Intergovernmental Agreement for Remedial Investigation and Source Control Measures

DEQ No. LQVC-NWR-03-10

Outfall Basin 19A Stormwater and Solids Investigation

Technical Memorandum No. OF 19A-1

November 22, 2011

PREPARED BY

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
working for clean rivers

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ENVIRONMENTAL SERVICES
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TECHNICAL MEMORANDUM No. OF19A-1

Outfall Basin 19A
Stormwater and Solids Investigation

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DATE: November 22, 2011

SUBJECT: **Portland Harbor Source Investigation**

Introduction

Outfall 19A discharges to the Willamette River into an area of Portland Harbor identified by the U.S. Environmental Protection Agency (EPA) as an area of potential concern (AOPC 18) based on elevated concentrations of polychlorinated biphenyls (PCBs), metals, pesticides, polycyclic aromatic hydrocarbons (PAHs), benzyl alcohol and chloroethane detected in inriver sediment. One other City outfall and approximately eight non-City outfalls also drain to AOPC 18. Outfall 19A drains a small area (less than 1.5 acres) that consists entirely of portions of NW Front and NW Kittridge Avenues and driveway aprons to adjacent industrial sites being evaluated under the DEQ Cleanup Program.

This investigation is 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 investigation supports the following joint City/DEQ objectives for Basin 19A under the IGA:

- Identify significant sources of contaminants to the outfall; and
- Collect and evaluate sufficient data to determine if source control measures are needed.

The data collected under this investigation supplement ongoing work by DEQ and the City to characterize and control discharges to the Basin 19A stormwater pathway from upland sites.

This technical memorandum summarizes the results of the City of Portland stormwater characterization and source investigation of Basin 19A catch basin solids and erodible soils in areas within and adjacent to the basin boundary. The City collected stormwater data representative of the whole basin during the 2009-2010 storm season to determine whether there were indications of major sources in the basin. In September 2010, the City analyzed inline

solids and erodible soils samples collected in the vicinity of a known adjacent source to determine whether offsite migration of site contaminants (PCBs and copper) may have a complete pathway to Basin 19A inlets.

The stormwater data indicate that although detected concentrations of total PCBs in some of the samples are slightly elevated, the average total PCBs concentration in the Basin 19A stormwater discharges is not significantly elevated relative to other basins discharging to Portland Harbor. Copper concentrations are moderately elevated in Basin 19A stormwater discharges, but are within the range of typical discharges from upland sites throughout the Portland Harbor upland area. Additional metals, such as lead and zinc, were also slightly elevated, but these metals and other contaminants were not detected in stormwater at concentrations that indicate significant sources.

Results of the September 2010 solids sampling in catch basin soils and erodible surface soils in the Basin 19A NW Front Avenue right-of-way (ROW) indicate that PCBs and copper are present at concentrations that exceed screening level values but are low relative to harborwide upland concentrations compiled by DEQ (DEQ, 2010). The highest concentrations of these contaminants were detected in samples collected adjacent to the basin in erodible soils next to a known source, suggesting that offsite migration (e.g., vehicle drag-out, overland runoff, and/or fugitive dusts) from this site may be a source to Basin 19A catch basins. This information has been provided to DEQ to incorporate into the site cleanup investigation. Based on the relatively low contaminant concentrations within the drainage basin and the small basin size, Outfall 19A appears to be an insignificant contaminant pathway to Portland Harbor. Source control improvements expected at adjacent Cleanup sites will further decrease loading to the river.

Basin 19A Configuration and Background

Basin Physical System

Outfall 19A is a 60-inch pipe that discharges on the west side of the Willamette River at roughly river mile 8.4. The outfall drains stormwater from approximately 1.5 acres of NW Front Avenue and NW Kittridge Avenue and driveway aprons to adjacent DEQ Cleanup sites. The stormwater system consists of a storm line and affiliated catch basins on NW Front Avenue that discharge to the main line to the river. Figure 1 provides an overview of the basin boundaries and stormwater conveyance system.

Potential Sources

Basin 19A is located in an area zoned for industrial use. While no industries are (or have been) connected to the Basin 19A stormwater conveyance system, all contiguous properties are industrial sites listed in DEQ's Environmental Cleanup Site Information (ECSI) database. Upland facilities identified as potential sources to the Basin 19A conveyance system include industrial properties directly adjacent to the basin boundary (including those with driveways that may convey sheet flow to catch basins along NW Front Avenue). Six ECSI sites are adjacent to the Basin 19A boundary. These sites are shown on Figure 1 and summarized below.

- *Calbag Metals/O'Neill Transfer & Storage Company (ECSI #2454)*. PCBs, metals, and phthalates have been detected at elevated concentrations in solids samples collected from onsite catch basins and/or stormwater lines. In 2005, accumulated sediments

within the storm drain lines at the site were removed and the site was repaved. In its 2005 Source Control Decision for the site, DEQ indicated that the site was "a potential historic source of copper, lead, chromium, mercury, PCBs and phthalates to the Willamette River. DEQ's accompanying No Further Action (NFA) determination required Calbag to collect confirmatory stormwater samples for analysis only of total suspended solids, copper, lead and zinc and a catch basin solids solids sample for analysis of metals (chromium, copper, lead, and mercury), PCBs, phthalates, and PAHs (DEQ, 2005). Total copper and lead concentrations in site stormwater sampled during two of the three confirmatory storm events were elevated (Creekside, 2006) relative to the range of concentrations detected in stormwater included in DEQ's harborwide upland site data compilation (DEQ, 2010). Metals, phthalates, and PAHs concentrations in the follow up catch basin solids sample (DEQ, 2006) were not elevated relative to this harborwide range. The total PCBs concentration (1,270 µg/Kg) was significantly elevated suggesting the presence of a current source to the stormwater system.

To verify that the site was not an ongoing source of PCBs to Basin 19, the City collected solids samples from the site storm lateral discharging to the Basin 19 storm system in 2007 and 2008. Results for both samples indicated significantly elevated total PCBs concentrations (630 – 2,360 µg/Kg) in the stormwater solids discharged from the site (BES, 2008; 2009). Sample volumes were not sufficient to analyze for metals. Under a new agreement with DEQ, the current site owner (the O'Neill Transfer & Storage Co.) recently conducted a storm system solids evaluation at the site and the results of this investigation confirm that PCBs and metals concentrations remain elevated in onsite stormwater system solids (Creekside, 2010).

- *Front Avenue LP (ECSI #1239).* Catch basin samples were collected in May 2008 in accordance with a DEQ-approved stormwater evaluation work plan (MFA, 2008a). Based on the summary of the catch basin sampling results (MFA, 2008b), metals, phthalates, PAHs and phenol were detected at concentrations greater than Portland Harbor Joint Source Control Strategy (JSCS) screening level values (SLVs) (DEQ/EPA, 2005). PCBs were not detected in the catch basin solids. The stormwater sampling component of the evaluation was initiated in November 2008. Based on the memorandum summarizing the results of one sampling event in November 2008 (MFA, 2009), BEHP, metals, and PAHs are present at concentrations exceeding JSCS SLVs in stormwater discharging from the site to Basin 19. In addition, PCB Aroclor 1254 also exceeded the JSCS SLV in one sample. No other data are available for review and the status of the site stormwater evaluation is not known.

- *Gunderson Inc. (ECSI #1155).* Multiple environmental investigations have been conducted at this site. Soil contaminants detected at the site include petroleum hydrocarbons, PCBs, PAHs, chromium, lead, arsenic, and zinc (Squier, 2002). Groundwater contaminants of interest include volatile organic compounds (VOCs), petroleum hydrocarbons, PAHs, and metals. Stormwater contaminants of interest include petroleum hydrocarbons, PCBs, metals, butyltins and phthalates (Integral et. al., 2011).

  In September and October 2006, Gunderson collected solids samples from onsite catch basins during the facility's annual catch basin cleaning. Concentrations of phthalates, PAHs, PCBs, and metals exceeded JSCS SLVs in one or more samples collected from

catch basins in the drainage area closest to Basin 19A (Kleinfelder, 2008). In January 2010, the site submitted a sampling and analysis plan to DEQ for collection of stormwater and stormwater solids samples (Shaw, 2010). No additional data are available for review at this time.

- *Kittridge Distribution Center (ECSI #2442).* This site was redeveloped in 1996. Prior to redevelopment activities, contaminants were identified in site soil and/or groundwater (DEQ, 2007a). DEQ issued a Source Control Decision for the site in 2004 that indicated the potential for historical stormwater contamination at the site (DEQ, 2004). DEQ selected a combination of final remedies for the site and issued the Record of Decision, including a conditional NFA determination, in 2007 (DEQ, 2007).
- *Lakeside Industries (ECSI #2372).* This site was identified as a potential source of metals and SVOCs to the Willamette River based on detections in river sediments adjacent to the site. With the exception of small portions of site driveways adjacent to NW Front Avenue, site stormwater at the site formerly discharged to onsite dry wells. The two dry wells were closed in late 2003 - early 2004 (DEQ, 1999). The site directed its stormwater to the City's sanitary sewer without a permit. Lakeside, the City, and DEQ currently are evaluating future stormwater disposal options for the site.
- *Shaver Transportation Company (ECSI #2377).* This site was identified as a potential source of PAHs and diesel to river sediments based on site operations and contaminant concentrations detected in river sediments in the adjacent harbor. Based on its review of available information, DEQ determined this site poses no significant threat to human health or the environment and issued an NFA determination in June 2003 (DEQ, 2003).

Stormwater Sampling and Analysis

Field Activities

The City conducted the stormwater sampling activities consistent with the City's *Amended Programmatic Quality Assurance Project Plan* (QAPP) (BES, 2007a) and *Amended Programmatic Sampling and Analysis Plan* (Programmatic SAP) (BES, 2007b) for collection of water and solids samples for the City of Portland Outfalls Project. Manhole AAP905 (located in the 60-inch main line) (Figure 1) was chosen as the sampling location in Basin 19A because it is located downstream of all catch basin connections to the conveyance system and as such represents discharge from the entire basin. In accordance with the JSCS and the sampling and analysis plan (SAP) utilized for collecting stormwater samples from other City outfall basins in 2008 (BES, 2007c), stormwater samples were collected during four storm events, two of which targeted "first-flush" conditions (broadly defined for the purposes of basin-level monitoring as being within the first 3 hours of observed runoff). Photographs of the sampling location and stormwater flow conditions are provided in Attachment A. Field notes taken during sampling activities are provided in Attachment B.

Storm Events Sampled

The Basin 19A stormwater sampling targeted storm events meeting the following criteria (consistent with the JSCS):

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

These criteria were developed as part of the JSCS for implementation by upland sites. For the purposes of the City's basin-scale source investigations, the criteria are used as general guidelines for use with specific forecasts, to determine whether storms are likely to generate stormwater runoff representative of the entire drainage basin and thus should be targeted for sampling. For example, storms with predicted volumes of less than 0.2" may still deliver a concentrated pulse of rain, generating representative conveyance system flows in smaller drainage areas with a large percentage of impervious area. As a result, some storms are sampled which may be outside of recommended storm criteria but still representative of stormwater discharge from the basin.

Precipitation graphs for each event from data collected at the Yeon rain gage (located at 3395 NW Yeon Avenue)[1] are shown on Figure 2. Flow data at the sampling location were not collected as part of this investigation. Brief descriptions of the storm events sampled are provided below, based on sampling crew field notes and the average hourly rainfall data shown on Figure 2. Figure 2 includes a summary of the characteristics of each sampling event and designates those events that are judged as meeting "first-flush" criteria based on the rain gage data, field observations, and the timing of sample collection during the storm event.

- *October 21, 2009*: No rainfall was recorded at the Yeon rain gage for the three days preceding this event. The minimum forecasted rainfall for this event was 0.18 inches. Rainfall began between 3:00 a.m. and 4:00 a.m., Pacific Standard Time (PST), and the sample was collected at 8:22 a.m. PST on October 21. By the time of sampling, 0.20 inches of rainfall had been recorded by the Yeon rain gage; a total of 0.22 inches was recorded by the time the storm event ended between 9:00 and 10:00 a.m. PST on October 21. The sample from this event is not considered to reflect first-flush conditions.

- *January 4, 2010*: Less than 0.1 inches of precipitation was recorded at the Yeon rain gage for the two days preceding this event. The minimum forecasted rainfall for this event was 0.38 inches. Rainfall began between 4:00 and 5:00 a.m. PST and continued intermittently until the sample was collected at 9:56 a.m. PST on January 4. By the time of sampling, approximately 0.12 inches of rainfall had been recorded; a total of 0.37 inches was recorded by the time the event ended between 4:00 and 5:00 p.m. PST on January 4. The sample from this event is not considered to reflect first-flush conditions.

- *February 10, 2010*: Only a trace amount of rainfall (0.01 inches) was recorded at the Yeon rain gage for the three days preceding this event. The minimum forecasted rainfall for this event was 0.12 inches. Field crews targeted the event for a first-flush sample. Rainfall began between 9:00 and 10:00 a.m. PST, and the sample was collected at 11:10 a.m. PST on February 10. By the time of sampling, approximately 0.08 inches of rainfall had been recorded at the Yeon rain gage and field crews observed heavy flow at the

[1] Station #121 in the City's Hydrological Data Retrieval and Alarm (HYDRA) system rain gage network (http://or.water.usgs.gov/non-usgs/bes/raingage_info/).

sampling location (see Attachment B). A total of 0.24 inches was recorded by the time the storm ended between 4:00 and 5:00 p.m. on February 10. The sample from this event is considered to reflect first-flush conditions.

- *April 26, 2010*: No rainfall was recorded during the day preceding this event, and total rainfall was less than 0.1 inches for the 10 days preceding this event. The minimum forecasted rainfall for this event was 0.24 inches. Rainfall began between 2:00 and 3:00 p.m. PST and the sample was collected at 3:22 p.m. PST on April 26. Approximately 0.04 inches of rainfall had been recorded at the time of sampling. The rain event ended by approximately 2:00 a.m. PST on April 27; by that time a total of 0.56 inches of precipitation had been recorded for the storm event. The sample from this event is considered to reflect first-flush conditions.

Based on these sampling conditions, the four stormwater samples are considered to meet the Basin 19A sampling objectives.

Summary of Results

The stormwater samples were analyzed for PCB congeners, organochlorine pesticides, polycyclic aromatic hydrocarbons (PAHs), phthalates, metals, and total suspended solids (TSS). PCB congeners and metals were detected in all of the stormwater samples. Certain pesticides, PAHs and phthalates were detected in one or more of the samples. Tables 1 and 2 summarize the laboratory analytical results for the stormwater samples and include the JSCS SLVs for reference. The total PCBs and copper concentrations are displayed on Figure 3 along with solids data described in the next section. The laboratory reports and data review memoranda are included in Attachment C. The stormwater and the solids data are evaluated in the Data Evaluation section.

Solids Sampling and Analysis

Preliminary review of the Basin 19A stormwater data indicated that PCBs and copper were detected in some of the samples at concentrations that could indicate the presence of localized sources of PCBs and copper to the basin. PCBs and copper had been identified as contaminants of interest for AOPC 18 and at industrial sites in the vicinity of the basin. PCBs and copper are confirmed contaminants at the adjacent Calbag/O'Neill site (Creekside, 2006, 2010). This site is in the early stages of a new site stormwater pathway evaluation under DEQ oversight. Because the site is situated adjacent to approximately half of the basin drainage boundary, the City conducted an inline solids and erodible surface soil investigation adjacent to the Calbag/O'Neill site.

The City conducted the solids sampling activities in accordance with the SAP developed in August 2010 (BES, 2010a). The SAP identified specific sampling locations to investigate the potential offsite migration of contaminated erodible soils from the Calbag site to adjacent catch basins on the south side of NW Front Avenue. These locations are described in the following table and shown on Figure 1.

Sample Location	Description	Sample Type
Calbag-1	Erodible soils (sweepings) at intersection of the Calbag/O'Neill site primary driveway area and NW Front Avenue	Composite
Calbag-2	5-point sample of surface soils (0-2") in area between the Calbag/O'Neill site and rail lines parallel to NW Front Avenue. Subsamples A through E were collected from east to west	Composite
Catch Basin APN377	Soils in catch basin on southeast corner of NW Kittridge Avenue and NW Front Avenue	Composite
Catch Basin ANF294	Soils in catch basin on NW Front Avenue adjacent to the primary site driveway area	Composite
Catch Basins ANF298 and ANF300	Soils in catch basins on NW Front Avenue adjacent to the Calbag/O'Neill site	Composite of both catch basins
Catch Basins ANF302 and ANF304	Soils in catch basins on NW Front Avenue east of the Calbag/O'Neill site	Composite of both catch basins

Photographs of the sampling locations taken during sampling activities are provided in Attachment A. Field notes taken during sample collection and processing activities are provided in Attachment B.

In accordance with the SAP, the samples were analyzed for PCB Aroclors, PCB congeners, copper, total solids, and total organic carbon (TOC).

Summary of Results

PCB Aroclors, PCB congeners and copper were detected in all of the solids samples. Tables 3 and 4 summarize the laboratory analytical results for the inline solids and erodible soils samples and include the JSCS SLVs for reference. The total PCBs and copper concentrations are displayed on Figure 3. The laboratory reports and data review memoranda are provided in Attachment C.

Data Evaluation

The objectives of the Basin 19A investigation were to evaluate whether there are major sources of contaminants discharging to the City's storm system and the need for source control measures. Because the recommended JSCS SLVs (i.e., highlighted values) are conservative screening values selected to be protective of inriver receptors, exceedances of SLVs in in-pipe media (e.g., stormwater and stormwater solids) do not necessarily indicate the presence of significant sources warranting additional source tracing or source control. For example, some SLVs are below estimated background concentrations, some SLVs are below NPDES permit benchmarks (e.g., 1200-Z permit benchmarks for metals[2] are one to two orders-of-magnitude

[2] DEQ has revised the 1200-Z permit benchmarks; revised benchmarks will take effect immediately for new permittees and July 1, 2012 for existing permittees. Though benchmarks for copper, lead, and zinc have been reduced, new benchmark concentrations are roughly four to seven times higher than recommended SLVs. Additionally, the new permit establishes reference concentrations for bioaccumulative compounds at the acute toxicity level, which are also significantly higher than the SLVs.

higher than the surface water SLVs), and even undeveloped natural areas can yield samples with analyte concentrations exceeding one or more SLVs.

Therefore, to assess if the data indicate sources to the stormwater pathway, the City evaluated the Basin 19A data set against SLVs and the harborwide data collected by the City and other parties, to provide references for interpreting the potential significance of the source investigation results.

Stormwater Data

Stormwater data for all analytes for which one or more stormwater sample concentrations exceed the applicable JSCS SLVs (see Table 1) were evaluated to assess the potential need for additional source tracing. This assessment was conducted on the geometric mean[3] of the concentrations to account for the inherent variability in stormwater data. The geometric mean concentrations were first compared to the applicable JSCS SLVs, and analytes for which the geometric mean concentration is less than the SLV were not carried forward for further assessment. Analytes for which the geometric mean concentration is greater than the SLV were compared to the following additional screening factors: DEQ default background concentrations (DEQ, 2002), harborwide source tracing categories developed as part of the *Stormwater Evaluation Report* (BES, 2010b), and magnitude of exceedance. The results of this screening are presented in Table 5.

The development of the harborwide source tracing categories in the *Stormwater Evaluation Report* (BES, 2010b) consisted of a statistical analysis of stormwater data collected by the City, the LWG, and others from City and non-City outfall basins within Portland Harbor. The harborwide analyses resulted in the sorting of analytes by basin into one of three source tracing categories (i.e., "1-lower", "2- moderate", and "3-higher") relative to harborwide distribution of stormwater concentration levels. These categories were then used as the basis for identifying which analytes should be evaluated further, in the context of known and suspected sources, to determine if additional source investigation was needed in City outfall basins. As suggested by DEQ, for the purpose of evaluating the Basin 19A data, a simplified approach was used to generate conservative geomean concentrations for comparison purposes, rather than regenerating the statistical analyses.[4]

As indicated in Table 5 and summarized below, the stormwater data do not indicate potentially significant sources to the basin:

- *Total PCBs*: The basin geometric mean concentration is only slightly higher than the upper confidence limit (UCL) for the lowest source tracing category defined in the *Stormwater Evaluation Report* (BES, 2010b).

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

[4] Geometric mean values were calculated using the following conventions: (1) averaging the concentrations (for each analyte) for the primary and duplicate samples to calculate single concentrations (for each analyte) for the 10/21/2009 and 1/4/2010 events prior to calculating the overall geometric mean concentration; and (2) setting the value for concentrations reported as below the laboratory method reporting (MRL) limit to 1/2 the value of the laboratory MRL; 1/2 the value of the highest MRL is used in the case of non-detect results for summed analytes (e.g., total PCBs).

- *Copper, lead and zinc*: Although the basin geometric mean concentrations for these metals each exceed estimated background concentrations and the corresponding JSCS SLVs, the concentrations are generally within the lower range of the harborwide source tracing category 2 ("moderate").
- *Other metals*: The basin geometric mean concentrations of arsenic and cadmium are less than DEQ estimated background concentrations; the mean silver concentration is less than the JSCS SLV.
- *PAHs*: Several basin geometric mean concentrations for the individual PAHs listed are less than the applicable SLV; all are low relative to the range of harborwide values.
- For those analytes listed in Table 5 for which the basin geomean concentration exceeds the applicable SLV and for which no source tracing category is available (i.e., pesticides)[5], further evaluation of the data indicates overall concentrations for the basin are not significantly elevated (i.e., detections were few, the data are qualified, and/or only the most stringent SLVs are exceeded; see Table 5).

