Kg	1		9060	total

# Analytical Data

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215  
SDG: PUA0215

## Method: 9060 - Organic Carbon, Total (TOC)

Client Sample ID: W11A060-01  
Date Collected: 01/06/11 14:00  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-01  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	23000		100		mg/Kg		01/18/11 17:15	01/18/11 17:15	1

Client Sample ID: W11A060-02  
Date Collected: 01/06/11 14:35  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-02  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	13000		100		mg/Kg		01/18/11 17:28	01/18/11 17:28	1

Client Sample ID: W11A060-03  
Date Collected: 01/06/11 13:30  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-03  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	13000		100		mg/Kg		01/18/11 17:41	01/18/11 17:41	1

Client Sample ID: W11A060-04  
Date Collected: 01/06/11 12:00  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-04  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	34000		100		mg/Kg		01/18/11 17:55	01/18/11 17:55	1

Client Sample ID: W11A060-05  
Date Collected: 01/06/11 12:30  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-05  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	84000		100		mg/Kg		01/18/11 18:30	01/18/11 18:30	1

Client Sample ID: W11A060-06  
Date Collected: 01/06/11 12:58  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-06  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	45000		100		mg/Kg		01/18/11 18:51	01/18/11 18:51	1

Client Sample ID: W11A060-07  
Date Collected: 01/06/11 15:18  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-07  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	70000		100		mg/Kg		01/18/11 19:05	01/18/11 19:05	1

Client Sample ID: W11A060-08  
Date Collected: 01/06/11 15:35  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-08  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	20000		100		mg/Kg		01/18/11 19:18	01/18/11 19:18	1

Client Sample ID: W11A060-09  
Date Collected: 01/06/11 00:00  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-09  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	15000		100		mg/Kg		01/18/11 20:16	01/18/11 20:16	1

Analytical Data

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215  
SDG: PUA0215

Method: 9060 - Organic Carbon, Total (TOC)

Client Sample ID: W11A060-10  
Date Collected: 01/06/11 15:00  
Date Received: 01/07/11 18:01

Lab Sample ID: PUA0215-10  
Matrix: Soil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	25000		100		mg/Kg		02/03/11 14:01	02/03/11 14:01	1

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# Quality Control Data

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215  
SDG: PUA0215

## Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: 220-47194-6  
Matrix: Soil  
Analysis Batch: 47194

Client Sample ID: 220-47194-6  
Prep Type: total  
Prep Batch: 47194\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		100		mg/Kg		01/18/11 17:08	01/18/11 17:08	1

Lab Sample ID: 220-47194-5  
Matrix: Soil  
Analysis Batch: 47194

Client Sample ID: 220-47194-5  
Prep Type: total  
Prep Batch: 47194\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Total Organic Carbon - Duplicates	4110	5240		mg/Kg		127	28 - 172

Lab Sample ID: 145368D  
Matrix: Soil  
Analysis Batch: 47194

Client Sample ID: W11A060-08  
Prep Type: total  
Prep Batch: 47194\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	Limit
Total Organic Carbon - Duplicates	20000		106000	127000		mg/Kg		100	75 - 125	2	20

Lab Sample ID: 145368S  
Matrix: Soil  
Analysis Batch: 47194

Client Sample ID: W11A060-08  
Prep Type: total  
Prep Batch: 47194\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Total Organic Carbon - Duplicates	20000		113000	129000		mg/Kg		97	75 - 125

Lab Sample ID: 145368X  
Matrix: Soil  
Analysis Batch: 47194

Client Sample ID: W11A060-08  
Prep Type: total  
Prep Batch: 47194\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	Limit
Total Organic Carbon - Duplicates	20000		21400		mg/Kg		5	20

Lab Sample ID: 220-47655-6  
Matrix: Soil  
Analysis Batch: 47655

Client Sample ID: 220-47655-6  
Prep Type: total  
Prep Batch: 47655\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		100		mg/Kg		02/03/11 13:22	02/03/11 13:22	1

Lab Sample ID: 220-47655-5  
Matrix: Soil  
Analysis Batch: 47655

Client Sample ID: 220-47655-5  
Prep Type: total  
Prep Batch: 47655\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Total Organic Carbon - Duplicates	4110	4540		mg/Kg		111	28 - 172

Lab Sample ID: 1453610S  
Matrix: Soil  
Analysis Batch: 47655

Client Sample ID: W11A060-10  
Prep Type: total  
Prep Batch: 47655\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Total Organic Carbon - Duplicates	25000		119000	149000		mg/Kg		104	75 - 125