In addition, DEQ has compiled and graphed concentrations of selected contaminants[6] detected in stormwater (and solids) from a larger number of industrial sites throughout the Portland Harbor and has provided the graphs in its *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ, 2010) to assist with data evaluation. None of the geometric mean concentrations for these contaminants in Basin 19A stormwater are elevated relative to the ranges compiled by DEQ.

Solids Data

PCB Aroclors and PCB congeners were detected in all of the Basin 19A catch basin and surface sediment samples. Total PCBs concentrations in all samples exceed the JSCS Bioaccumulation SLV but not the Toxicity SLV. Copper also was detected in all of the samples, and copper concentrations exceed the Toxicity SLV in all but one of the catch basin samples.

The highest concentrations of total PCBs and copper were detected in the surface soil samples collected at location "Calbag-2", along NW Front Avenue between the Calbag/O'Neill facility and the railroad lines (see Figure 1). Though field observations did not identify a pathway for erodible soils from the specific "Calbag-2" area to catch basins on NW Front Avenue (see photograph 15 in Attachment A), the detection of PCBs and copper in the "Calbag-2" area suggests that the adjacent Calbag/O'Neill site is a likely source of these constituents to this location and a potential source to other adjacent ROW areas within Basin 19A. Other evidence that the Calbag/O'Neill site is a potential source to Basin 19A is that PCBs and copper concentrations in driveway sweepings from the "Calbag-1" area (see photograph 9 in Attachment A) are very similar to concentrations in the adjacent Basin 19A catch basin (ANF294; see Figure 3). In addition, the ranges of total PCBs and copper concentrations in Calbag/O'Neill onsite catch basin solids are higher than ranges observed in Basin 19A catch basins, which also receive flow from other drainage areas. The table below summarizes total PCBs and copper concentrations in historical site catch basin solids, recent erodible soils data

[5] Based on a lack of sufficient harborwide data to conduct a robust statistical analysis, source tracing categories were not developed for pesticides.

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

adjacent to the site boundary, and soils from Basin 19A catch basins on the south side of NW Front Avenue adjacent to the site.

	Units	Calbag/O'Neill Onsite Catch Basin Solids		Erodible Soils "Calbag-1"	Erodible Soils "Calbag-2"	Basin 19A Catch Basin Solids
Date		11/30/05[1]	10/29/10[2]	09/16/10		
Total PCBs[3]	µg/Kg	1,270	117 – 2,350	80-146	414 – 612	13 - 173
Copper	mg/Kg	300	321 – 1500	166	1,090 – 1,170	101 – 426

[1] DEQ, 2006
[2] Creekside, 2010
[3] Total PCBs results for City samples represent the range of total PCB Aroclors and total PCB congeners.

These findings indicate that offsite migration of erodible soils (e.g., vehicle drag-out, fugitive dusts, and/or overland runoff) contaminated with PCBs and copper from the Calbag/O'Neill site likely contributed to the PCBs and copper concentrations observed in Basin 19A catch basin soils. There are also other adjacent industrial sites where PCBs and/or copper have been detected in site stormwater systems (e.g., Gunderson and Front Avenue LP). Offsite migration of contaminated soils from these sites to Basin 19A inlets has not been evaluated but may also be a source to the river via Outfall 19A.

Comparison of the Basin 19A solids data (from the catch basins and the "Calbag-1" surface solids sampling area) to DEQ's guidance graphs (DEQ, 2010) indicates that total PCBs and copper concentrations in solids from this basin are not significantly elevated relative to stormwater sediments at other industrial areas in Portland Harbor.

Conclusions

Based on the 2009-2010 stormwater data collected by the City in Basin 19A, stormwater discharges from Outfall 19A to Portland Harbor do not indicate major sources of contaminants of interest, including PCBs, metals, pesticides, and PAHs. Moderate levels of these contaminants are likely migrating from adjacent industrial sites, many of which are still evaluating and implementing source control measures under DEQ Cleanup Program agreements.

Collection and analysis of catch basin soils and surface sediment from areas along the south side of NW Front indicate that contaminants in erodible soils may be migrating offsite and to Basin 19A from the adjacent Calbag/O'Neill facility via vehicle dragout, overland runoff, and/or fugitive dusts. In its recent comment letter on the ongoing stormwater pathway evaluation at the Calbag/O'Neill facility (DEQ, 2011), DEQ requested that O'Neill complete additional measures as needed to identify and control potential onsite sources of PCBs and metals at this site. Contaminant discharges to Basin 19A inlets may also be occurring via similar pathways from other industrial sites that surround the basin. Stormwater source control evaluations are underway under DEQ oversight at two other adjacent ECSI sites: Front Avenue LP and Gunderson. Once completed, the implementation of additional stormwater source control measures at Calbag/O'Neill and these other sites likely will further reduce

concentrations of PCBs, copper, and other contaminants entering the Basin 19A stormwater conveyance system via inlets on NW Front Avenue.

Based on these findings, the City concludes that no further source tracing efforts in Basin 19A are needed. These results will support future DEQ decisions for this basin.

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Tables

Table 1 – Basin 19A Stormwater Results

Table 2 – Basin 19A Stormwater Results - PCB Congeners

Table 3 – Basin 19A Solids Results

Table 4 – Basin 19A Solids Results – PCB Congeners

Table 5 – Basin 19A Stormwater Evaluation Summary

Figures

Figure 1 – Outfall Basin 19A Drainage Basin Overview

Figure 2 – Basin 19A Storm Event Precipitation Graphs

Figure 3 –Basin 19A Stormwater and Inline Solids Results – Total PCBs and Copper

Attachments

Attachment A – Field Photographs

Attachment B – Field Notes

Attachment C – Laboratory Reports and Data Review Memoranda

Tables

Table 1
Basin 19A Stormwater Results

Class	Analyte	Units	Sample Location Manhole AAP905 Downstream in 60" Line: Event 1 FO096056 10/21/2009	Event 1_DUP (Duplicate) FO096058 10/21/2009	Event 2 FO105002 1/4/2010	Event 2_DUP (Duplicate) FO105004 1/4/2010	Event 3 FO105234 2/10/2010	Event 4 FO105475 4/26/2010	JSCS Stormwater SLVs[1]: Human Health Fish Consumption[2]	Human Health Ingestion[3]	Ecological[4]
Field Measurements											
	Conductivity	umhos/cm	63	63	57	57	75	90	--	--	--
	pH	units	7.1	7.1	6.5	6.5	5.7	7.8	--	--	--
	Temperature	Deg. C	13.8	13.8	7.3	7.3	7.5	15.0	--	--	--
Total Suspended Solids (SM 2540D)											
	TSS	mg/L	73	72	204	204	246	123	--	--	--
Total Metals (EPA 200.8)											
	Arsenic	µg/L	**2.86**	NA	**1.36**	NA	**1.78**	**2.04**	0.14	0.045	150
	Cadmium	µg/L	**0.47**	NA	**0.72**	NA	**0.68**	**0.46**	--	5	0.094
	Chromium	µg/L	9.64	NA	12.3	NA	16.1	9.48	--	100	--
	Copper	µg/L	**39.7**	NA	**49.5**	NA	**54.1**	**50.6**	--	1300	2.7
	Lead	µg/L	**31.7**	NA	**28.9**	NA	**29.7**	**19.8**	--	15	0.54
	Mercury[5]	µg/L	0.077	NA	0.056	NA	0.051	0.093	0.146	2	0.77
	Nickel	µg/L	7.89	NA	8.01	NA	11.1	7.38	4600	730	16
	Silver	µg/L	0.10 U	NA	**0.15**	NA	**0.25**	0.10 U	--	100	0.12
	Zinc	µg/L	**203**	NA	**270**	NA	**282**	**239**	26000	5000	36
Organochlorine Pesticides (EPA 8081)											
	4,4'-DDD	µg/L	**0.0073** J	NA	0.0078 U	NA	**0.032** J	0.011 U	0.00031	0.28	0.011
	4,4'-DDE	µg/L	0.0065 U	NA	**0.0042** J	NA	0.010 U	0.011 U	0.00022	0.2	--
	4,4'-DDT	µg/L	0.0058 U	NA	0.079 U	NA	0.078 U	0.030 U	0.00022	0.2	0.001
	Estimated Total DDx[6]	µg/L	0.0073 J	NA	0.0042 J	NA	0.032 J	ND	--	0.2	--
	Aldrin	µg/L	0.0067 U	NA	0.0050 U	NA	0.010 U	0.0050 U	0.00005	0.004	--
	alpha-BHC (α-BHC)	µg/L	0.0025 U	NA	0.0050 U	NA	0.010 U	0.0050 U	0.0049	0.011	2.2
	beta-BHC (β-BHC)	µg/L	0.0048 U	NA	0.0050 U	NA	0.093 U	0.0050 U	0.017	0.037	--
	delta-BHC (δ-BHC)	µg/L	0.0025 U	NA	0.0050 U	NA	0.010 U	0.0050 U	--	--	--
	gamma-BHC (γ-BHC, Lindane)	µg/L	0.0027 U	NA	0.012 U	NA	0.011 U	0.0050 U	1.8	0.052	0.08
	alpha-Chlordane[7]	µg/L	0.0025 U	NA	0.0050 U	NA	0.010 U	0.011 U	--	--	--
	gamma-Chlordane[7]	µg/L	0.0025 U	NA	0.0050 U	NA	0.010 U	0.0050 U	--	--	--
	Total Chlordane[8]	µg/L	ND	NA	ND	NA	ND	ND	0.00081	0.19	0.0043
	Dieldrin	µg/L	0.0025 U	NA	0.0050 U	NA	0.010 U	0.0050 U	0.000054	0.0042	0.056
	Endosulfan I	µg/L	0.0025 U	NA	0.0050 U	NA	0.013 J	0.0055 U	89	220	0.051
	Endosulfan II	µg/L	0.0036 U	NA	0.017 U	NA	0.010 U	0.0050 U	89	220	0.051
	Endosulfan sulfate	µg/L	0.0025 U	NA	0.026 U	NA	0.0019 J	0.140 J	89	--	--
	Endrin	µg/L	0.0051 J	NA	0.0050 U	NA	0.010 U	0.0050 U	0.06	2	0.036
	Endrin aldehyde	µg/L	0.0025 U	NA	0.0080 U	NA	0.010 U	0.011 U	0.3	--	--
	Endrin ketone	µg/L	0.0025 U	NA	0.0050 U	NA	0.010 U	0.0050 U	--	--	--
	Heptachlor	µg/L	0.0025 U	NA	0.0050 U	NA	0.054 U	0.0050 U	0.000079	0.015	0.0038
	Heptachlor epoxide	µg/L	0.0025 U	NA	0.0050 U	NA	0.010 U	0.0050 U	0.000039	0.0074	0.0038
	Methoxychlor	µg/L	0.0025 U	NA	0.0061 U	NA	0.010 U	0.0065	--	40	0.03
	Toxaphene	µg/L	0.580 U	NA	1.1 U	NA	0.50 U	1.4 U	0.00028	0.061	0.0002
Polychlorinated Biphenyl Congeners (PCBs) (EPA 1668M)											
	Total PCBs[9, 10]	µg/L	**0.0325**	**0.0312**	**0.0785**	**0.0807**	**0.0422**	**0.00966**	0.000064	0.034	0.014

Table 1
Basin 19A Stormwater Results

			Sample Location Manhole AAP905 Downstream in 60" Line						JSCS Stormwater SLVs[1]		
			Event 1 FO096056	Event 1_DUP (Duplicate) FO096058	Event 2 FO105002	Event 2_DUP (Duplicate) FO105004	Event 3 FO105234	Event 4 FO105475			
Class	**Analyte**	**Units**	10/21/2009	10/21/2009	1/4/2010	1/4/2010	2/10/2010	4/26/2010	Human Health Fish Consumption[2]	Human Health Ingestion[3]	Ecological[4]
Polycyclic Aromatic Hydrocarbons (PAHs) (EPA 8270-SIM)											
	1-Methylnapthalene	µg/L	NA	NA	0.0566	NA	0.0192 U	0.0217	--	--	--
	2-Methylnapthalene	µg/L	NA	NA	0.0864	NA	0.0222	0.0279	--	0.2	--
	Acenaphthene	µg/L	0.0288	NA	0.0212	NA	0.0305	0.0194 U	990	0.2	520
	Acenaphthylene	µg/L	0.0192 U	NA	0.0200 U	NA	0.0337 U	0.0291 U	--	0.2	--
	Anthracene	µg/L	0.0561	NA	0.0309	NA	0.0321	0.0194 U	40000	0.2	0.73
	Benzo(a)anthracene	µg/L	**0.0591**	NA	**0.0223**	NA	**0.0465**	**0.0278**	0.018	0.092	0.027
	Benzo(a)pyrene	µg/L	**0.0613**	NA	**0.0189**	NA	**0.0508**	**0.0267**	0.018	0.0092	0.014
	Benzo(b)fluoranthene	µg/L	**0.0923**	NA	**0.0223**	NA	**0.0813**	**0.0343**	0.018	0.092	--
	Benzo(g,h,i)perylene	µg/L	0.0863	NA	0.0286	NA	0.0439	0.0528	--	0.2	--
	Benzo(k)fluoranthene	µg/L	**0.0693**	NA	0.0165	NA	**0.0455**	**0.0236**	0.018	0.2	--
	Chrysene	µg/L	**0.135**	NA	**0.0597**	NA	**0.0932**	**0.0727**	0.018	0.2	--
	Dibenzo(a,h)anthracene	µg/L	0.0114	NA	0.0100 U	NA	0.00962 U	0.00971 U	0.018	0.0092	--
	Fluoranthene	µg/L	**0.434**	NA	0.130	NA	**0.200**	0.143	140	0.2	--
	Fluorene	µg/L	0.0436	NA	0.0421	NA	0.0527	0.0388 U	5300	0.2	3.9
	Indeno(1,2,3-cd)pyrene	µg/L	**0.0481**	NA	0.0138	NA	**0.0291**	**0.0251**	0.018	0.092	--
	Naphthalene	µg/L	0.0790	NA	0.0722	NA	0.0492	0.0611	--	0.2	620
	Phenanthrene	µg/L	**0.329**	NA	0.173	NA	0.15	0.136	--	0.2	--
	Pyrene	µg/L	**0.302**	NA	0.154	NA	**0.28**	**0.205**	4000	0.2	--
	Total PAHs[9]	µg/L	1.84	NA	0.949	NA	1.21	0.858	--	--	--
Phthalates (EPA 8270-SIM)											
	Bis(2-ethylhexyl)phthalate	µg/L	**3.31**	NA	1.38	NA	0.952	1.53	2.2	4.8	3
	Butylbenzylphthalate	µg/L	0.962 U	NA	1.00 U	NA	0.962 U	0.971 U	1900	7300	3
	Di-n-butylphthalate	µg/L	0.962 U	NA	1.00 U	NA	0.962 U	0.971 U	4500	3700	3
	Di-n-octylphthalate	µg/L	0.962 U	NA	1.00 U	NA	1.92 U	0.971 U	--	1500	3
	Diethylphthalate	µg/L	0.962 U	NA	1.00 U	NA	0.962 U	0.971 U	44000	29000	3
	Dimethylphthalate	µg/L	0.818	NA	2.64	NA	2.31	**8.54**	1100000	370000	3

Notes:

J = The analyte was detected at a concentration between the method detection limit and the method reporting limit or result is an estimate because results from the primary and verification gas chromatography columns varied by more than 40 percent difference.

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

-- = No JSCS screening level available

NA = Not analyzed

ND = Not detected

umhos/cm = micromhos per centimeter

µg/L = Micrograms per liter

mg/L = Milligrams per liter

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

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

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

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

(5) Mercury analysis by WPCL SOP M-10.02

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

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

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

(9) Total PCBs and PAHs are calculated by assigning "0" to undetected constituents.

(10) Individual congeners concentrations are summarized in Table 2.

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

bold = Concentration exceeds DEQ's recommended SLV

Table 2
Basin 19A Stormwater Results - PCB Congeners

IUPAC Number[1]	Chemical Name	Units	Sample Location Manhole AAP905 Downstream in 60" Line						JSCS Stormwater SLVs[2]		
			Event 1 FO096056	Event 1_DUP (Duplicate) FO096058	Event 2 FO105002	Event 2_DUP (Duplicate) FO105004	Event 3 FO105234	Event 4 FO105475	Human Health Fish Consumption[3]	Human Health Ingestion[4]	Ecological[5]
			10/21/2009	10/21/2009	1/4/2010	1/4/2010	2/10/2010	4/26/2010			
Polychlorinated Biphenyl Congeners (PCBs) (EPA 1668MOD)											
PCB 1	2-MoCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 2	3-MoCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 3	4-MoCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 4	2,2'-DiCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 5	2,3-DiCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 6	2,3'-DiCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 7	2,4-DiCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 8	2,4'-DiCB	µg/L	0.000256	0.000268	0.000369	0.000364	0.000304	0.000244 U	--	--	--
PCB 9	2,5-DiCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 10	2,6-DiCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 11	3,3'-DiCB	µg/L	0.00149 U	0.00151 U	0.00151 U	0.00147 U	0.00147 U	0.00147 U	--	--	--
PCB 12/13	3,4-DiCB + 3,4'-DiCB	µg/L	0.000248 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 14	3,5-DiCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 15	4,4'-DiCB	µg/L	0.000248 U	0.000251 U	0.000277	0.000256	0.000262	0.000244 U	--	--	--
PCB 16	2,2',3-TriCB	µg/L	0.000277	0.000251 U	0.000338 EMPC	0.000358	0.00245 U	0.000244 U	--	--	--
PCB 17	2,2',4-TriCB	µg/L	0.000254	0.000251 U	0.000348	0.000322	0.00245 U	0.000244 U	--	--	--
PCB 18/30	2,2',5-TriCB + 2,4,6-TriCB	µg/L	0.000543	0.000502 U	0.000735	0.000644	0.000491 U	0.000489 U	--	--	--
PCB 19	2,2',6-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 20/28	2,3,3'-TriCB + 2,4,4'-TriCB	µg/L	0.000854	0.000920	0.00136	0.00131	0.000960	0.000489 U	--	--	--
PCB 21/33	2,3,4-TriCB + 2',3,4-TriCB	µg/L	0.000496 U	0.000558	0.000757	0.000731	0.000520	0.000489 U	--	--	--
PCB 22	2,3,4'-TriCB	µg/L	0.000331	0.000390	0.000573	0.000548	0.000360	0.000244 U	--	--	--
PCB 23	2,3,5-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 24	2,3,6-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 25	2,3',4-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 26/29	2,3',5-TriCB + 2,4,5-TriCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 27	2,3',6-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 31	2,4',5-TriCB	µg/L	0.000721	0.000773	0.00125	0.00114	0.000836	0.000369	--	--	--
PCB 32	2,4',6-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 34	2',3,5-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 35	3,3',4-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 36	3,3',5-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 37	3,4,4'-TriCB	µg/L	0.000284	0.000271	0.000500	0.000486	0.000395	0.000244 U	--	--	--
PCB 38	3,4,5-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 39	3,4',5-TriCB	µg/L	0.000248 U	0.000251 U	0.000251 U	0.000245 U	0.00245 U	0.000244 U	--	--	--
PCB 40/41/71	2,2',3,3'-TeCB + 2,2',3,4-TeCB + 2,3',4',6-TeCB	µg/L	0.00149 U	0.00151 U	0.00151 U	0.00147 U	0.00147 U	0.00147 U	--	--	--
PCB 42	2,2',3,4'-TeCB	µg/L	0.00496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 43/73	2,2',3,5-TeCB + 2,3',5',6-TeCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 44/47/65	2,2',3,5'-TeCB + 2,2',4,4'-TeCB + 2,3,5,6-TeCB	µg/L	0.00149 U	0.00151 U	0.00203	0.00178	0.00147 U	0.00147 U	--	--	--
PCB 45/51	2,2',3,6-TeCB + 2,2',4,6'-TeCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 46	2,2',3,6'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 48	2,2',4,5-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 49/69	2,2',4,5'-TeCB + 2,3',4,6-TeCB	µg/L	0.000992 U	0.00100 U	0.00106	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 50/53	2,2',4,6-TeCB + 2,2',5,6'-TeCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 52	2,2',5,5'-TeCB	µg/L	0.00140	0.00134	0.00303	0.00278	0.00190	0.000706	--	--	--
PCB 54	2,2',6,6'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 55	2,3,3',4-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 56	2,3,3',4'-TeCB	µg/L	0.000496 U	0.000502 U	0.000798	0.000714	0.000491 U	0.000489 U	--	--	--

Table 2
Basin 19A Stormwater Results - PCB Congeners

			Sample Location Manhole AAP905 Downstream in 60" Line						JSCS Stormwater SLVs[2]		
			Event 1 FO096056	Event 1_DUP (Duplicate) FO096058	Event 2 FO105002	Event 2_DUP (Duplicate) FO105004	Event 3 FO105234	Event 4 FO105475	Human Health Fish Consumption[3]	Human Health Ingestion[4]	Ecological[5]
IUPAC Number[1]	**Chemical Name**	**Units**	10/21/2009	10/21/2009	1/4/2010	1/4/2010	2/10/2010	4/26/2010			
PCB 57	2,3,3',5-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 58	2,3,3',5'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 59/62/75	2,3,3',6-TeCB + 2,3,4,6-TeCB + 2,4,4',6-TeCB	µg/L	0.00149 U	0.00151 U	0.00151 U	0.00147 U	0.00147 U	0.00147 U	--	--	--
PCB 60	2,3,4,4'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 61/70/74/76	2,3,4,5-TeCB + 2,3',4',5-TeCB + 2,4,4',5-TeCB + 2',3,4,5-TeCB	µg/L	0.00198 U	0.00201 U	0.00373	0.00365	0.00222	0.00195 U	--	--	--
PCB 63	2,3,4',5-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 64	2,3,4',6-TeCB	µg/L	0.000496 U	0.000502 U	0.000794	0.000756	0.000498	0.000489 U	--	--	--
PCB 66	2,3',4,4'-TeCB	µg/L	0.000816	0.000805	0.0015	0.00140	0.000928	0.000489 U	--	--	--
PCB 67	2,3',4,5-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 68	2,3',4,5'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 72	2,3',5,5'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 77	3,3',4,4'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 78	3,3',4,5-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 79	3,3',4,5'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 80	3,3',5,5'-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 81	3,4,4',5-TeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 82	2,2',3,3',4-PeCB	µg/L	0.000496 U	0.000502 U	0.000674	0.000698	0.000491 U	0.000489 U	--	--	--
PCB 83	2,2',3,3',5-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 84	2,2',3,3',6-PeCB	µg/L	0.000688	0.000607	0.00145	0.00143	0.000843	0.000489 U	--	--	--
PCB 85/116/117	2,2',3,4,4'-PeCB + 2,3,4,5,6-PeCB + 2,3,4',5,6-PeCB	µg/L	0.00149 U	0.00151 U	0.00151 U	0.00147 U	0.00147 U	0.00147 U	--	--	--
PCB 86/87/97/108/119/125	2,2',3,4,5-PeCB + 2,2',3,4,5'-PeCB + 2,2',3',4,5-PeCB + 2,3,3',4,5'-PeCB + 2,3',4,4',6-PeCB + 2',3,4,5,6'-PeCB	µg/L	0.00297 U	0.00301 U	0.00384	0.00381	0.00294 U	0.00293 U	--	--	--
PCB 88/91	2,2',3,4,6-PeCB + 2,2',3,4',6-PeCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 89	2,2',3,4,6'-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 90/101/113	2,2',3,4',5-PeCB + 2,2',4,5,5'-PeCB + 2,3,3',5',6-PeCB	µg/L	0.00235	0.00216	0.00507	0.00515	0.00312	0.00147 U	--	--	--
PCB 92	2,2',3,5,5'-PeCB	µg/L	0.000496 U	0.000502 U	0.000943	0.000883	0.000582	0.000489 U	--	--	--
PCB 93/98/100/102	2,2',3,5,6-PeCB + 2,2',3',4,6-PeCB + 2,2',4,4',6-PeCB + 2,2',4,5,6'-PeCB	µg/L	0.00198 U	0.00201 U	0.00201 U	0.00196 U	0.00196 U	0.00195 U	--	--	--
PCB 94	2,2',3,5,6'-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 95	2,2',3,5',6-PeCB	µg/L	0.00177	0.00165	0.00378	0.00381	0.00239	0.000905	--	--	--
PCB 96	2,2',3,6,6'-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 99	2,2',4,4',5-PeCB	µg/L	0.00102	0.000916	0.00206	0.00207	0.00108	0.000489 U	--	--	--
PCB 103	2,2',4,5',6-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 104	2,2',4,6,6'-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 105	2,3,3',4,4'-PeCB	µg/L	0.00121	0.00103	0.00234	0.00236	0.00187	0.000579	--	--	--
PCB 106	2,3,3',4,5-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 107/124	2,3,3',4',5-PeCB + 2',3,4,5,5'-PeCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 109	2,3,3',4,6-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 110/115	2,3,3',4',6-PeCB + 2,3,4,4',6-PeCB	µg/L	0.00332	0.00308	0.00646	0.00651	0.00411	0.00153	--	--	--
PCB 111	2,3,3',5,5'-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 112	2,3,3',5,6-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 114	2,3,4,4',5-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 118	2,3',4,4',5-PeCB	µg/L	0.00271	0.00217	0.00511	0.00533	0.00419	0.00130	--	--	--
PCB 120	2,3',4,5,5'-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 121	2,3',4,5',6-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 122	2',3,3',4,5-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 123	2',3,4,4',5-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 126	3,3',4,4',5-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 127	3,3',4,5,5'-PeCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 128/166	2,2',3,3',4,4'-HxCB + 2,3,4,4',5,6-HxCB	µg/L	0.000992 U	0.00100 U	0.00125	0.00127	0.000981 U	0.000977 U	--	--	--
PCB 129/138/163	2,2',3,3',4,5-HxCB + 2,2',3,4,4',5'-HxCB + 2,3,3',4',5,6-HxCB	µg/L	0.00397	0.00388	0.00694	0.00716	0.00459	0.00168	--	--	--

Table 2
Basin 19A Stormwater Results - PCB Congeners

			Sample Location Manhole AAP905 Downstream in 60" Line						JSCS Stormwater SLVs[2]		
IUPAC Number[1]	Chemical Name	Units	Event 1 FO096056	Event 1_DUP (Duplicate) FO096058	Event 2 FO105002	Event 2_DUP (Duplicate) FO105004	Event 3 FO105234	Event 4 FO105475	Human Health Fish Consumption[3]	Human Health Ingestion[4]	Ecological[5]
			10/21/2009	10/21/2009	1/4/2010	1/4/2010	2/10/2010	4/26/2010			
PCB 130	2,2',3,3',4,5'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 131	2,2',3,3',4,6-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 132	2,2',3,3',4,6'-HxCB	µg/L	0.00125	0.00131	0.00239	0.00244	0.00132	0.000526	--	--	--
PCB 133	2,2',3,3',5,5'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 134/143	2,2',3,3',5,6-HxCB + 2,2',3,4,5,6'-HxCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 135/151	2,2',3,3',5,6'-HxCB + 2,2',3,5,5',6-HxCB	µg/L	0.000992 U	0.00100 U	0.00145	0.00154	0.000981 U	0.000977 U	--	--	--
PCB 136	2,2',3,3',6,6'-HxCB	µg/L	0.000496 U	0.000502 U	0.000646	0.000652	0.000491 U	0.000489 U	--	--	--
PCB 137	2,2',3,4,4',5-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 139/140	2,2',3,4,4',6-HxCB + 2,2',3,4,4',6'-HxCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 141	2,2',3,4,5,5'-HxCB	µg/L	0.000572	0.000622	0.00107	0.00113	0.000695	0.000489 U	--	--	--
PCB 142	2,2',3,4,5,6-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 144	2,2',3,4,5',6-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 145	2,2',3,4,6,6'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 146	2,2',3,4',5,5'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 147/149	2,2',3,4',5,6-HxCB + 2,2',3,4',5',6-HxCB	µg/L	0.00218	0.00247	0.00384	0.00408	0.0023	0.00102	--	--	--
PCB 148	2,2',3,4',5,6'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 150	2,2',3,4',6,6'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 152	2,2',3,5,6,6'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 153/168	2,2',4,4',5,5'-HxCB + 2,3',4,4',5',6-HxCB	µg/L	0.00223	0.00237	0.00427	0.00449	0.00259	0.00104	--	--	--
PCB 154	2,2',4,4',5,6'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 155	2,2',4,4',6,6'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 156/157	2,3,3',4,4',5-HxCB + 2,3,3',4,4',5'-HxCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000984	0.000981 U	0.000977 U	--	--	--
PCB 158	2,3,3',4,4',6-HxCB	µg/L	0.000496 U	0.000502 U	0.000695	0.000723	0.000491 U	0.000489 U	--	--	--
PCB 159	2,3,3',4,5,5'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000677	0.000491 U	0.000489 U	--	--	--
PCB 160	2,3,3',4,5,6-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 161	2,3,3',4,5',6-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 162	2,3,3',4',5,5'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 164	2,3,3',4',5',6-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 165	2,3,3',5,5',6-HxCB	µg/L	0.000496 U	0.000502 U	0.000669	0.000677	0.000491 U	0.000489 U	--	--	--
PCB 167	2,3',4,4',5,5'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 169	3,3',4,4',5,5'-HxCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 170	2,2',3,3',4,4',5-HpCB	µg/L	0.000717	0.00073	0.000942	0.00110	0.000714	0.000489 U	--	--	--
PCB 171/173	2,2',3,3',4,4',6-HpCB + 2,2',3,3',4,5,6-HpCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 172	2,2',3,3',4,5,5'-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 174	2,2',3,3',4,5,6'-HpCB	µg/L	0.000633	0.000719	0.000769	0.00101	0.000585	0.000489 U	--	--	--
PCB 175	2,2',3,3',4,5',6-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 176	2,2',3,3',4,6,6'-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 177	2,2',3,3',4',5,6-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000610	0.000491 U	0.000489 U	--	--	--
PCB 178	2,2',3,3',5,5',6-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 179	2,2',3,3',5,6,6'-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 180/193	2,2',3,4,4',5,5'-HpCB + 2,3,3',4',5,5',6-HpCB	µg/L	0.00143	0.00143	0.00181	0.00234	0.00143	0.000977 U	--	--	--
PCB 181	2,2',3,4,4',5,6-HpCB	µg/L	0.000496 U	0.000502 U	0.000502	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 182	2,2',3,4,4',5,6'-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 183/185	2,2',3,4,4',5,6-HpCB + 2,2',3,4,5,5',6-HpCB	µg/L	0.000992 U	0.00100 U	0.00100 U	0.000980 U	0.000981 U	0.000977 U	--	--	--
PCB 184	2,2',3,4,4',6,6'-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 186	2,2',3,4,5,6,6'-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 187	2,2',3,4',5,5',6-HpCB	µg/L	0.000759	0.000768	0.000961	0.00119	0.000658	0.000489 U	--	--	--
PCB 188	2,2',3,4',5,6,6'-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 189	2,3,3',4,4',5,5'-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 190	2,3,3',4,4',5,6-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 191	2,3,3',4,4',5',6-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--
PCB 192	2,3,3',4,5,5',6-HpCB	µg/L	0.000496 U	0.000502 U	0.000502 U	0.000490 U	0.000491 U	0.000489 U	--	--	--

Table 2
Basin 19A Stormwater Results - PCB Congeners

			Sample Location Manhole AAP905 Downstream in 60" Line						JSCS Stormwater SLVs[2]		
IUPAC Number[1]	Chemical Name	Units	Event 1 FO096056	Event 1_DUP (Duplicate) FO096058	Event 2 FO105002	Event 2_DUP (Duplicate) FO105004	Event 3 FO105234	Event 4 FO105475	Human Health Fish Consumption[3]	Human Health Ingestion[4]	Ecological[5]
			10/21/2009	10/21/2009	1/4/2010	1/4/2010	2/10/2010	4/26/2010			
PCB 194	2,2',3,3',4,4',5,5'-OcCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 195	2,2',3,3',4,4',5,6-OcCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 196	2,2',3,3',4,4',5,6'-OcCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 197/200	2,2',3,3',4,4',6,6'-OcCB + 2,2',3,3',4,5,6,6'-OcCB	µg/L	0.00149 U	0.00151 U	0.00151 U	0.00147 U	0.00147 U	0.00147 U	--	--	--
PCB 198/199	2,2',3,3',4,5,5',6-OcCB + 2,2',3,3',4,5,5',6'-OcCB	µg/L	0.00149 U	0.00151 U	0.00151 U	0.00147 U	0.00147 U	0.00147 U	--	--	--
PCB 201	2,2',3,3',4,5',6,6'-OcCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 202	2,2',3,3',5,5',6,6'-OcCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 203	2,2',3,4,4',5,5',6-OcCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 204	2,2',3,4,4',5,6,6'-OcCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 205	2,3,3',4,4',5,5',6-OcCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 206	2,2',3,3',4,4',5,5',6-NoCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 207	2,2',3,3',4,4',5,6,6'-NoCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 208	2,2',3,3',4,5,5',6,6'-NoCB	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
PCB 209	Decachlorobiphenyl	µg/L	0.000744 U	0.000754 U	0.000753 U	0.000735 U	0.000736 U	0.000733 U	--	--	--
	Total Monochlorobiphenyls	µg/L	ND	ND	ND	ND	ND	ND	--	--	--
	Total Dichlorobiphenyls	µg/L	0.000256	0.000268	0.000646	0.000620	0.000566	ND	--	--	--
	Total Trichlorobiphenyls	µg/L	0.00326	0.00291	0.00552	0.00554	0.00307	0.000369	--	--	--
	Total Tetrachlorobiphenyls	µg/L	0.00222	0.00214	0.0129	0.0111	0.00555	0.000706	--	--	--
	Total Pentachlorobiphenyls	µg/L	0.0131	0.0116	0.0317	0.0321	0.0182	0.00431	--	--	--
	Total Hexachlorobiphenyls	µg/L	0.0102	0.0107	0.0232	0.0251	0.0115	0.00427	--	--	--
	Total Heptachlorobiphenyls	µg/L	0.00354	0.00365	0.00448	0.00625	0.00339	ND	--	--	--
	Total Octachlorobiphenyls	µg/L	ND	ND	ND	ND	ND	ND	--	--	--
	Total Nonachlorobiphenyls	µg/L	ND	ND	ND	ND	ND	ND	--	--	--
	Total Decachlorobiphenyls	µg/L	ND	ND	ND	ND	ND	ND	--	--	--
	Total PCBs[6]	µg/L	**0.0325**	**0.0312**	**0.0785**	**0.0807**	**0.0422**	**0.00966**	0.000064	0.034	0.014

Notes:

MoCB = Monochlorobiphenyl
DiCB = Dichlorobiphenyl
TriCB = Trichlorobiphenyl
TeCB = Tetrachlorobiphenyl
PeCB = Pentachlorobiphenyl
HeCB = Hexachlorobiphenyl
HpCB = Heptachlorobiphenyl
OcCB = Octachlorobiphenyl
NoCB = Nonachlorobiphenyl
-- = No JSCS screening level available

DUP = Field duplicate
EMPC = Estimated Maximum Possible Concentration

U = The analyte was not detected above the reported sample quantification limit.
µg/L = Micrograms per liter
ND = Not detected

[1]IUPAC = International Union of Pure and Applied Chemistry

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

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

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

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

[6]Total homolog and congener concentrations are calculated by assigning "0" to undetected (U) and EMPC values.

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

bold = Concentration exceeds DEQ's recommended SLV.

Table 3
Basin 19A Solids Results

			Surface Sediments			Catch Basin Solids				JSCS[1] Screening Level Value	
Class	**Analyte**	**Units**	Calbag-1: Composite Sweepings from NW Front Ave. at Calbag Driveway FO105900	Calbag-2: Composite Surface Soils (0-2" depth), between NW Front Ave. Rail Lines and Calbag Site FO105901	Calbag-2_Duplicate FO105906	Catch Basin ANF294 FO105902	Catch Basin APN377 FO105903	Catch Basins ANF302 and ANF304 FO105904	Catch Basins ANF298 and ANF300 FO105905	**Toxicity**	**Bioaccumulation**
			9/14/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010		
Total Organic Carbon (ASTM D4129-82M)											
	TOC	mg/Kg	41,700	26,100	25,100	53,600	76,600	50,000	40,500	--	--
Total Solids (EPA 160.3M)											
	TS	%	99.6	89.8	89.5	72.9	62.9	79.7	79.3	--	--
Metals (EPA 6020)											
	Copper	mg/Kg	166	1170	1090	166	101	426	211	149	--
Polychlorinated Biphenyl Congeners (PCBs) (EPA 1668M)											
	Total PCBs[2][3]	µg/Kg	**146**	**612**	**503**	**173**	**92.5**	**135**	**126**	676	0.39
Polychlorinated Biphenyl Aroclors (EPA 8082)											
	Aroclor 1016/1242	µg/Kg	10 U	10 U	40 U	10 U	10 U	10 U	10 U	530	--
	Aroclor 1221	µg/Kg	20 U	20 U	80 U	20 U	20 U	20 U	20 U	--	--
	Aroclor 1232	µg/Kg	10 U	10 U	40 U	10 U	10 U	10 U	10 U	--	--
	Aroclor 1248	µg/Kg	10 U	10 U	40 U	10 U	10 U	10 U	10 U	1500	--
	Aroclor 1254	µg/Kg	49	173	165	73	13	49	23	300	--
	Aroclor 1260	µg/Kg	31	241	250	10 U	10 U	32	10 U	200	--
	Aroclor 1262	µg/Kg	10 U	10 U	40 U	10 U	10 U	10 U	10 U	--	--
	Aroclor 1268	µg/Kg	10 U	10 U	40 U	10 U	10 U	10 U	10 U	--	--
	Total PCBs[2]	µg/Kg	**80**	**414**	**415**	**73**	**13**	**81**	**23**	676	0.39

Notes:

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

-- No JSCS screening level available

µg/Kg = Micrograms per kilogram

mg/Kg = Milligrams per kilogram.

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

[2] Total PCBs are calculated by assigning "0" to undetected constituents.

[3] Individual congener results are summarized in Table 4.

= concentration exceeds JSCS Toxicity Screening Level Value

bold = concentration exceeds JSCS Bioaccumulation Screening Level Value

Table 4
Outfall Basin 19A Solids Results - PCB Congeners

			Surface Sediments			Catch Basin Solids					
			Calbag 1: Composite Sweepings from NW Front Ave., at Calbag Driveway FO105900	Calbag 2: Composite Surface Soils (0-2" depth), between NW Front Ave.Rail Lines and Calbag Site FO105901	Calbag 2_Duplicate FO105906	Catch Basin ANF294 FO105902	Catch Basin APN377 FO105903	Catch Basins ANF302 and ANF304 FO105904	Catch Basins ANF298 and ANF300 FO105905	JSCS[2] Screening Level Value	
IUPAC Number[1]	**Chemical Name**	**Units**	9/14/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	**Toxicity**	**Bioaccumulation**
Polychlorinated Biphenyl Congeners (EPA 1668A											
PCB 1	2-MoCB	µg/Kg	0.0243 U	0.0263 EMPC	0.0468	0.0247 U	0.0307	0.0289	0.0307	--	--
PCB 2	3-MoCB	µg/Kg	0.0243 U	0.0248 U	0.001 U	0.0247 U	0.0246 U	0.044	0.0428	--	--
PCB 3	4-MoCB	µg/Kg	0.0243 U	0.0539	0.0581	0.0247 U	0.0373	0.0363	0.029	--	--
PCB 4	2,2'-DiCB	µg/Kg	0.0685	0.0558	0.0577	0.140	0.0592	0.109	0.0649	--	--
PCB 5	2,3-DiCB	µg/Kg	0.0243 U	0.0248 U	0.001 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 6	2,3'-DiCB	µg/Kg	0.0467	0.059	0.0406	0.0564	0.0371	0.0469	0.0396	--	--
PCB 7	2,4-DiCB	µg/Kg	0.0243 U	0.0248 U	0.001 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 8	2,4'-DiCB	µg/Kg	0.191	0.394	0.228	0.229	0.148	0.174	0.151	--	--
PCB 9	2,5-DiCB	µg/Kg	0.0243 U	0.0248 U	0.001 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 10	2,6-DiCB	µg/Kg	0.0243 U	0.0248 U	0.001 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 11	3,3'-DiCB	µg/Kg	0.877	0.656	0.351	0.476	0.546	1.33	1.01	--	--
PCB 12/13	3,4-DiCB + 3,4'-DiCB	µg/Kg	0.0486 U	0.0696 EMPC	0.001 U	0.0494 U	0.0493 U	0.0632	0.053	--	--
PCB 14	3,5-DiCB	µg/Kg	0.0243 U	0.0248 U	0.001 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 15	4,4'-DiCB	µg/Kg	0.282	1.04	0.703	0.447	0.335	0.383	0.385	--	--
PCB 16	2,2',3-TriCB	µg/Kg	0.201	0.025 U	0.062 EMPC	0.216	0.122	0.212	0.126	--	--
PCB 17	2,2',4-TriCB	µg/Kg	0.181	0.078	0.101 EMPC	0.212	0.126	0.199	0.135	--	--
PCB 18/30	2,2',5-TriCB + 2,4,6-TriCB	µg/Kg	0.362	0.211	0.227	0.460	0.257	0.438	0.278	--	--
PCB 19	2,2',6-TriCB	µg/Kg	0.0428	0.035	0.0497 EMPC	0.1340	0.0619	0.0924	0.0588	--	--
PCB 20/28	2,3,3'-TriCB + 2,4,4'-TriCB	µg/Kg	1.14	1.08	0.82	0.989	0.733	0.92	0.831	--	--
PCB 21/33	2,3,4-TriCB + 2',3,4-TriCB	µg/Kg	0.721	0.408	0.389	0.435	0.299	0.435	0.378	--	--
PCB 22	2,3,4'-TriCB	µg/Kg	0.501	0.369	0.292	0.337	0.237	0.347	0.330	--	--
PCB 23	2,3,5-TriCB	µg/Kg	0.0243 U	0.0248 U	0.0246 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 24	2,3,6-TriCB	µg/Kg	0.0243 U	0.0248 U	0.0246 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 25	2,3',4-TriCB	µg/Kg	0.078	0.0687	0.0596	0.0663	0.0498	0.0633	0.0564	--	--
PCB 26/29	2,3',5-TriCB + 2,4,5-TriCB	µg/Kg	0.179	0.132	0.104	0.146	0.111	0.146	0.120	--	--
PCB 27	2,3',6-TriCB	µg/Kg	0.0399	0.0248 U	0.0246 U	0.0774	0.0434	0.059	0.0416	--	--
PCB 31	2,4',5-TriCB	µg/Kg	0.973	0.867	0.622	0.750	0.525	0.752	0.632	--	--
PCB 32	2,4',6-TriCB	µg/Kg	0.162	0.166	0.113	0.2690	0.142	0.194	0.151	--	--
PCB 34	2',3,5-TriCB	µg/Kg	0.0243 U	0.0248 U	0.0246 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 35	3,3',4-TriCB	µg/Kg	0.0664	0.0945	0.0667	0.0399	0.034	0.118	0.0595	--	--
PCB 36	3,3',5-TriCB	µg/Kg	0.0243 U	0.0248 U	0.0246 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 37	3,4,4'-TriCB	µg/Kg	0.691	1.43	0.922	0.530	0.436	0.582	0.582	--	--
PCB 38	3,4,5-TriCB	µg/Kg	0.0243 U	0.0248 U	0.0246 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 39	3,4',5-TriCB	µg/Kg	0.0243 U	0.0248 U	0.0246 U	0.0247 U	0.0246 U	0.0245 U	0.0248 U	--	--
PCB 40/41/71	2,2',3,3'-TeCB + 2,2',3,4-TeCB + 2,3',4',6-TeCB	µg/Kg	1.06	0.928	0.722	1.15	0.784	1.06	0.983	--	--
PCB 42	2,2',3,4'-TeCB	µg/Kg	0.453	0.280	0.265	0.477	0.316	0.454	0.412	--	--
PCB 43	2,2',3,5-TeCB	µg/Kg	0.0972 U	0.0991 U	0.0983 U	0.0988 U	0.0985 U	0.0979 U	0.0993 U	--	--
PCB 44/47/65	2,2',3,5'-TeCB + 2,2',4,4'-TeCB + 2,3,5,6-TeCB	µg/Kg	1.85	1.34	1.30	2.160	1.33	1.84	1.68	--	--
PCB 45/51	2,2',3,6-TeCB + 2,2',4,6'-TeCB	µg/Kg	0.221	0.314	0.260	0.44	0.284	0.316	0.267	--	--
PCB 46	2,2',3,6'-TeCB	µg/Kg	0.0836	0.108	0.113	0.159	0.111	0.116	0.0985	--	--
PCB 48	2,2',4,5-TeCB	µg/Kg	0.283	0.173 EMPC	0.113	0.231	0.179	0.274	0.234	--	--
PCB 49/69	2,2',4,5'-TeCB + 2,3',4,6-TeCB	µg/Kg	0.928	0.739	0.656	1.07	0.673	0.949	0.840	--	--
PCB 50/53	2,2',4,6-TeCB + 2,2',5,6'-TeCB	µg/Kg	0.153	0.277	0.238	0.345	0.211	0.231	0.196	--	--
PCB 52	2,2',5,5'-TeCB	µg/Kg	2.89	3.31	2.82	4.79	2.36	2.99	2.70	--	--
PCB 54	2,2',6,6'-TeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 55	2,3,3',4-TeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 56	2,3,3',4'-TeCB	µg/Kg	1.06	1.06	0.819	0.874	0.609	0.848	0.822	--	--