Quality Control Data

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215  
SDG: PUA0215

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 1453610X  
Matrix: Soil  
Analysis Batch: 47655

Client Sample ID: W11A060-10  
Prep Type: total  
Prep Batch: 47655\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	25000		24900		mg/Kg	-	0.4	20

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## Certification Summary

Client: City of Portland Water Pollution Laboratory  
Project/Site: W11A060

TestAmerica Job ID: PUA0215  
SDG: PUA0215

Laboratory	Authority	Program	EPA Region	Certification ID	* Expiration Date
TestAmerica Portland		USDA		P330-07-XXXXXX	11/13/10
TestAmerica Portland	Alaska	Alaska UST	10	UST-012	12/26/10
TestAmerica Portland	Alaska	State Program	10	OR00040	04/21/11
TestAmerica Portland	California	State Program	9	2597	09/30/11
TestAmerica Portland	Oregon	NELAC	10	OR100021	01/09/12
TestAmerica Portland	Washington	State Program	10	C586	06/23/11
TestAmerica Connecticut		NRC		06-30139-01	02/28/15
TestAmerica Connecticut		USDA		S-70244	02/20/11
TestAmerica Connecticut	Connecticut	State Program	1	PH-0497	12/31/12
TestAmerica Connecticut	Massachusetts	State Program	1	M-CT023	06/30/11
TestAmerica Connecticut	New Jersey	NELAC	2	CT410	06/30/11
TestAmerica Connecticut	New York	NELAC	2	10602	04/01/11
TestAmerica Connecticut	Rhode Island	State Program	1	LAO00226	12/30/11

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

\* Any expired certifications in this list are currently pending renewal and are considered valid.

**SUBCONTRACT ORDER**  
**City of Portland Water Pollution Control Lab**  
**W11A060**

PUA0215

**SENDING LABORATORY:**

City of Portland Water Pollution Control Lab  
6543 N. Burlington Ave  
Portland, OR 97203  
Phone: 503-823-5600  
Fax: 503-823-5656  
Invoice To: Charles Lytle using P.O.# 30001516

**RECEIVING LABORATORY:**

TestAmerica  
9405 SW Nimbus Ave  
Beaverton, OR 97008  
Phone : (503) 906-9200  
Fax: (503) 906-9210

**WPCL Project Name**  
**Portland Harbor**

**TURNAROUND REQUEST**

☒ Standard  
☐ Rush \_ day(s)

5.9°C

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: W11A060-01	Solid	Sampled:01/06/11 14:00		
Out-TOC Solid	01/21/11 17:00	01/20/11 14:00		
Containers Supplied: G jar amber 4 oz (C)				
Sample ID: W11A060-02	Solid	Sampled:01/06/11 14:35		
Out-TOC Solid	01/21/11 17:00	01/20/11 14:35		
Containers Supplied: G jar amber 4 oz (C)				
Sample ID: W11A060-03	Solid	Sampled:01/06/11 13:30		
Out-TOC Solid	01/21/11 17:00	01/20/11 13:30		
Containers Supplied: G jar amber 4 oz (C)				
Sample ID: W11A060-04	Solid	Sampled:01/06/11 12:00		
Out-TOC Solid	01/21/11 17:00	01/20/11 12:00		
Containers Supplied: G jar amber 4 oz (C)				
Sample ID: W11A060-05	Solid	Sampled:01/06/11 12:30		
Out-TOC Solid	01/21/11 17:00	01/20/11 12:30		
Containers Supplied: G jar amber 4 oz (C)				