Table 4
Outfall Basin 19A Solids Results - PCB Congeners

			Surface Sediments			Catch Basin Solids					
			Calbag 1: Composite Sweepings from NW Front Ave., at Calbag Driveway FO105900	Calbag 2: Composite Surface Soils (0-2" depth), between NW Front Ave.Rail Lines and Calbag Site FO105901	Calbag 2_Duplicate FO105906	Catch Basin ANF294 FO105902	Catch Basin APN377 FO105903	Catch Basins ANF302 and ANF304 FO105904	Catch Basins ANF298 and ANF300 FO105905	JSCS[2] Screening Level Value	
IUPAC Number[1]	**Chemical Name**	**Units**	9/14/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	**Toxicity**	**Bioaccumulation**
PCB 57	2,3,3',5-TeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 58	2,3,3',5'-TeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 59/62/75	2,3,3',6-TeCB + 2,3,4,6-TeCB + 2,4,4',6-TeCB	µg/Kg	0.154	0.201	0.161	0.227	0.148 U	0.166	0.156	--	--
PCB 60	2,3,4,4'-TeCB	µg/Kg	0.542	0.396	0.321	0.341	0.278	0.419	0.406	--	--
PCB 61/70/74/76	2,3,4,5-TeCB + 2,3',4',5-TeCB + 2,4,4',5-TeCB + 2',3,4,5-TeCB	µg/Kg	5.00	3.99	3.03	3.46	2.22	3.42	3.18	--	--
PCB 63	2,3,4',5-TeCB	µg/Kg	0.0831	0.0516	0.0491 U	0.0657	0.0493 U	0.0649	0.0623	--	--
PCB 64	2,3,4',6-TeCB	µg/Kg	0.962	0.888	0.818	1.18	0.0493	0.892	0.845	--	--
PCB 66	2,3',4,4'-TeCB	µg/Kg	2.07	1.98	1.56	1.58	0.148	1.65	1.57	--	--
PCB 67	2,3',4,5-TeCB	µg/Kg	0.0706	0.0541	0.0491 U	0.0508	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 68	2,3',4,5'-TeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 72	2,3',5,5'-TeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 73	2,2',3,5-TeCB	µg/Kg	0.0972 U	0.0972 U	0.0972 U	0.0972 U	0.0972 U	0.0972 U	0.0972 U	--	--
PCB 77	3,3',4,4'-TeCB	µg/Kg	**0.446**	**1.48**	**0.848**	**0.373**	**0.225**	**0.348**	**0.381**	--	0.052
PCB 78	3,3',4,5-TeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 79	3,3',4,5'-TeCB	µg/Kg	0.0537	0.224	0.124	0.0577	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 80	3,3',5,5'-TeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 81	3,4,4',5-TeCB	µg/Kg	0.0486 U	**0.0607**	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	0.017
PCB 82	2,2',3,3',4-PeCB	µg/Kg	1.22	0.0495 U	2.49	1.55	0.629	0.938	0.896	--	--
PCB 83	2,2',3,3',5-PeCB	µg/Kg	0.405	1.44	1.00	0.471	0.377	0.446	0.360	--	--
PCB 84	2,2',3,3',6-PeCB	µg/Kg	2.12	3.39	3.64	3.24	1.43	1.79	1.62	--	--
PCB 85/116/117	2,2',3,4,4'-PeCB + 2,3,4,5,6-PeCB + 2,3,4',5,6-PeCB	µg/Kg	1.31	32.7	3.08	1.56	0.663	0.989	0.888	--	--
PCB 86/87/97/108/119/125	2,2',3,4,5-PeCB + 2,2',3,4,5'-PeCB + 2,2',3',4,5-PeCB + 2,3,3',4,5'-PeCB + 2,3',4,4',6-PeCB +	µg/Kg	6.49	10.9	9.59	7.810	1.48	4.83	4.46	--	--
PCB 88/91	2,2',3,4,6-PeCB + 2,2',3,4',6-PeCB	µg/Kg	0.906	2.270	2.100	1.40	0.650	0.776	0.710	--	--
PCB 89	2,2',3,4,6'-PeCB	µg/Kg	0.0765	0.161	0.158	0.108	0.0555	0.0693	0.0626	--	--
PCB 90/101/113	2,2',3,4',5-PeCB + 2,2',4,5,5'-PeCB + 2,3,3',5',6-	µg/Kg	7.83	15.0	13.6	10.6	4.62	6.24	5.68	--	--
PCB 92	2,2',3,5,5'-PeCB	µg/Kg	1.34	2.12	1.87	1.97	0.84	1.14	1.04	--	--
PCB 93/98/100/102	2,2',3,5,6-PeCB + 2,2',3',4,6-PeCB + 2,2',4,4',6-PeCB + 2,2',4,5,6'-PeCB	µg/Kg	0.205	0.372	0.400	0.296	0.197 U	0.196 U	0.199 U	--	--
PCB 94	2,2',3,5,6'-PeCB	µg/Kg	0.0486 U	0.0495 U	0.0578	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 95	2,2',3,5',6-PeCB	µg/Kg	5.37	12.7	13.30	9.08	4.02	4.96	4.37	--	--
PCB 96	2,2',3,6,6'-PeCB	µg/Kg	0.0486 U	0.0585	0.0594	0.0603	0.0493 U	0.049 U	0.0497 U	--	--
PCB 99	2,2',4,4',5-PeCB	µg/Kg	3.32	6.90	6.65	4.27	1.75	2.43	2.31	--	--
PCB 103	2,2',4,5',6-PeCB	µg/Kg	0.0486 U	0.0606	0.0506	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 104	2,2',4,6,6'-PeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 105	2,3,3',4,4'-PeCB	µg/Kg	**4.20**	**8.48**	**6.20**	**4.37**	**1.86**	**2.99**	**2.77**	--	0.17
PCB 106	2,3,3',4,5-PeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 107/124	2,3,3',4',5-PeCB + 2',3,4,5,5'-PeCB	µg/Kg	0.420	1.22	0.909	0.466	0.203	0.303	0.272	--	--
PCB 109	2,3,3',4,6-PeCB	µg/Kg	0.649	1.71	1.23	0.7050	0.279	0.415	0.403	--	--
PCB 110/115	2,3,3',4',6-PeCB + 2,3,4,4',6-PeCB	µg/Kg	10.6	1.76	25.6	14.3	5.94	8.22	7.89	--	--
PCB 111	2,3,3',5,5'-PeCB	µg/Kg	0.0486 U	0.246	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 112	2,3,3',5,6-PeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 114	2,3,4,4',5-PeCB	µg/Kg	0.230	0.414	0.2880	0.216	0.1020	0.1670	0.1600	--	0.17
PCB 118	2,3',4,4',5-PeCB	µg/Kg	**9.73**	**22.1**	**15.9**	**10.1**	**4.31**	**6.68**	**6.19**	--	0.12
PCB 120	2,3',4,5,5'-PeCB	µg/Kg	0.0486 U	0.0495 U	0.053	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 121	2,3',4,5',6-PeCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 122	2',3,3',4,5-PeCB	µg/Kg	0.128	0.406	0.336	0.140	0.0635	0.103	0.0856	--	--
PCB 123	2',3,4,4',5-PeCB	µg/Kg	0.182	**0.561**	**0.441**	0.200	0.107	0.169	0.141	--	0.21
PCB 126	3,3',4,4',5-PeCB	µg/Kg	**0.100** EMPC	**0.249**	**0.211**	**0.0821** EMPC	0.0493 U	**0.0587**	**0.107**	--	0.00005
PCB 127	3,3',4,5,5'-PeCB	µg/Kg	0.0486 U	0.119	0.0835	0.001	0.0493 U	0.049 U	0.0497 U	--	--
PCB 128/166	2,2',3,3',4,4'-HxCB + 2,3,4,4',5,6-HxCB	µg/Kg	2.16	8.85	7.24	2.61	1.10	1.77	1.58	--	--
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	12.6	50.1	43.2	14.3	6.74	10.3	9.60	--	--

Table 4
Outfall Basin 19A Solids Results - PCB Congeners

			Surface Sediments			Catch Basin Solids					
			Calbag 1: Composite Sweepings from NW Front Ave., at Calbag Driveway FO105900	Calbag 2: Composite Surface Soils (0-2" depth), between NW Front Ave.Rail Lines and Calbag Site FO105901	Calbag 2_Duplicate FO105906	Catch Basin ANF294 FO105902	Catch Basin APN377 FO105903	Catch Basins ANF302 and ANF304 FO105904	Catch Basins ANF298 and ANF300 FO105905	JSCS[2] Screening Level Value	
IUPAC Number[1]	**Chemical Name**	**Units**	9/14/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	**Toxicity**	**Bioaccumulation**
PCB 130	2,2',3,3',4,5'-HxCB	µg/Kg	0.892	3.13	2.87	1.02	0.452	0.722	0.661	--	--
PCB 131	2,2',3,3',4,6-HxCB	µg/Kg	0.197	0.552	0.591	0.26	0.114	0.166	0.153	--	--
PCB 132	2,2',3,3',4,6'-HxCB	µg/Kg	4.22	13.6	13.7	5.33	2.51	3.70	3.25	--	--
PCB 133	2,2',3,3',5,5'-HxCB	µg/Kg	0.138	0.569	0.502	0.173	0.0911	0.120	0.112	--	--
PCB 134/143	2,2',3,3',5,6-HxCB + 2,2',3,4,5,6'-HxCB	µg/Kg	0.612	2.03	1.89	0.735	0.318	0.654	0.451	--	--
PCB 135/151	2,2',3,3',5,6'-HxCB + 2,2',3,5,5',6-HxCB	µg/Kg	2.47	5.74	7.33	3.16	2.39	2.49	2.35	--	--
PCB 136	2,2',3,3',6,6'-HxCB	µg/Kg	1.07	2.70	3.41	1.53	0.888	1.05	0.945	--	--
PCB 137	2,2',3,4,4',5-HxCB	µg/Kg	0.858	2.31	1.83	0.955	0.423	0.653	0.509	--	--
PCB 139/140	2,2',3,4,4',6-HxCB + 2,2',3,4,4',6'-HxCB	µg/Kg	0.231	0.687	0.695	0.279	0.13	0.187	0.158	--	--
PCB 141	2,2',3,4,5,5'-HxCB	µg/Kg	1.67	8.16	7.44	2.23	1.21	1.72	1.54	--	--
PCB 142	2,2',3,4,5,6-HxCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.049 U	0.0497 U	--	--
PCB 144	2,2',3,4,5',6-HxCB	µg/Kg	0.443	0.0495 U	1.20	0.556	0.365	0.414	0.387	--	--
PCB 145	2,2',3,4,6,6'-HxCB	µg/Kg	0.001 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.049 U	0.0497 U	--	--
PCB 146	2,2',3,4',5,5'-HxCB	µg/Kg	1.34	4.20	4.66	1.66	0.871	1.30	1.20	--	--
PCB 147/149	2,2',3,4',5,6-HxCB + 2,2',3,4',5',6-HxCB	µg/Kg	6.91	24.8	27.1	8.74	5.46	6.62	6.21	--	--
PCB 148	2,2',3,4',5,6'-HxCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 150	2,2',3,4',6,6'-HxCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 152	2,2',3,5,6,6'-HxCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 153/168	2,2',4,4',5,5'-HxCB + 2,3',4,4',5',6-HxCB	µg/Kg	7.76	38.8	33.4	8.88	5.42	7.33	7.06	--	--
PCB 154	2,2',4,4',5,6'-HxCB	µg/Kg	0.0685	0.267	0.286	0.0838	0.0493 U	0.0642	0.0579	--	--
PCB 155	2,2',4,4',6,6'-HxCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 156/157	2,3,3',4,4',5-HxCB + 2,3,3',4,4',5'-HxCB	µg/Kg	2.04	5.95	4.80	2.18	0.891	1.53	1.39	--	--
PCB 158	2,3,3',4,4',6-HxCB	µg/Kg	1.31	5.26	4.35	1.51	0.693	1.06	0.985	--	--
PCB 159	2,3,3',4,5,5'-HxCB	µg/Kg	0.0486 U	0.105	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 160	2,3,3',4,5,6-HxCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 161	2,3,3',4,5',6-HxCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 162	2,3,3',4',5,5'-HxCB	µg/Kg	0.0612	0.209	0.463	0.0494 U	0.0493 U	0.0637	0.0616	--	--
PCB 164	2,3,3',4',5',6-HxCB	µg/Kg	0.68	3.40	3.02	0.817	0.366	0.523	0.568	--	--
PCB 165	2,3,3',5,5',6-HxCB	µg/Kg	0.0486 U	0.114	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 167	2,3',4,4',5,5'-HxCB	µg/Kg	**0.588**	**2.510**	**1.870**	**0.658**	**0.288**	**0.460**	**0.436**	--	0.21
PCB 169	3,3',4,4',5,5'-HxCB	µg/Kg	0.0486 U	**0.0841**	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	0.00021
PCB 170	2,2',3,3',4,4',5-HpCB	µg/Kg	1.55	15.4	10.2	1.71	0.923	1.54	1.52	--	--
PCB 171/173	2,2',3,3',4,4',6-HpCB + 2,2',3,3',4,5,6-HpCB	µg/Kg	0.516	4.80	3.27	0.561	0.39	0.537	0.551	--	--
PCB 172	2,2',3,3',4,5,5'-HpCB	µg/Kg	0.282	3.33	2.25	0.291	0.199	0.31	0.319	--	--
PCB 174	2,2',3,3',4,5,6'-HpCB	µg/Kg	1.31	18.6	13.2	1.55	1.34	1.74	1.81	--	--
PCB 175	2,2',3,3',4,5',6-HpCB	µg/Kg	0.0613	0.827	0.598	0.0846	0.0719	0.0921	0.0952	--	--
PCB 176	2,2',3,3',4,6,6'-HpCB	µg/Kg	0.195	1.81	1.54	0.234	0.328	0.265	0.287	--	--
PCB 177	2,2',3,3',4',5,6-HpCB	µg/Kg	0.758	9.46	6.52	0.881	0.701	0.949	0.955	--	--
PCB 178	2,2',3,3',5,5',6-HpCB	µg/Kg	0.269	3.710	2.800	0.328	0.404	0.390	0.420	--	--
PCB 179	2,2',3,3',5,6,6'-HpCB	µg/Kg	0.596	6.29	5.48	0.717	1.50	0.887	0.935	--	--
PCB 180/193	2,2',3,4,4',5,5'-HpCB + 2,3,3',4',5,5',6-HpCB	µg/Kg	2.99	45.6	29.9	3.25	2.34	3.87	3.98	--	--
PCB 181	2,2',3,4,4',5,6-HpCB	µg/Kg	0.0486 U	0.120	0.0959	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 182	2,2',3,4,4',5,6'-HpCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 183/185	2,2',3,4,4',5',6-HpCB + 2,2',3,4,5,5',6-HpCB	µg/Kg	1.07	14.50	9.95	1.22	1.37	1.50	1.58	--	--
PCB 184	2,2',3,4,4',6,6'-HpCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 186	2,2',3,4,5,6,6'-HpCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 187	2,2',3,4',5,5',6-HpCB	µg/Kg	1.45	21.0	16.6	1.67	2.29	2.26	2.40	--	--
PCB 188	2,2',3,4',5,6,6'-HpCB	µg/Kg	0.0486 U	0.110	0.0699	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--
PCB 189	2,3,3',4,4',5,5'-HpCB	µg/Kg	0.0887	0.606	0.475	0.0895	0.0493 U	0.0889	0.0812	--	1.2
PCB 190	2,3,3',4,4',5,6-HpCB	µg/Kg	0.282	3.12	2.15	0.309	0.190	0.343	0.340	--	--
PCB 191	2,3,3',4,4',5',6-HpCB	µg/Kg	0.0612	0.708	0.463	0.0687	0.0493 U	0.0664	0.0735	--	--
PCB 192	2,3,3',4,5,5',6-HpCB	µg/Kg	0.0486 U	0.0495 U	0.0491 U	0.0494 U	0.0493 U	0.0490 U	0.0497 U	--	--

Table 4
Outfall Basin 19A Solids Results - PCB Congeners

			Surface Sediments			Catch Basin Solids					
			Calbag 1: Composite Sweepings from NW Front Ave., at Calbag Driveway FO105900	Calbag 2: Composite Surface Soils (0-2" depth), between NW Front Ave.Rail Lines and Calbag Site FO105901	Calbag 2_Duplicate FO105906	Catch Basin ANF294 FO105902	Catch Basin APN377 FO105903	Catch Basins ANF302 and ANF304 FO105904	Catch Basins ANF298 and ANF300 FO105905	JSCS[2] Screening Level Value	
IUPAC Number[1]	**Chemical Name**	**Units**	9/14/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	9/16/2010	**Toxicity**	**Bioaccumulation**
PCB 194	2,2',3,3',4,4',5,5'-OcCB	µg/Kg	0.674	18.3	13.5	0.719	0.504	1.35	1.35	--	--
PCB 195	2,2',3,3',4,4',5,6-OcCB	µg/Kg	0.231	5.02	3.74	0.242	0.187	0.410	0.414	--	--
PCB 196	2,2',3,3',4,4',5,6'-OcCB	µg/Kg	0.422	9.63	7.05	0.406	0.358	0.761	0.777	--	--
PCB 197/200	2,2',3,3',4,4',6,6'-OcCB + 2,2',3,3',4,5,6,6'-OcCB	µg/Kg	0.146 U	2.74	2.28	0.148 U	0.214	0.29	0.312	--	--
PCB 198/199	2,2',3,3',4,5,5',6-OcCB + 2,2',3,3',4,5,5',6'-OcCB	µg/Kg	0.936	24.5	18.7	0.985	0.908	1.99	2.03	--	--
PCB 201	2,2',3,3',4,5',6,6'-OcCB	µg/Kg	0.145	3.060	2.270	0.147	0.269	0.304	0.326	--	--
PCB 202	2,2',3,3',5,5',6,6'-OcCB	µg/Kg	0.219	5.66	4.23	0.217	0.497	0.438	0.490	--	--
PCB 203	2,2',3,4,4',5,5',6-OcCB	µg/Kg	0.561	15.9	11.8	0.581	0.518	1.24	1.29	--	--
PCB 204	2,2',3,4,4',5,6,6'-OcCB	µg/Kg	0.0729 U	0.0743 U	0.0737 U	0.0741 U	0.0739 U	0.0735 U	0.0745 U	--	--
PCB 205	2,3,3',4,4',5,5',6-OcCB	µg/Kg	0.0729 U	0.767	0.598	0.0741 U	0.0739 U	0.0735 U	0.0745 U	--	--
PCB 206	2,2',3,3',4,4',5,5',6-NoCB	µg/Kg	0.731	24.3	18.9	0.749	0.518	2.24	2.03	--	--
PCB 207	2,2',3,3',4,4',5,6,6'-NoCB	µg/Kg	0.0947	2.76	2.13	0.0858	0.078	0.243	0.230	--	--
PCB 208	2,2',3,3',4,5,5',6,6'-NoCB	µg/Kg	0.220	6.99	5.22	0.223	0.205	0.626	0.597	--	--
PCB 209	Decachlorobiphenyl	µg/Kg	0.293	8.10	6.67	0.364	0.285	0.918	0.708	--	--
	Total Monochlorobiphenyls	µg/Kg	ND	0.0539	0.105	ND	0.068	0.109	0.102	--	--
	Total Dichlorobiphenyls	µg/Kg	1.47	2.20	1.38	1.35	1.13	2.11	1.70	--	--
	Total Trichlorobiphenyls	µg/Kg	5.34	4.94	3.62	4.66	3.18	4.56	3.78	--	--
	Total Tetrachlorobiphenyls	µg/Kg	18.4	17.7	14.2	19.0	11.4	16.0	14.8	--	--
	Total Pentachlorobiphenyls	µg/Kg	56.7	125	109	72.9	29.4	43.7	40.4	--	--
	Total Hexachlorobiphenyls	µg/Kg	48.3	184	172	57.7	30.7	42.9	39.7	--	--
	Total Heptachlorobiphenyls	µg/Kg	11.5	150	106.0	13.0	12.0	14.8	15.3	--	--
	Total Octachlorobiphenyls	µg/Kg	3.19	85.6	64.2	3.30	3.46	6.78	6.99	--	--
	Total Nonachlorobiphenyls	µg/Kg	1.05	34.0	26.2	1.06	0.801	3.11	2.86	--	--
	Total Decachlorobiphenyls	µg/Kg	0.293	8.10	6.67	0.364	0.285	0.918	0.708	--	--
	Total PCBs	µg/Kg	**146**	**612**	**503**	**173**	**92.5**	**135**	**126**	676	0.39