Released By

Date

Received By

Date

Released By

Date


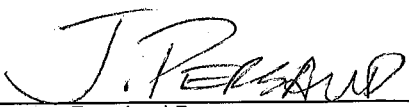

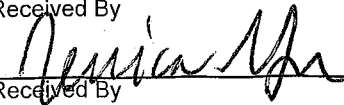
Received By

Date

**SUBCONTRACT ORDER**  
**City of Portland Water Pollution Control Lab**  
**W11A060**

PUA0215

Analysis	Due	Expires	Laboratory ID	Comments
<hr/>				
<b>Sample ID: W11A060-06</b>	<b>Solid</b>	<b>Sampled:01/06/11 12:58</b>		
Out-TOC Solid	01/21/11 17:00	01/20/11 12:58		
Containers Supplied:				
G jar amber 4 oz (C)				
<hr/>				
<b>Sample ID: W11A060-07</b>	<b>Solid</b>	<b>Sampled:01/06/11 15:18</b>		
Out-TOC Solid	01/21/11 17:00	01/20/11 15:18		
Containers Supplied:				
G jar amber 4 oz (C)				
<hr/>				
<b>Sample ID: W11A060-08</b>	<b>Solid</b>	<b>Sampled:01/06/11 15:35</b>		
Out-TOC Solid	01/21/11 17:00	01/20/11 15:35		
Containers Supplied:				
G jar amber 4 oz (C)				
<hr/>				
<b>Sample ID: W11A060-09</b>	<b>Solid</b>	<b>Sampled:01/06/11 00:00</b>		
Out-TOC Solid	01/21/11 17:00	01/20/11 00:00		
Containers Supplied:				
G jar amber 4 oz (C)				
<hr/>				

	1/7/11		1/7/11
Released By	Date	Received By	Date
	1/7/11 1801		1/7/11 1801
Released By	Date	Received By	Date

## Portland Sample Control Checklist

Work Order #: PVA0215 Date/Time Received: 1/7/11 1801  
 Client Name: City of Portland  
 Project Name: Willamette  
 Time Zone: ☐ EDT/EST ☐ CDT/CST ☐ MDT/MST ☒ PDT/PST ☐ AK ☐ OTHER

### Unpacking Checks:

Cooler (s): 1  
 Temperature (s): 5.9

Digi #1 ☐ Digi #2 ☐ IR Gun ☒ ( ☐ Plastic ☒ Glass )

Raytek ☐ ( ☐ Plastic ☐ Glass )

Ice used: (circle one)

GEL LOOSE BLUE

OTHER: \_\_\_\_\_

Initials: jm

### Temperature out of Range:

☐ Not enough or No Ice  
☐ Ice Melted  
☐ W/in 4 Hrs of collection  
☐ Ice Not Needed  
☐ Other: \_\_\_\_\_

N/A Yes No

- ☒ ☐ ☐ 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? Along with "received by" & "relinquished by" signatures with date & time? 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. Sampler name/signature documented on COC?
- ☒ ☐ ☐ 7. Proper Container and preservatives used? If no, document on NOD.
- ☒ ☐ ☐ 8. pH of all samples checked and meet requirements? If no, document on NOD.
- ☒ ☐ ☐ 9. Cyanide samples checked for sulfides and meet requirements? If no, notify PM.
- ☒ ☐ ☐ 10. HF Dilution required?
- ☒ ☐ ☐ 11. Sufficient volume provided for all analysis and requested MS/MSD? If no, document on NOD and consult PM before proceeding.
- ☒ ☐ ☐ 12. Did chain of custody agree with samples received? If no, document on NOD.
- ☒ ☐ ☐ 13. Were VOA samples received without headspace?
- ☐ ☒ ☐ 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. Are analyses with short holding times received in hold?
- ☐ ☒ ☐ 18. Were special log-in instructions read and followed?

Checklist Reviewed:

Log-in initials: jm

Labeler initials: jm

APPENDIX D

## Industrial Source Control Memo

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# CITY OF PORTLAND ENVIRONMENTAL SERVICES



Water Pollution Control Laboratory

6543 N. Burlington Avenue, Bldg 217, Portland, Oregon 97203 ■ Dan Saltzman, Commissioner ■ Dean Marriott, Director

## Industrial Source Control Memo

Date: March 16, 2012  
To: Linda Scheffler  
From: Loren Shelley  
Subject: Wet Weather Field Observations on 1/19/12  
Vicinity of Peninsula Iron Works – 6618 N Alta