Notes:

MoCB = Monochlorobiphenyl
DiCB = Dichlorobiphenyl
TriCB = Trichlorobiphenyl
TeCB = Tetrachlorobiphenyl
PeCB = Pentachlorobiphenyl
HeCB = Hexachlorobiphenyl
HpCB = Heptachlorobiphenyl
OcCB = Octachlorobiphenyl
NoCB = Nonachlorobiphenyl
EMPC = Estimated maximum possible concentration
U = The analyte was not detected above the reported sample quantification limit.
-- No JSCS screening level available
µg/Kg = Micrograms per kilogram
[1]IUPAC - International Union of Pure and Applied Chemistry
[2]JSCS - Portland Harbor Joint Source Control Strategy (DEQ/EPA Final December 2005, Amended July 2007)
bold = concentration exceeds JSCS Bioaccumulation Screening Level Value
= concentration exceeds JSCS Toxicity Screening Level Value

Table 5
Outfall Basin 19A Stormwater Evaluation Summary

Analytes with Detection(s) Exceeding JSCS SLVs [1]	Geometric Mean [2] of Concentrations (µg/L)	JSCS SLV [3] (µg/L)	Additional Screening Factors: Geometric Mean >SLV?	Additional Screening Factors: DEQ Background [4] (µg/L)	Additional Screening Factors: Harborwide Source Tracing Category [5]	Additional Screening Factors: Data Indicate Potentially Significant Current Source?	Rationale
PCB Congeners							
Total PCBs	0.03188	0.000064	Yes	--	2	No	Basin geometric mean concentration only slightly exceeds the upper confidence limit (UCL) for the lowest source tracing category (0.02 µg/L; BES, 2010).
Total Metals							
Arsenic	1.939	0.045	Yes	2	1	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010) and is less than DEQ estimated background concentration.
Cadmium	0.570	0.094	Yes	<1	2	No	Basin geometric mean concentration is less than DEQ estimated background concentration.
Copper	48.2	2.7	Yes	9	2	No	Basin geometric mean concentration is within the lower range of the "2-moderate" source tracing category (BES, 2010) and is below the NPDES permit benchmark.
Lead	27.1	0.54	Yes	13.3	2	No	Basin geometric mean concentration is within the lower range of the "2-moderate" source tracing category (BES, 2010) and is below the NPDES permit benchmark.
Silver	0.098	0.12	No	---------- No! [7] ----------		No	Basin geometric mean concentration is less than the JSCS SLV.
Zinc	247	36	Yes	38	2	No	Basin geometric mean concentration is less than 10X the JSCS SLV, is within the lower range of the "2-moderate" source tracing category (BES, 2010), and is below the NPDES permit benchmark.
Pesticides							
4,4'-DDD	0.00841	0.00031	Yes	--	NA	No	Basin geometric mean concentration of this analyte is below the human health JSCS SLVs for drinking water and ecological exposure. Analyte was not detected in two of four stormwater samples.
4,4'-DDE	0.00440	0.00022	Yes	--	NA	No	Analyte was detected in only one stormwater sample, at an estimated concentration less than the MRL.
PAHs (EPA 8270-SIM)							
Benzo(a)anthracene	0.0307	0.018	Yes	--	1	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010).
Benzo(a)pyrene	0.0275	0.018	Yes	--	1	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010).
Benzo(b)fluoranthene	0.0464	0.018	Yes	--	1	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010).
Benzo(k)fluoranthene	0.0365	0.018	Yes	--	1	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010).
Chrysene	0.0794	0.018	Yes	--	2	No	Basin geometric mean concentration is less than 10X the JSCS SLV and only slightly exceeds the UCL for the lowest source tracing category (0.07 mg/L; BES, 2010).
Dibenzo(a,h)anthracene	0.0090	0.018	No	---------- No! [7] ----------		No	Basin geometric mean concentration is less than the JSCS SLV.
Fluoranthene	0.1692	0.2	No	---------- No! [7] ----------		No	Basin geometric mean concentration is less than the JSCS SLV.
Indeno(1,2,3-cd)pyrene	0.0408	0.018	Yes	--	1	No	Basin geometric mean concentration falls within the lowest source tracing category (BES, 2010).
Phenanthrene	0.1846	0.2	No	---------- No! [7] ----------		No	Basin geometric mean concentration is less than the JSCS SLV.
Pyrene	0.227	0.2	Yes	--	2	No	Basin geometric mean concentration only slightly exceeds the JSCS SLV.
Total PAHs	1.159	--	--	--	2	No	No source tracing is needed for individual PAHs based on low geometric mean concentrations relative to JSCS SLVs and/or harborwide source tracing categories.
Phthalates (EPA 8270-SIM)							
Bis(2-ethylhexyl)phthalate	1.61	2.2	No	---------- No! [7] ----------		No	Basin geometric mean concentration is less than the JSCS SLV.

Notes:

NA = Harborwide source tracing category not developed for this constituent.

(1) Stormwater analytes for which at least one detected concentration exceeded the corresponding Screening Level Value (SLV) established in the Portland Harbor Joint Source Control Strategy (JSCS) (DEQ/EPA 2005, as updated in July 2007). See Tables 2 and 3.

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

(3) DEQ/EPA, 2005, as updated in July 2007. SLVs shown are highlighted values (i.e., recommended SLVs) from Table 3-1.

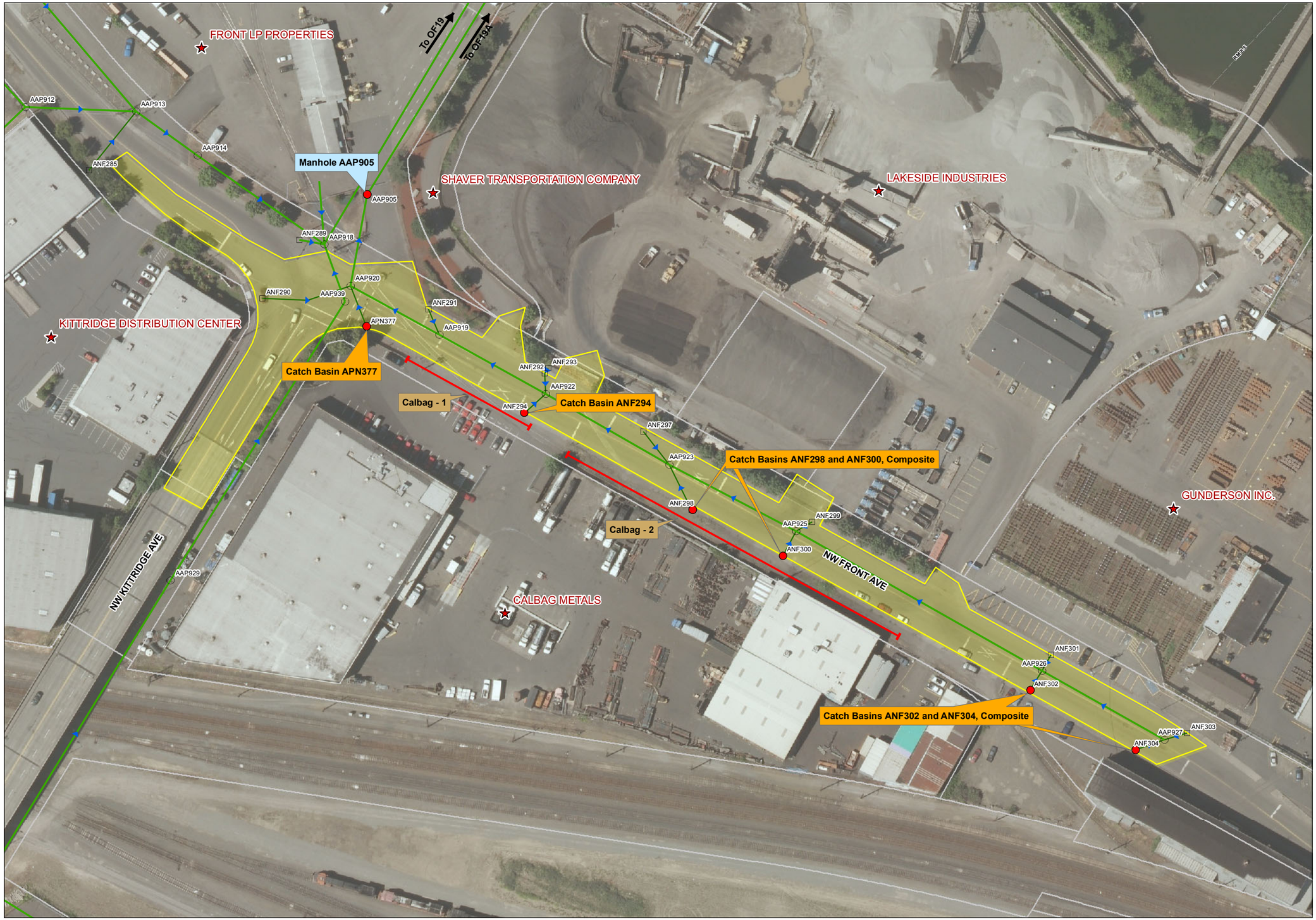
(4) Oregon Department of Environmental Quality (DEQ), 2002. Default background concentrations for metals. Internal DEQ memorandum, to DEQ Cleanup Project Managers, from: Toxicology Workgroup. Dated October 28, 2002.

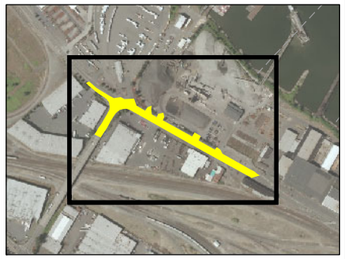
(5) Based on data from City and non-City outfalls discharging to the Portland Harbor. Category 1 corresponds to lower concentrations, Category 3 to higher concentrations. See City*Stormwater Evaluation Report* (BES, 2010) for detailed description of source tracing category significance and development.

(6) NPDES = National Pollution Discharge Elimination System

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

Figures





LEGEND

- Sample Location
- Composite Soil Sample Location
- Outfall Basin 19A
- Stormwater Sample
- Inline Solids Sample
- Surface Solids Sample
- Storm Line
- Manhole
- Catch Basin
- DEQ ECSI Site
- Tax Lot
- River Mile Tenths

N

0 50 100
Feet

FIGURE 1

Basin 19A
Drainage Basin Overview

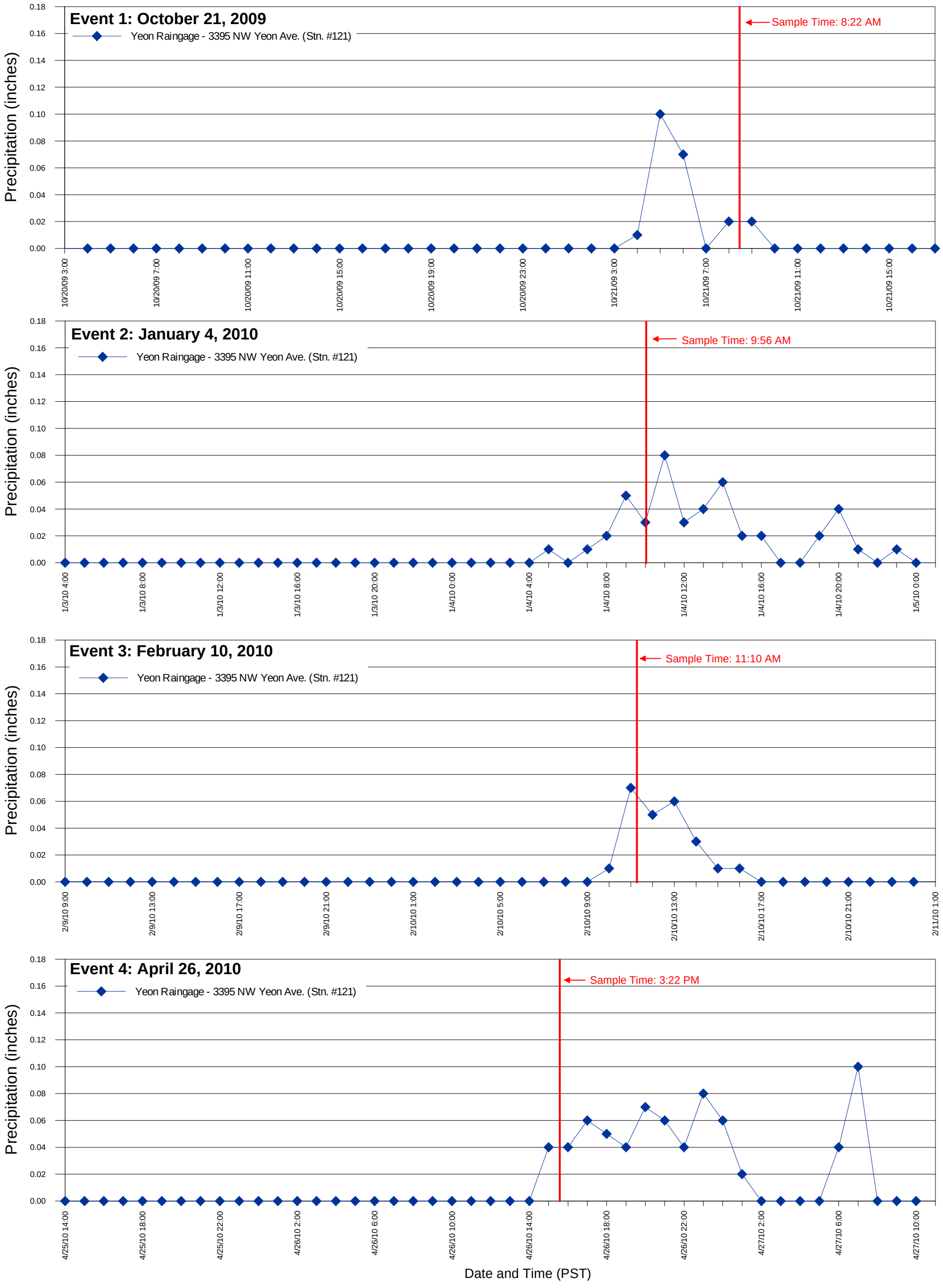
Disclaimer:
Information contained on this map is accurate according to available records, however the City of Portland makes no warranty, expressed or implied, as to the completeness or accuracy of the information published.

Prepared By:
GSI, November 17, 2011
005_SC\RIOF_Basin_19A\TM_OF19A_1

Source:
City of Portland BES, Aerial Photo 2010

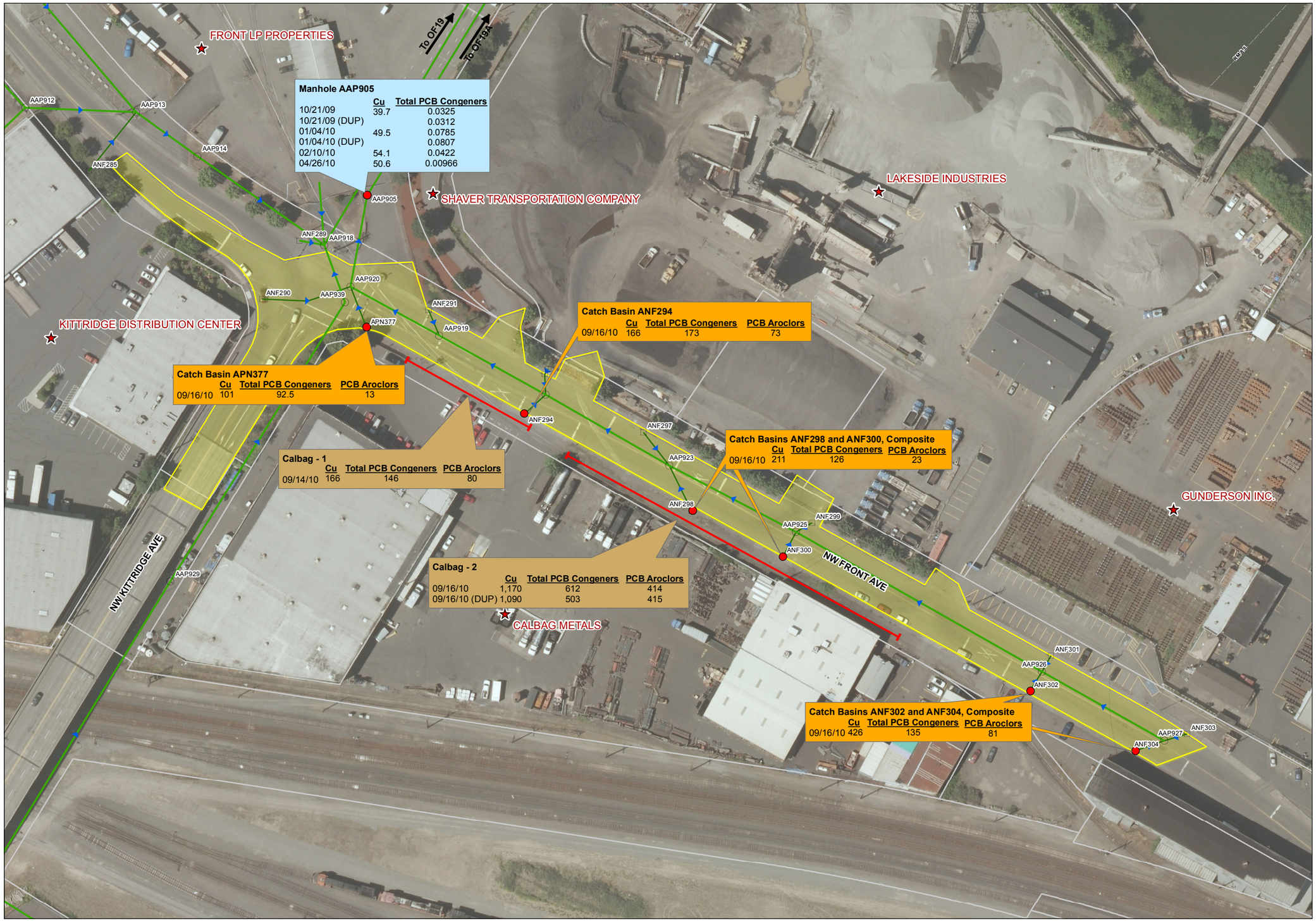
ENVIRONMENTAL SERVICES
CITY OF PORTLAND
1120 SW Fifth Avenue, Room 1000
Portland Oregon, 97204-1912

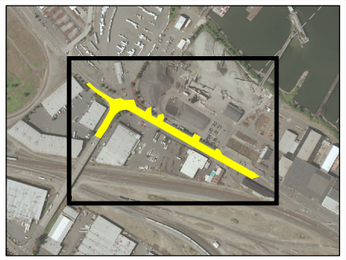
Figure 2
Outfall 19A
Storm Event Precipitation Graphs



Event Number	Sample Date and Time (PST)	Sample Type	Antecedent Dry Period (days)(1)	Minimum Forecasted Rainfall Total (inches)(2)	First Flush Event?(3)
1	10/21/2009 8:22	Grab	3	0.18	No
2	1/4/2010 9:56	Grab	2	0.38	No
3	2/10/2010 11:10	Grab	3	0.12	Yes
4	4/26/2010 15:22	Grab	10	0.24	Yes

PST = Pacific Standard Time
Rain gage data obtained from USGS, Oregon Water Science Center (http://or.water.usgs.gov/non-usgs/bes/)
(1) Cumulative rainfall during this time less than 0.10 inches.
(2) Minimum forecasted rainfall data provided by Extended Range Forecasting, Inc.
(3) First flush sampling is typically conducted within the first 3 hours of stormwater discharge, but varies depending on the basin size and land use characteristics.





LEGEND

- Sample Location
- Composite Soil Sample Location
- Outfall Basin 19A
- Stormwater Sample
- Inline Solids Sample
- Surface Solids Sample
- Storm Line
- Manhole
- Catch Basin
- DEQ ECSI Site
- Tax Lot
- River Mile Tenths

NOTES:
Copper results in mg/Kg or µg/L
Total PCBs results in µg/Kg or µg/L

N

0 50 100
Feet

FIGURE 3

Basin 19A Stormwater and Solids Results - Total PCBs and Copper (Cu)

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, November 17, 2011
005_SCI\RIOF_Basin_19A\TM_OF19A_1

Source:
City of Portland BES, Aerial Photo 2010

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
1120 SW Fifth Avenue, Room 1000
Portland Oregon, 97204-1912

Attachment A
Field Photographs

2009 – 2010 Stormwater Sampling

Photo 1 (October 21, 2009). Surface water runoff into Basin 19A catch basin on north side of NW Front Avenue.

Photo 2 (October 21, 2009). Stormwater flow inside manhole AAP905 at the time of Event 1 sampling.

Photo 3 (January 4, 2010). Runoff conditions on NW Front Avenue during Event 2.

Photo 4 (January 4, 2010). Basin 19A Event 2 stormwater sample.

Photo 5 (February 10, 2010). Runoff conditions in the vicinity of manhole AAP905 during Event 3 sampling; view to west along NW Front Ave.

Photo 6 (February 10, 2010). Event 3 stormwater sample from Basin 19A.

Photo 7 (April 26, 2010). Runoff conditions on NW Front Ave. during Event 4.

Photo 8 (April 26, 2010). Stormwater sampling equipment and Basin 19A Event 4 stormwater sample.

September 2010 Solids Sampling

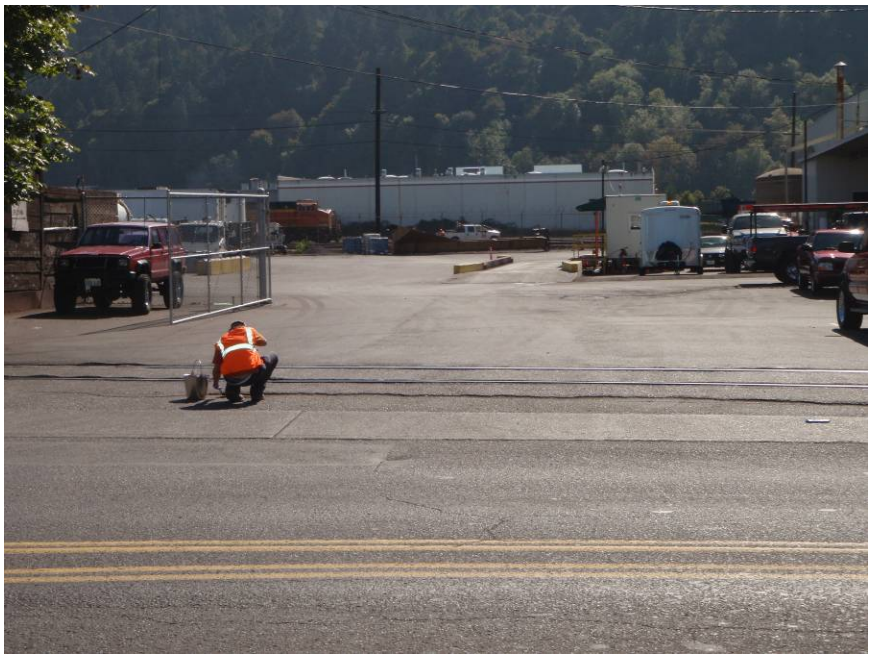


Photo 9 (September 14, 2010). Location of surface sediment sample "Calbag-1" at the driveway of the Calbag/O'Neill site, along NW Front Avenue.

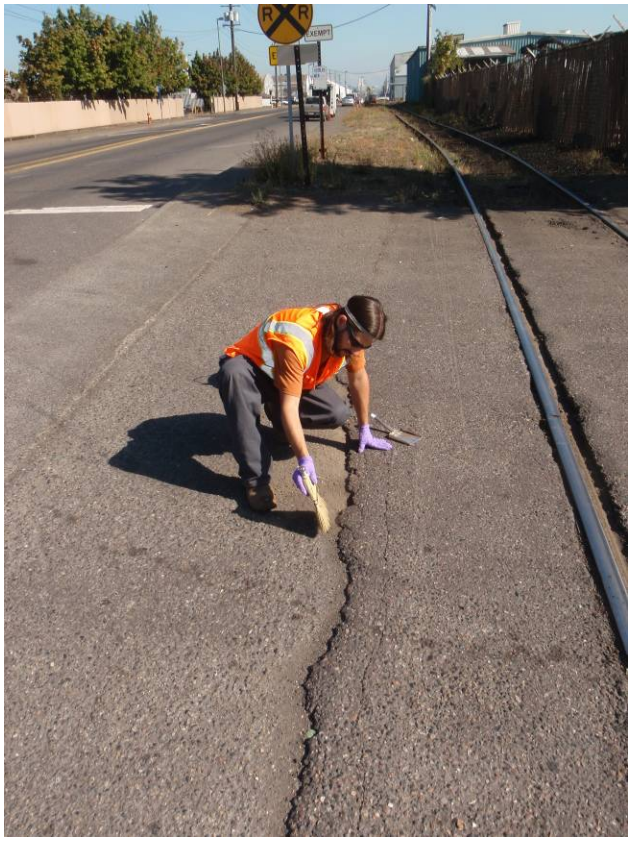


Photo 10 (September 14, 2010). Sweeping of sediments along surface seam for sample collection at location "Calbag-1."

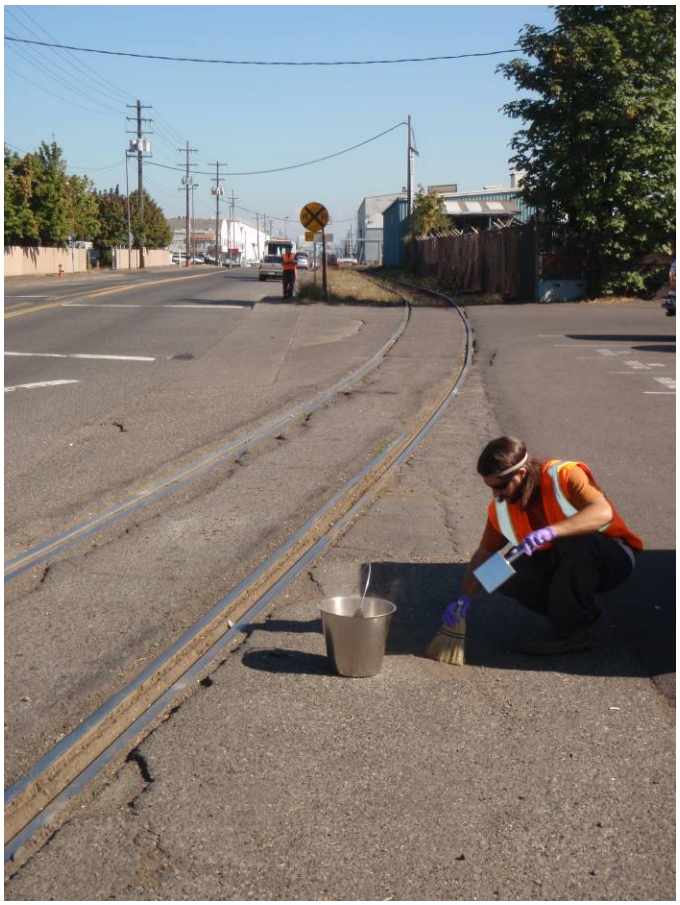


Photo 11 (September 14, 2010). Sweeping of sediments from cracks and depressions for sample collection at location "Calbag-1."

Photo 12 (September 14, 2010). Final homogenized composite surface sweepings sample from location "Calbag-1" (19A_1).

Photo 13 (September 16, 2010). Collecting surface soil subsample A at sampling location "Calbag-2." View is to the southeast.

Photo 14 (September 16, 2010). View to the west at surface soil subsample location A for sampling location "Calbag-2."

Photo 15 (September 16, 2010). View to the west at surface soil subsample location B for sampling location "Calbag-2."

Photo 16 (September 16, 2010). Close-up view of surface soil subsample B for sample Calbag-2).

Photo 17 (September 16, 2010). Collecting surface soil subsample C at sampling location "Calbag-2."

Photo 18 (September 16, 2010). Surface soil subsample location D (looking east) at sampling location "Calbag-2."

Photo 19 (September 16, 2010). Collecting surface soil subsample E at sampling location "Calbag-2." View is to the west.

Photo 20 (September 16, 2010). Close-up view of subsample E at sampling location "Calbag-2."

Photo 21 (September 16, 2010). Final homogenized composite surface soil sample from sampling location "Calbag-2" (19A_2).

Photo 22 (September 16, 2010). Catch basin ANF294, on the south side of NW Front Avenue adjacent to driveway at Calbag/O'Neill site.

Photo 23 (September 16, 2010). View of solids at bottom of catch basin ANF294 before sampling.

Photo 24 (September 16, 2010). Homogenized solids sample from catch basin ANF294 (19A_3).

Photo 25 (September 16, 2010). View to east of drainage area for catch basin APN377.

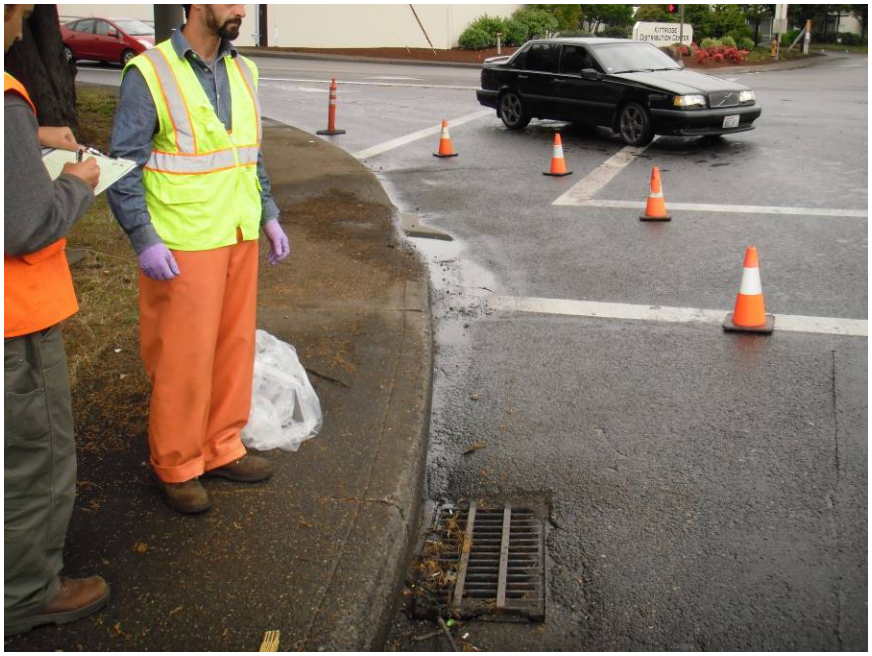


Photo 26 (September 16, 2010). View to west of drainage area for catch basin APN377.

Photo 27 (September 16, 2010). Accumulated solids inside catch basin APN377 before sampling.

Photo 28 (September 16, 2010). Homogenized solids sample from catch basin APN377 (19A_4).

Photo 29 (September 16, 2010). View to west at catch basin ANF302; subsampling location for composite inline solids sample 19A_5.

Photo 30 (September 16, 2010). Solids inside catch basin ANF302 before sampling.

Photo 31 (September 16, 2010). View to east at catch basin ANF304; subsampling location for composite inline solids sample 19A_5.

Photo 32 (September 16, 2010). Catch basin ANF304 before sampling.

Photo 33 (September 16, 2010). Final homogenized composite solids sample from catch basins ANF302 and ANF304 (19A_5).

Photo 34 (September 16, 2010). View to east at catch basin ANF298; subsampling location for composite inline solids sample 19A_6.

Photo 35 (September 16, 2010). Catch basin ANF298 before sampling.

Photo 36 (September 16, 2010). View to the southwest at catch basin ANF300; subsampling location for composite inline solids sample 19A_6.

Photo 37 (September 16, 2010). Catch basin ANF300 before sampling.

Photo 38 (September 16, 2010). Final homogenized composite solids sample from catch basins ANF298 and ANF300 (19A_6).

Attachment B
Field Notes

Stormwater Sampling

Event 1: October 21, 2009

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: 10/21/09
Page: 1 of 1
Collected By: MJS

Project Name: PORTLAND HARBOR STORMWATER SAMP
File Number: 1020.005 **Matrix:** STORMWTR

Requested Analyses

FY 2009-10 Stormwater Grab Chain-of-custody

Times in PDT

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General: TSS	Organics: PCB Congeners (All 209)	Organics: PAH + Phthalates (TA)	Organics: Pesticides (CAS)	Metals: Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn)	Metals: Total Mercury	Field: Temperature (Deg C)	Field: Conductivity (umhos/cm)	Field: pH (pH units)
FO096056	SW-19A-AAAO905-MMYY NW KITTRIDGE & FRONT	19A_SW1	10/21/09	0922	G	●	●	●	●	●	●	13.8	63	7.1
FO096057	FIELD DECON BLANK	FDB	10/21/09	0910	G	●	●	●	●	●	●			
FO096058	DUPLICATE	DUP	10/21/09		G	●	●							

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature:	Signature:	Signature:	Signature:
Printed Name: Matt Ballman	Printed Name:	Printed Name:	Printed Name:
Time: 1040	Time:	Time:	Time:
Date: 10/21/09	Date:	Date:	Date:
Received By: 1.	Received By: 2.	Received By: 3.	Received By: 4.
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Printed Name:	Printed Name:	Printed Name:	Printed Name:
Time: 1040	Time:	Time:	Time:
Date: 10/21/09	Date:	Date:	Date:

City of Portland
Environmental Services

DAILY FIELD REPORT

Page 1 of 1

Project Portland Harbor Stormwater
Location NW Kittridge + Front – 19A_SW1
Subject Event 1 (non-first flush)

Project No. 1020.005
Date 10/21/09
By MJS

0905 (PDT) on-site at 19A_SW1 to consistent light rain. Rain has been off and on since early this morning (~0300) with this most recent pulse beginning at roughly 0830. There is active runoff entering catch basins on Front Ave and there is good flow in the manhole.

0910 will begin by collecting the Field Blank sample. Collected ultra pure water into a decontaminated stainless steel beaker then poured into analyte bottles.

0922 collected samples and duplicate with the same beaker by lowering it into the flow. Split each beaker-full between the sample and duplicate bottle for each analyte. Samples are very turbid.

0940 Completed sampling. Rain has tapered off to just a very light, but there continues to be abundant runoff and good flow in the manhole.

Attachments

Event 2: January 4, 2010

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: 1-3-10

Page: 1 of 1

Collected By: MJS, LAP

Project Name: PORTLAND HARBOR STORMWATER SAMP

File Number: 1020.005 **Matrix:** STORMWTR

FY 2009-10 Stormwater Grab Chain-of-custody

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General: TSS	Organics: PCB Congeners (All 209)	Organics: PAH + Phthalates (TA)	Organics: Pesticides (CAS)	Metals: Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn)	Metals: Total Mercury	Field: Temperature (Deg C)	Field: Conductivity (umhos/cm)	Field: pH (pH units)
FO105002	SW-19A-AAP905-MMYY NW KITTRIDGE & FRONT	19A_SW1	1/4/10	0956	G	●	●	●	●	●	●	7.3	57	6.5
FO105003	FIELD DECON BLANK	FDB	1/4/10	0943	G	●	●	●	●	●	●			
FO105004	DUPLICATE	DUP	1/4/10		G	●	●							

Signature: Matt Sullivan Time: 1113	Relinquished By: 2. Signature: Time:	Relinquished By: 3. Signature: Time:	Relinquished By: 4. Signature: Time:
Printed Name: Matt Sullivan Date: 1/4/10	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Received By: 1. Signature: Time:	Received By: 2. Signature: Time:	Received By: 3. Signature: Time:	Received By: 4. Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:

S:\EID\1000\1020.005 - Portland Harbor Stormwater Samp\Sampdoc\FY 2009_2010 Stormwater Sampling\Portland Harbor Stormwater OF 19A Grab COC FY09-10.xls

City of Portland
Environmental Services

DAILY FIELD REPORT

Page 1 of 1

Project Portland Harbor Stormwater Sump
Project No. 1020.005
Location OF19A
Date 1/4/10
Subject Event 2
By MJS, LAP

1/4/10 0932 On-site @ OF19A to steady light rain. Has rained ~0.09" so far this morning w/ the majority having fallen in the last 1.5 hours. There is currently good storm flow in the manhole and ~~water~~ run-off actively entering the catch basins. Took photo of catch basin South of manhole on the east side of Front Ave, and photo of flow in manhole

0943 - collected Field Decon blank sample by filling a decontaminated stainless steel beaker with ultrapure DI and filling all sample bottles

0956 - collected sample and duplicate of PCBs and TSS, which were split between the two amber bottles. The sample is extremely turbid and has a significant sheen

Attachments

Event 3: February 10, 2010

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

City of Portland Chain-of-Custody

Bureau of Environmental Services

Date: 2/10/10
Page: 1 of 1
Collected By: MJS, JSA

Project Name: PORTLAND HARBOR STORMWATER SAMP
File Number: 1020.005 **Matrix:** STORMWTR

FY 2009-10 Stormwater Grab Chain-of-custody

Requested Analyses

	Location	Point Code	Sample Date	Sample Time	Sample Type	General: TSS	Organics: PCB Congeners (All 209)	Organics: PAH + Phthalates (TA)	Organics: Pesticides (CAS)	Metals: Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn)	Metals: Total Mercury	Field: Temperature (Deg C)	Field: Conductivity (umhos/cm)	Field: pH (pH units)
FO105234	SW-19A-AAP905-MMYY NW KITTRIDGE & FRONT	19A_SW1	2/10/10	1110	G	●	●	●	●	●	●	7.5	75	~~5.5~~ MJS 5.7
FO105235	FIELD DECON BLANK	FDB	2/10/10	1053	G	●	●	●	●	●	●			
	DUPLICATE	DUP			G	●	●							

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Signature: Matt Sullivan Time: 1133	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Matt Sullivan Date: 2/10/10	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Received By: 1.	**Received By:** 2.	**Received By:** 3.	**Received By:** 4.
Signature: Time:	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:

City of Portland
Environmental Services

DAILY FIELD REPORT

Project Portland Harbor Stormwater Samp
Project No. 1020.005
Location 19A-SW1
Date 2/10/10
Subject Event 3
By MJS, AJA

2/10/10 0920 - light rain has started. Forecast calls for bulk of rain not arriving until the afternoon, but we are attempting to capture the first flush during this event so will target this initial pulse of precipitation.
0945 - rainfall has intensified and there is some runoff evident.
1030 - light but steady rain is continuing w/ abundant run-off. Will go to site.

1053 - on site @ 19A-SW1 to continued light/moderate rain and significant runoff. Collected Field Decon Blank sample by filling a decontaminated stainless steel beaker w/ ultrapure DI water and filling analyte bottles.

1110 - moderate rain continuing. There is heavy flow in the manhole, and abundant runoff entering the catch basins. Will collect samples. Samples are very turbid and grayish brown in color. Took photos of the manhole, of an adjacent catch basin, and of the sample.

1126 - off site

Attachments

Event 4: April 26, 2010

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

City of Portland Chain-of-Custody

Bureau of Environmental Services

Date: 4/26/10

Page: 1 of 1

Collected By: MJS, PTB

Project Name: PORTLAND HARBOR STORMWATER SAMP

File Number: 1020.005 **Matrix:** STORMWTR

FY 2009-10 Stormwater Grab Chain-of-custody

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General: TSS	Organics: PCB Congeners (All 209)	Organics: PAH + Phthalates (TA)	Organics: Pesticides (CAS)	Metals: Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn)	Metals: Total Mercury	Field: Temperature (Deg C)	Field: Conductivity (umhos/cm)	Field: pH (pH units)
FO105475	SW-19A-AAP905-MMYY NW KITTRIDGE & FRONT	19A_SW1	4/26/10	1622	G	●	●	●	●	●	●	15.0	90	7.8
	FIELD DECON BLANK	FDB			G	●	●	●	●	●	●			
	DUPLICATE	DUP			G									

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Date:	Date:	Date:	Date:

City of Portland
Environmental Services

DAILY FIELD REPORT

Project Portland Harbor Stormwater Samp
Project No. 1020.005
Location 19A_SW1
Date 4/26/10
Subject Event 4
By MJS

1515 light rain beginning at WPCL
1530 rain intensifying
1609 - on site at 19A_SW1 to steady rain and heavy runoff entering catch basins, and good storm flow in the manhole.
1622 - collected samples using a stainless steel beaker lowered into the flow. Samples are extremely turbid and grayish-brown in color. No apparent odor. Took photographs of catch basin, flow in manhole and sample.

1628 - off site to continued steady rain

* per discussion w/ LAS did not collect Field Decon Blank

Attachments

Solids Sampling

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

City of Portland Chain-of-Custody

Bureau of Environmental Services

Date: 9/16/10
Page: 1 of 1
Collected By: CJK, PTB, MJS

Project Name: PORTLAND HARBOR INLINE SAMP
File Number: 1020.001 **Matrix:** SEDIMENT

Basin 19A Inline

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	Organics: PCB Aroclors - LL	Organics: PCB Congeners (All 209)	Organics: TOC	Organics	Organics	Organics	General: Total Solids	General	General	Metals: Total Copper	Metals	Field Comments
FO105900	IL-19A-CALBAG1-0910 CALBAG & NW FRONT #1	19A_1	9/14/10	1527	C	●	●	●				●			●		
FO105901	IL-19A-CALBAG2-0910 CALBAG & NW FRONT #2	19A_2	9/16/10	945	C	●	●	●				●			●		
FO105902	IL-19A-ANF294-0910 4927 SW FRONT AVE	19A_3	9/16/10	1011	C	●	●	●				●			●		
FO105903	IL-19A-APN377-0910 KITTEREDGE & FRONT	19A_4	9/16/10	1043	C	●	●	●				●			●		
FO105904	IL-19A-CBCOMP1-0910 COMP ANF302 & ANF304	19A_5	9/16/10	1131	C	●	●	●				●			●		
FO105905	IL-19A-CBCOMP2-0910 COMP ANF298 & ANF300	19A_6	9/16/10	1208	C	●	●	●				●			●		
FO105906	DUPLICATE	DUP	9/16/10		C	●	●	●				●			●		

	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature: Time:	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
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City of Portland
Environmental Services

DAILY FIELD REPORT

Page 1 of 1

Project PORTLAND HARBOR INLINE SAMP
Project No. 1020-001
Location BASIN 19A
Date 9/14/10
Subject Surface Sweeping.
By JJM, PTB, AND

1500 Arrive on-site driveway of Cal-bag and NW Front Ave. AND, GSI, lined us out on surface sampling for sample Calbag-2. Then lined us out on where to sweep for Calbag 1. Surface sample locations determined to target potential areas of runoff from Calbag property. Observation was made that there is a concrete barrier just inside the fence, along ~1/3 of the fence length. Therefore, only 1 sample will be taken along here. 1 sample at the corner of the warehouse and 3 equally spaced along the exposed portion of fence-line. Sample locations for Calbag-1 determined to target the Calbag driveway and to avoid influence from NW Front and the RR tracks.