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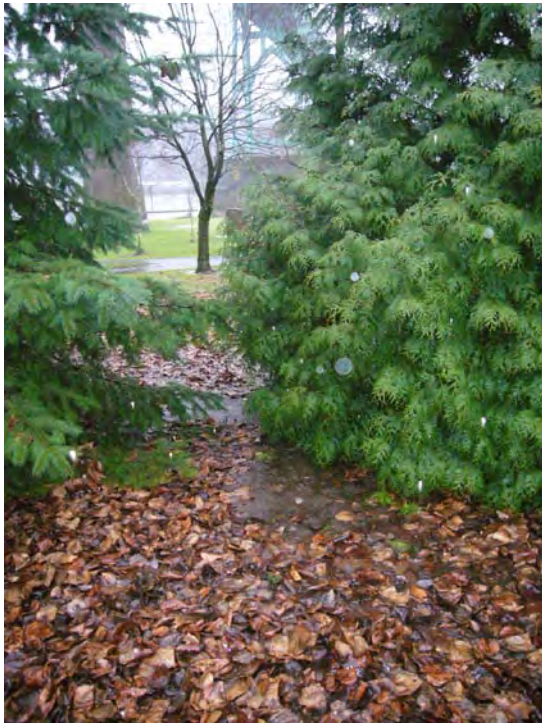
Industrial Stormwater staff conducted field observations during a heavy rain event on January 19, 2012 along the rail line adjacent to the Peninsula Iron Works (PIW) site. Photos from the site visit are included below for your review. As shown, large volumes of stormwater had accumulated around the southern corner of the PIW building and along the nearby rail line. Stormwater was flowing toward trenches that crossed the rail line in several locations. These trenches appeared to be manmade and conveyed stormwater to a landscaped area in Cathedral Park, where it appeared to be infiltrating into the soils and grassy area.



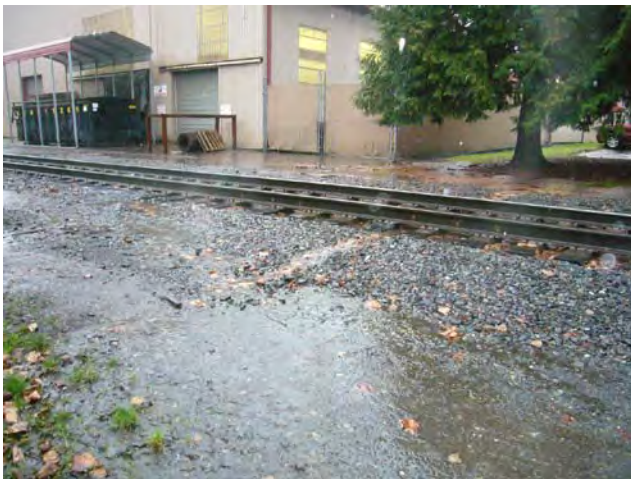
Photos show stormwater ponding near the PIW site and adjacent to the rail line. Stormwater entered what appeared to be manmade trenches, directing the flow across the rail line and into Cathedral Park.







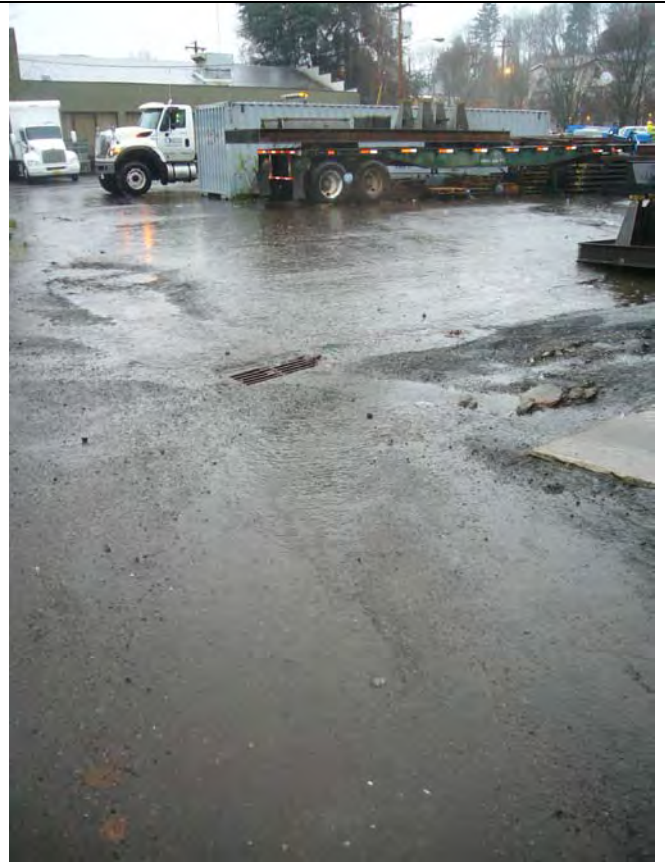
Stormwater entering Cathedral Park landscape



Trenched water crossing rail line into Cathedral Park



Ponded water near PIW storage area



PIW activity areas at N Alta  
and N Bradford streets



Ponding near PIW scrap storage area



Railroad tracks and ponding northwest of PIW



Looking south toward St Johns Bridge