1511 Began sampling Calbag-1.

1527 Completed sampling. Grave sample point code 19A-1

0900 9/15/10 Phone call with A.N.D. - Actually intent of Calbag 2 is looking at historic accumulations. All 5 sub-samples should be equally spaced along entire length of property, including in front of warehouse.

Attachments

CITY OF PORTLAND

ENVIRONMENTAL SERVICES

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

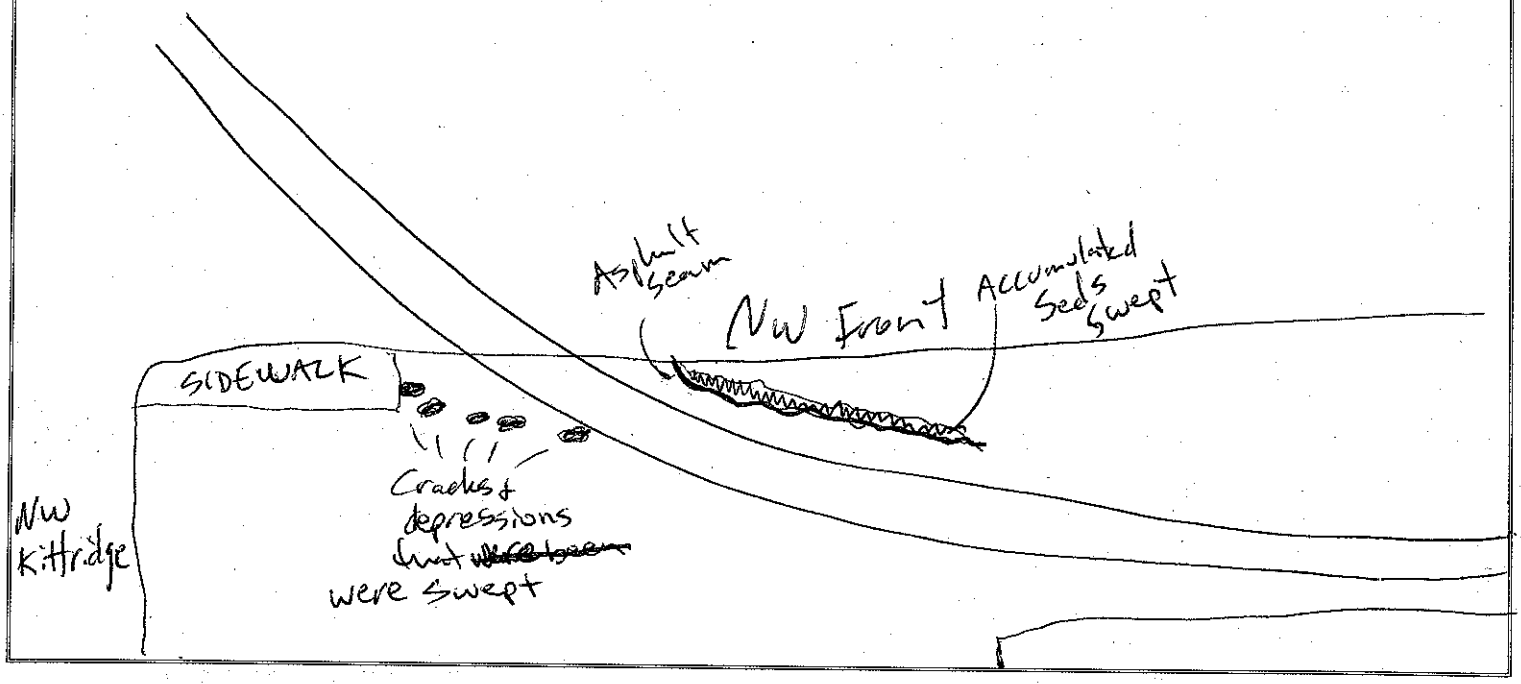
INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: Portland Harbor Inline Samp			Project Number: 1020.001
Sampling Team: JSM, PTB, AND	Date: 9/14/10	Arrival Time: 1500	Current Weather Conditions/Last Rain: Sunny / Last week
Basin: 19A	Node: NA		Subbasin: NA
Sampling Location Description/Address: Intersection of Calbag driveway and NW Front Ave			

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	NA
Does river appear to back up to this location? Describe rate/color/odor of flow:	NA
Are sediments observed ~~in the line?~~	Yes. Seds are present along asphalt seams
Are sample-able quantities of sediments present in the line?	Yes. with sweeping enough should be collected.
Describe lateral extent of sample-able sediments present in the line:	The seds extend along driveway within public right of way.

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



Date: 9/14/10	SECTION 2 - SAMPLE COLLECTION REPORT	Node: Calbag-1
Sampling Equipment:	~~X~~ Stainless steel spoon & stainless steel bucket ~~X~~ Other (Describe) Corn which broom	
Equipment Decontamination process:	~~X~~ Per SOP7.01a ~~X~~ Other (Describe) Broom not decanned but new from store. OKd by customer.	
Sample date: 9/14/10	Sample time: 1527	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-19A-CALBAG1-0910
Sample location description: (~~number of feet from node of entry~~) Along asphalt seam at main driveway on N of RR tracks. In pockets along S of RR tracks		
Sample collection technique:	Used corn which broom to sweep into stainless steel scoop and added to bucket.	
Describe Color of sample:	Grey	
Describe Texture/Particle size:	50% small gravels, 5% organics, 45% fines + silts (very dusty)	
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:	0.25" maximum with the rest free	
Describe amount and type of debris in sample:	Organics 5%	
Amount and type of debris removed from final sample:	None	
Compositing notes: Homogenized in bucket		
Sample Jars Collected (number, size, full or partial)? 6 full 4oz 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 FO105900	Duplicate sample collected? Y (N) Dupe ID	
Duplicate sample identification # on COC:		
Any deviations from standard procedures: ~~None~~ ~~N/A~~ Yes, broom used to sweep seeds into trowel then transferred to bucket		

SECTION 3 - PHOTOGRAPH LOG

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

City of Portland
Environmental Services

DAILY FIELD REPORT

Project PORTLAND HARBOR /NLINE SAMP
Project No. 1020.001
Location BASIN 19A
Date 9/16/10
Subject CB and Surface Sampling
By CJK, MSS, PTB

0915 Arrive on-site BASIN 19A, to collect catbag 2 sample along RR Tracks. Soil is wet from rain last night & this morning.

0926 Began sampling. Collected 5 sub-samples equally spaced along RR Tracks between tracks & Calbag property.

0945 Completed sampling of Calbag 2. Filled jars. Gave point code 19A-2. Collected duplicate here.

0954 Arrive on-site ANF294. Began sampling.

1011 Completed sampling at ANF294. Filled jars. Gave point code 19A-3.

1017 Arrive on-site un-named CB. Consulting the map provided by PHA suggested CB actually on map. Phone call revealed that this CB was added to map 8/23/2010. as APN377.

1043 Finished collecting sample. Filled jars. Gave point code 19A-4.

~~1053~~ 1110 At ANF304 - there is no sediment in catch basin floor, pulled all material from catch basin grate
1140 opened ANF307 grate and removed all material from CB floor. Combined all material and composited then subsampled 19A-5
1208 - at ANF300 - no sediment in CB so removed material accumulated in grate. ANF298 - collected 5 sub-samples from CB floor. Combined all material and composited. 19A-6

Attachments

19A_2

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

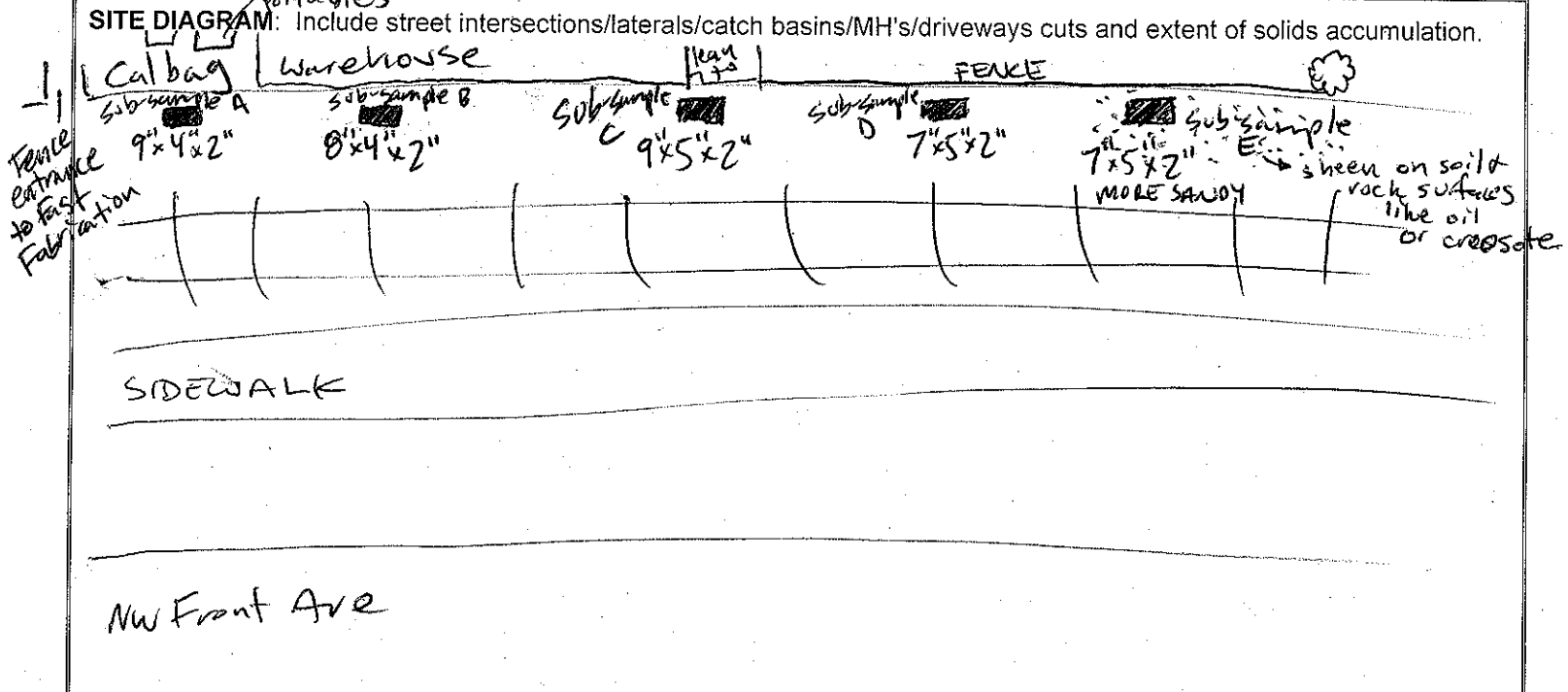
INLINE SEDIMENT SAMPLING FIELD DATA SHEET

Project Name: PORTLAND HARBOR INLINE SAMP			Project Number: 1020.001
Sampling Team: CJK, MJS, PTB	Date: 9/16/10	Arrival Time: 0915	Current Weather Conditions/Last Rain: Overcast, drizzly / This morning/ currently
Basin: 19A	Node: NA		Subbasin: NA
Sampling Location Description/Address: Calbag-2. Composite of surface soils (0-2") from 5 sub-samples in area between Calbag and rail lines parallel to NW Front Ave.			

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe any flowing or standing water observed in the line?	NA
Does river appear to back up to this location? Describe rate/color/odor of flow:	NA
Are sediments observed ~~in the line?~~	Yes, there is abundant soil
Are sample-able quantities of sediments present in the line?	Yes,
Describe lateral extent of sample-able sediments present in the line:	Soils are present along RR tracks with large angular gravels and fines in between

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



19A-2

Date: 9/16/10	SECTION 2 - SAMPLE COLLECTION REPORT	Node: Cal bag 2

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ Other (Describe)
Equipment Decontamination process:	☒ Per SOP7.01a ☐ Other (Describe)
Sample date: 9/16/10 / Sample time: 0945	Sample Identification: (IL-XX-NNNNNN-mmyy) IL-19A-CALBAG2-0910
Sample location description: (number of feet from node of entry)	5 sub-samples equally spaced along the Calbag property from Fast Fab entrance to tree at end of fence
Sample collection technique:	Stainless steel trowel to strape/dig solids down to 2" in an approx. 9"x5" area at each sub-sample, excluding large gravels.
Describe Color of sample:	Brown
Describe Texture/Particle size:	75% sand, 20% fines, 5% gravel
Describe visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.):	Hydrocarbon odor No sheen
Describe depth of solids in area where sample collected:	Solids were collected to a depth of 2". ~~the soil~~ PTB
Describe amount and type of debris in sample:	<1% undecomposed wood
Amount and type of debris removed from final sample:	All debris removed, + some large gravels

Compositing notes: Homogenized in collection bucket

Sample Jars Collected (number, size, full or partial)? 6 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: FO105901 | Duplicate sample collected? (Y)N | Dupe ID:

Duplicate sample identification # on COC: DUP FO105906

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?	

19A-3

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

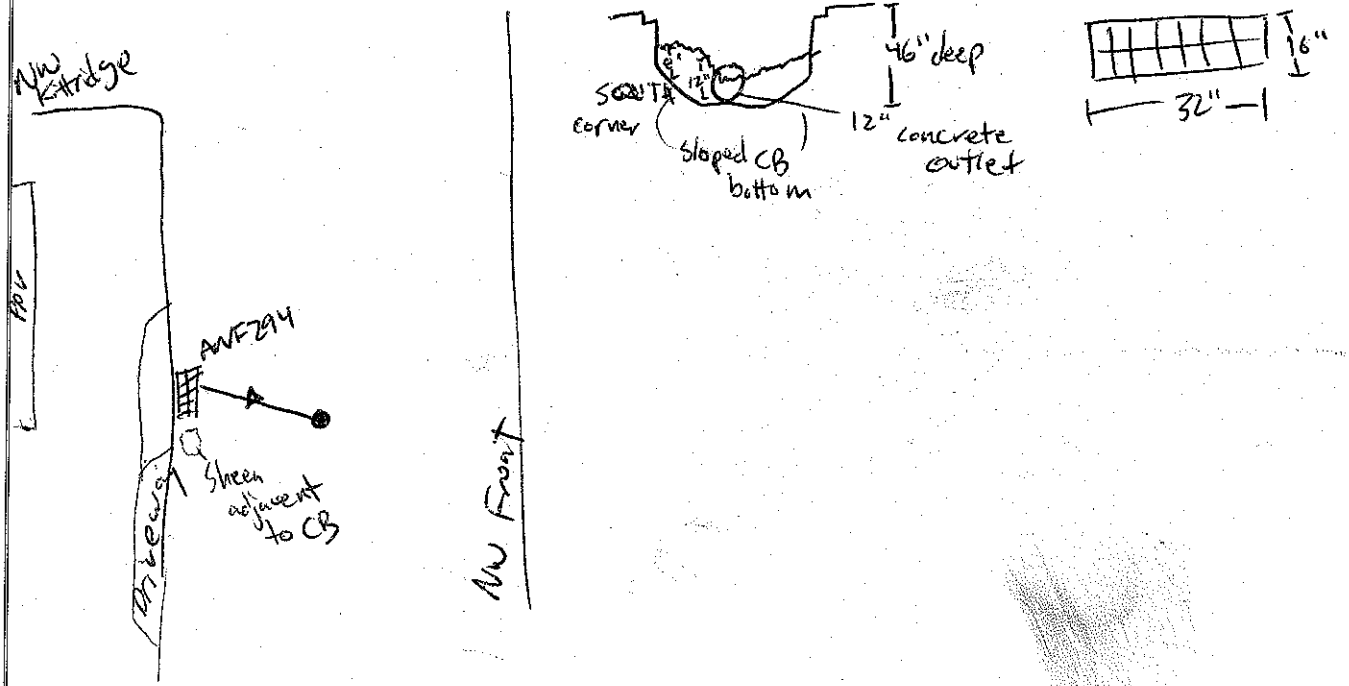
CATCH BASIN SOLIDS SAMPLING
FIELD DATA SHEET

Project Name: Portland Harbor Inline Samp		Project Number: 1020.001
Sampling Team: CJK, MSS, PTB	Date: 9/16/10	Arrival Time: 0954
Basin: 19A	Node: ANF294	Address: 4927 NW Front Ave
Current weather and last known rainfall: Overcast. Last rain was this morning.		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	Heavy truck traffic along street. Many of which are gas/oil trucks. CB is at entrance of Pacific Power Bay a centralized waste treater with truck traffic entering & leaving regularly.
Describe debris and/or clogging around, or in catch basin grate/cover:	None
Is there standing water in catch basin?	0.5" in SW corner
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	Trash. but no odor or discoloration
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	46" deep CB. 8" on upper slope and 12" in middle

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



19A-3

Date: 9/16/10	SECTION 2 - SAMPLE COLLECTION REPORT	Node: ANFZ94

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ OTHER (DESCRIBE)
Equipment decontamination procedure:	☒ Per SOP7.01a ☐ OTHER (DESCRIBE)
Sample date: 9/16/10	Sample time: 1011
Sample Identification Code: IL-19A-ANFZ94-0910	Sample collection technique and if/how overlying water was removed: 5 sub-samples per SOP 5.01a.
Subsample number and location:	5. Total. One in each corner and one in the middle
Color of sample:	Dark brown
Texture/particle size:	80% silts, 10% sands, 10% coarse organics
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	None.
Amount and type of debris in bulk sample:	< 1% plastics
Amount and type of debris removed from final sample:	Debris excluded.
Compositing notes: Homogenized in sample bucket.	
Sample jars collected (number, size, full or partial)? 6 full 4oz. 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 FO105902	Duplicate sample collected? Y (N) Dupe ID
Duplicate sample identification # on COC:	
Any deviations from standard procedures: None	

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)	

19A-4

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

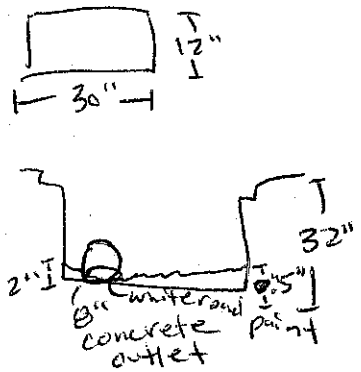
CATCH BASIN SOLIDS SAMPLING
FIELD DATA SHEET

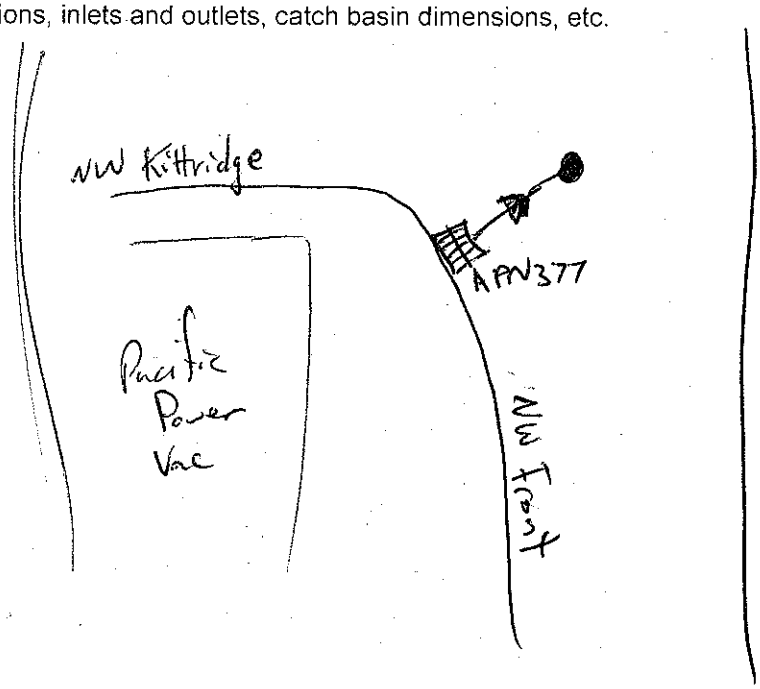
Project Name: Portland Harbor Inline Samp		Project Number: 1020.001
Sampling Team: CJK, MSS, PTB	Date: 9/16/10	Arrival Time: 1017
Basin: 19A	Node: APN377	Address: NW Front & NW Kittridge
Current weather and last known rainfall: Overcast. Last rain this morning		

SECTION 1 - PRE-SAMPLING VISUAL OBSERVATION REPORT

Describe potential solids or contaminant sources that could impact catch basin (const. activities, erosion, vehicles, material storage, onsite processes, etc.):	Heavy truck traffic along both Kittridge & Front.
Describe debris and/or clogging around, or in catch basin grate/cover:	10% clogged with leaves & pine needles.
Is there standing water in catch basin?	No.
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	None, other than road paint collected at outlet.
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	CB depth = 32" Solids depth = 2" max in NW corner & 0.5" overall

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





19A-4

Date: 9/16/10	SECTION 2 - SAMPLE COLLECTION REPORT	Node: APN377

Sampling Equipment:	☒ Stainless steel spoon & stainless steel bucket ☐ OTHER (DESCRIBE)
Equipment decontamination procedure:	☒ Per SOP7.01a ☐ OTHER (DESCRIBE)
Sample date: 9/16/10	Sample time: 1043
Sample Identification Code: IL-19A-APN377-0910	Sample collection technique and if/how overlying water was removed: Per SOP 5.01a
Subsample number and location:	All material within CB on floor & walls collected
Color of sample:	Dark brown
Texture/particle size:	75% fines, 5% sands, 5% coarse gravel, 15% un-decomposed organics
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	None
Amount and type of debris in bulk sample:	5% coarse gravel & 15% organics
Amount and type of debris removed from final sample:	5% large organics & 5% gravel
Compositing notes: Per SOP 5.01a	
Sample jars collected (number, size, full or partial)? 6 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 FO105903	Duplicate sample collected? Y (N) Dupe ID
Duplicate sample identification # on COC:	
Any deviations from standard procedures: None	

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)	

19A-5

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

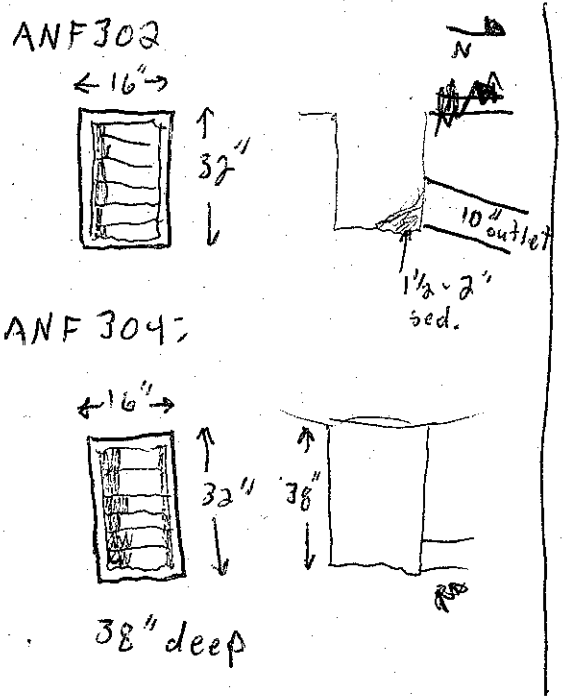
CATCH BASIN SOLIDS SAMPLING
FIELD DATA SHEET

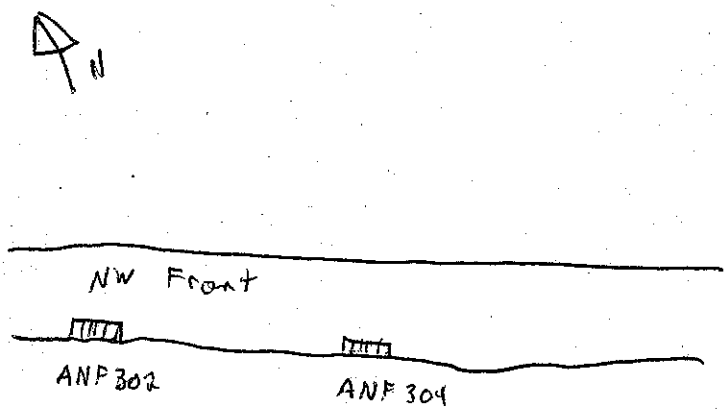
Project Name: PORTLAND HARBOR LNLWE SAMP		Project Number: 1020.001
Sampling Team: MOS, PTR, LJK	Date: 9/16/10	Arrival Time: 11:19
Basin: 19A	Node: ANF302, ANF304	Address: 4700 NW FRONT AVE
Current weather and last known rainfall: mostly cloudy, significant (~0.2") of rain earlier this morning		

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.):	Industrial area with heavy truck traffic	
Describe debris and/or clogging around, or in catch basin grate/cover:	ANF302: sediment plugging 10%	ANF304: sediment, straw + trash covering ~15% of grate
Is there standing water in catch basin?	ANF302: no	ANF304: no
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	~~paint chips~~ ANF302: none	ANF304: paint chips no odor or sheen
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	ANF302: 1½"-2" of sediment on north edge	ANF304: no sediment in catch basin floor, only in grate

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





19A_5

Date: 9/16/10	SECTION 2 - SAMPLE COLLECTION REPORT	Node: ANF302 / ANF304

Sampling Equipment:	☑ Stainless steel spoon & stainless steel bucket ☐ OTHER (DESCRIBE)
Equipment decontamination procedure:	☑ Per SOP7.01a ☐ OTHER (DESCRIBE)
Sample date: 9/16/10	Sample time: 1131
Sample Identification Code: 19A_5	Sample collection technique and if/how overlying water was removed: ANF304 - material pulled from catch basin grate ANF302 - removed all material from CB floor
Subsample number and location:	ANF304 - all material removed from grate ANF302 - removed all material from CB Floor
Color of sample:	dark brown
Texture/particle size:	50% sand 40% fines 10% gravel
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	none
Amount and type of debris in bulk sample:	gravel and plastic
Amount and type of debris removed from final sample:	5% plastic and gravel
Compositing notes:	combined equal volumes of sediment removed from ANF302 CB Floor and ANF304 grate
Sample jars collected (number, size, full or partial)?	6 full 4oz
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 FO105904	Duplicate sample collected? Y (N) 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)	

19A-6

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

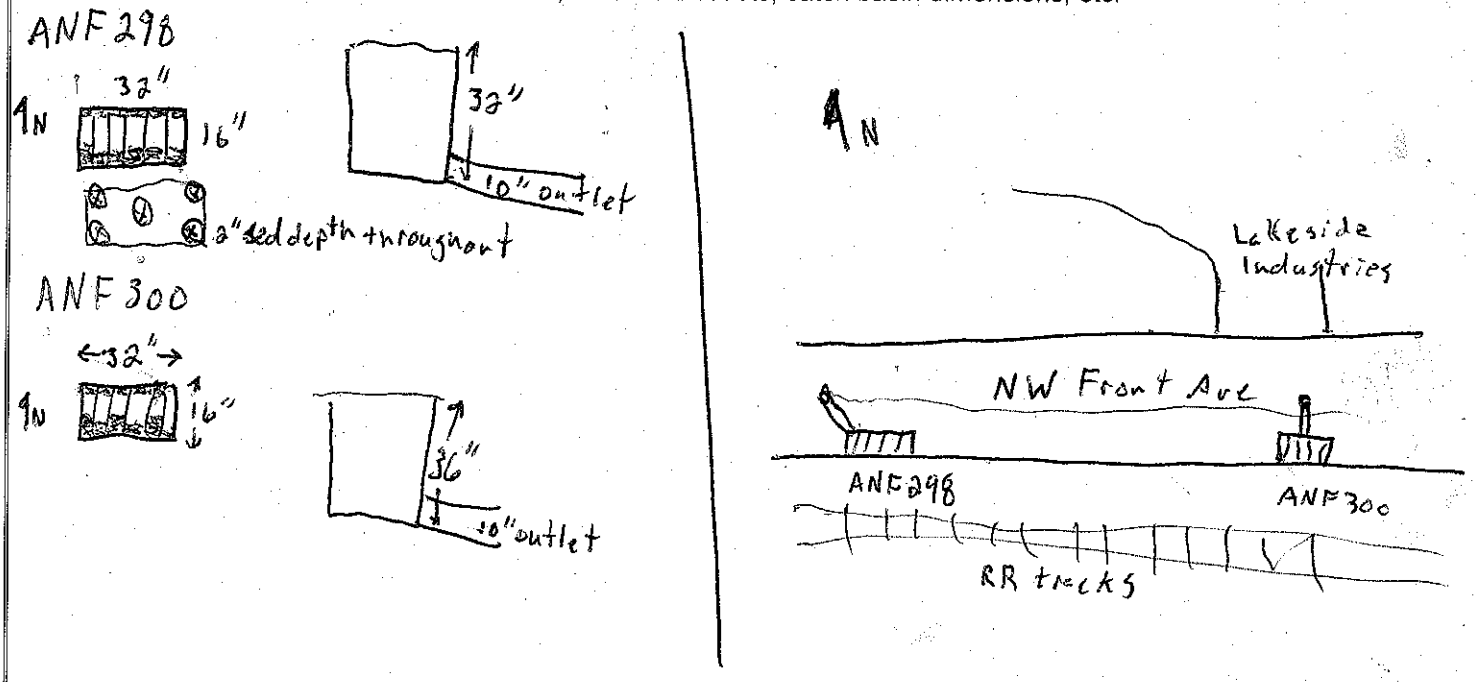
CATCH BASIN SOLIDS SAMPLING
FIELD DATA SHEET

Project Name: Portland Harbor Inline Samp		Project Number: 1020.001	
Sampling Team: CK, MJJ, PTB	Date: 9/16/10	Arrival Time: 1053	
Basin: OF19A	Node: ANF298/ANF300	Address: 4850 NW Front	
Current weather and last known rainfall: ~~rain~~ overcast with significant (~0.2") earlier this morning			

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.):	industrial area with high truck traffic	
Describe debris and/or clogging around, or in catch basin grate/cover:	ANF298 - Fine + sandy material plugging 30% of grate	ANF300 - sandy material plugging ~40% of grate
Is there standing water in catch basin?	ANF298: no	ANF300: no
Describe visual or olfactory observations of contamination at catch basin if any (odor, sheen, discoloration, etc.)	none	
Describe depth of sediments present in catch basin and the total depth of the catch basin or sump:	ANF298: 32" deep with 2" of sed. depth	ANF300 - 36" deep no sediment in CB (just grate)

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



19A-6

Date: 9/16/10	SECTION 2 - SAMPLE COLLECTION REPORT	Node: ANF 298/ANF 300

Sampling Equipment:	☑ Stainless steel spoon & stainless steel bucket ☐ OTHER (DESCRIBE)	
Equipment decontamination procedure:	☑ Per SOP7.01a ☐ OTHER (DESCRIBE)	
Sample date: 9/16/10	Sample time: 1208	
Sample Identification Code: 19A-6	Sample collection technique and if/how overlying water was removed:	
	ANF298 ~~collected 5 subsamples: 4 corners and center~~ MSS	ANF 300 no material in CB, just grate
Subsample number and location:	collected 5 subsamples: 4 corners and center ANF298	ANF300 pulled material from south side of grate
Color of sample:	dark brown	
Texture/particle size:	~75% sand, 20% fines, 5% organic debris	
Visual or olfactory evidence of contamination in bulk sediment sample (odor, sheen, discoloration, etc.)	none	
Amount and type of debris in bulk sample:	5% large organics & plastic	
Amount and type of debris removed from final sample:	5% large organics & plastic removed from sample	
Compositing notes:	combined material ~~removed~~ collected from ANF298 catch basin floor and ANF300 grate and composited	
Sample jars collected (number, size, full or partial)?	6 -4oz 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 FO105905	Duplicate sample collected? Y (N) Dupe ID
Duplicate sample identification # on COC:	
Any deviations from standard procedures:	no sediment in ANF300 catch basin so collected material from grate

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)	

Attachment C
Laboratory Reports and Data Review Memoranda

Stormwater Samples

Event 1: October 21, 2009

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

Laboratory Data QA/QC Review
Upland Source Control Investigation
City Outfall Basin 19A

To: File

From: Andrew Davidson, GSI Water Solutions, Inc.

Date: February 25, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses conducted by the City of Portland (City) in October and November 2009. One stormwater sample (FO096056), one field duplicate (FO096058), and one field decontamination blank (FO096057) were collected in Outfall Basin 19A on October 21, 2009 and submitted for analysis.

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

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

The WPCL summary reports and the subcontracted laboratories' data reports are attached for all analyses associated with these source control program samples. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

- Chain-of-custody – for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within accuracy 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 from the QA/QC review of the available elements in the laboratory reports are presented below.

Chain-of-Custody

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

Analysis Holding Times

The samples were extracted and analyzed within the acceptable holding times for all analyses.

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analysis of PCBs, PAHs and phthalates, and organochlorine pesticides. No analytes were detected in the method blanks.

Surrogate Recoveries

Surrogate recoveries were completed during the analyses of pesticides, PAHs and phthalates. Surrogate recoveries were within acceptance limits for all analyses.

Internal Standard Recoveries

Isotopically-labeled internal standard recoveries were completed during the subcontracted laboratory analysis of PCB congeners. All internal standard recoveries were within acceptance limits.

Interfering background components impacted the measurement of one or more isotopically-labeled internal standard for FO096057 and FO096058 during PCB analysis; affected congeners were not detected in these samples.

Matrix Spike/Matrix Spike Duplicates

MS/MSD samples were processed during the laboratory analysis of PAHs and phthalates. All MS/MSD recoveries were within acceptance limits.

Laboratory Control Sample / Duplicate Laboratory Control Samples

LC samples were processed during the analyses of organochlorine pesticides, PAHs, phthalates, and PCBs. DLC samples were processed during the analysis of PCB congeners and pesticides. LC/DLC recoveries and relative percent differences for all analyses were within acceptance limits.

Other

For one or more of the detected compounds in the pesticide analysis, results from the primary and verification gas chromatography columns varied by more than 40 percent difference. CAS reports that the higher of the two values was reported because no evidence of matrix interference was observed. WPCL has flagged these results as estimates in their summary report.

Laboratory reporting limits were elevated for all organochlorine pesticides in field sample FO096056 and for several analytes in field decontamination blank FO096057 due to matrix interference (presence of non-target background components). CAS reports that sample FO096056 required cleanup of the extract and dilution due to the presence of background components. The results are flagged in the CAS laboratory report to indicate matrix interference.

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: 10/21/09
Page: 1 of 1
Collected By: MJS

Project Name: PORTLAND HARBOR STORMWATER SAMP
File Number: 1020.005 **Matrix:** STORMWTR

Requested Analyses

FY 2009-10 Stormwater Grab Chain-of-custody

Times in PDT

PACE via TA

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General: TSS	Organics: PCB Congeners (All 209)	Organics: PAH + Phthalates (TA)	Organics: Pesticides (CAS) LL	Metals: Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn)	Metals: Total Mercury	Field: Temperature (Deg C)	Field: Conductivity (umhos/cm)	Field: pH (pH units)
FO096056	SW-19A-AAAO905-MMYY NW KITTRIDGE & FRONT	19A_SW1	10/21/09	0922	G	●	●	●	●	●	●	13.8	63	7.1
FO096057	FIELD DECON BLANK	FDB	10/21/09	0910	G	●	●	●	●	●	●			
FO096058	DUPLICATE	DUP	10/21/09		G	●	●							

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature:	Signature:	Signature:	Signature:
Printed Name: Matt Sullivan	Printed Name:	Printed Name:	Printed Name:
Time: 1040	Time:	Time:	Time:
Date: 10/21/09	Date:	Date:	Date:
Received By: 1.	**Received By:** 2.	**Received By:** 3.	**Received By:** 4.
Signature:	Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name:	Printed Name:
Time: 1040	Time:	Time:	Time:
Date: 10/21/09	Date:	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: **FO096056** **Sample Collected:** 10/21/09 09:22 **Sample Received:** 10/21/09 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: SW-19A-AAP905-1009
NW KITTRIDGE & FRONT
Sample Point Code: 19A_SW1
Sample Type: GRAB
Sample Matrix: STORMWTR

System ID: AN10133
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	63	µmhos/cm	1	SM 2510 B	10/21/09
pH (FIELD)	7.1	pH Units	0.1	SM 4500-H B	10/21/09
TEMPERATURE	13.8	Deg. C	0.1	SM 2550 B	10/21/09
GENERAL					
TOTAL SUSPENDED SOLIDS	73	mg/L	2	SM 2540 D	10/22/09
METALS					
MERCURY	0.077	µg/L	0.002	WPCLSOP M-10.02	10/24/09
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	2.86	µg/L	0.1	EPA 200.8	10/28/09
CADMIUM	0.47	µg/L	0.1	EPA 200.8	10/28/09
CHROMIUM	9.64	µg/L	0.4	EPA 200.8	10/28/09
COPPER	39.7	µg/L	0.2	EPA 200.8	10/28/09
LEAD	31.7	µg/L	0.1	EPA 200.8	10/28/09
NICKEL	7.89	µg/L	0.2	EPA 200.8	10/28/09
SILVER	<0.10	µg/L	0.1	EPA 200.8	10/28/09
ZINC	203	µg/L	0.5	EPA 200.8	10/28/09
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	EST 7.3	ng/L	2.5	EPA 8081	10/28/09
4,4'-DDE	<6.5	ng/L	6.5	EPA 8081	10/28/09
4,4'-DDT	<5.8	ng/L	5.8	EPA 8081	10/28/09
Aldrin	<6.7	ng/L	6.7	EPA 8081	10/28/09
Alpha-BHC	<2.5	ng/L	2.5	EPA 8081	10/28/09
Alpha-Chlordane	<2.5	ng/L	2.5	EPA 8081	10/28/09
Beta-BHC	<4.8	ng/L	4.8	EPA 8081	10/28/09
Delta-BHC	<2.5	ng/L	2.5	EPA 8081	10/28/09
Dieldrin	<2.5	ng/L	2.5	EPA 8081	10/28/09
Endosulfan I	<2.5	ng/L	2.5	EPA 8081	10/28/09
Endosulfan II	<3.6	ng/L	3.6	EPA 8081	10/28/09
Endosulfan Sulfate	<2.5	ng/L	2.5	EPA 8081	10/28/09
Endrin	EST 5.1	ng/L	2.5	EPA 8081	10/28/09
Endrin Aldehyde	<2.5	ng/L	2.5	EPA 8081	10/28/09

Report Date: 11/25/09 **Validated By:**

City of Portland
Water Pollution Control Laboratory

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

LABORATORY ANALYSIS REPORT

Sample ID: **FO096056** **Sample Collected:** 10/21/09 09:22 **Sample Received:** 10/21/09 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: SW-19A-AAP905-1009
NW KITTRIDGE & FRONT
Sample Point Code: 19A_SW1
Sample Type: GRAB
Sample Matrix: STORMWTR

System ID: AN10133
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Endrin Ketone	<2.5	ng/L	2.5	EPA 8081	10/28/09
Gamma-BHC(Lindane)	<2.7	ng/L	2.7	EPA 8081	10/28/09
Gamma-Chlordane	<2.5	ng/L	2.5	EPA 8081	10/28/09
Heptachlor	<2.5	ng/L	2.5	EPA 8081	10/28/09
Heptachlor Epoxide	<2.5	ng/L	2.5	EPA 8081	10/28/09
Methoxychlor	<2.5	ng/L	2.5	EPA 8081	10/28/09
Toxaphene	<580	ng/L	580	EPA 8081	10/28/09
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	11/13/09
POLYNUCLEAR AROMATICS & PHTHALATES - TA					
Acenaphthene	0.0288	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Acenaphthylene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Anthracene	0.0561	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Benzo(a)anthracene	0.0591	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Benzo(a)pyrene	0.0613	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Benzo(b)fluoranthene	0.0923	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Benzo(ghi)perylene	0.0863	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Benzo(k)fluoranthene	0.0693	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Bis(2-ethylhexyl) phthalate	3.31	µg/L	0.962	EPA 8270M-SIM	10/23/09
Butyl benzyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Chrysene	0.135	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Dibenzo(a,h)anthracene	0.0114	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Diethyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Dimethyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Di-n-butyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Di-n-octyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Fluoranthene	0.434	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Fluorene	0.0436	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Indeno(1,2,3-cd)pyrene	0.0481	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Naphthalene	0.0790	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Phenanthrene	0.329	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Pyrene	0.302	µg/L	0.0192	EPA 8270M-SIM	10/23/09

Report Date: 11/25/09 **Validated By:**

City of Portland
Water Pollution Control Laboratory

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

LABORATORY ANALYSIS REPORT

Sample ID: **FO096056**
Sample Collected: 10/21/09 09:22
Sample Received: 10/21/09
Sample Status: COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR STORMWATER SAMP	**Report Page:**	Page 3 of 3
Address/Location:	SW-19A-AAP905-1009 NW KITTRIDGE & FRONT	**System ID:**	AN10133
Sample Point Code:	19A_SW1	**EID File # :**	1020.005
Sample Type:	GRAB	**LocCode:**	PORTHASW
Sample Matrix:	STORMWTR	**Collected By:**	MJS

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%.

Test Parameter	Result	Units	MRL	Method	Analysis Date

End of Report for Sample ID: FO096056

Report Date: 11/25/09 **Validated By:**

City of Portland
Water Pollution Control Laboratory

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

LABORATORY ANALYSIS REPORT

Sample ID: FO096057 **Sample Collected:** 10/21/09 09:10 **Sample Received:** 10/21/09 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: FIELD DECON BLANK

Report Page: Page 1 of 2

System ID: AN10134
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS

Sample Point Code: FDBLANK
Sample Type: GRAB
Sample Matrix: DIWTR

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SUSPENDED SOLIDS	<2	mg/L	2	SM 2540 D	10/22/09
METALS					
MERCURY	<0.0020	µg/L	0.002	WPCLSOP M-10.02	10/24/09
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	<0.10	µg/L	0.1	EPA 200.8	10/28/09
CADMIUM	<0.10	µg/L	0.1	EPA 200.8	10/28/09
CHROMIUM	<0.40	µg/L	0.4	EPA 200.8	10/28/09
COPPER	<0.20	µg/L	0.2	EPA 200.8	10/28/09
LEAD	<0.10	µg/L	0.1	EPA 200.8	10/28/09
NICKEL	<0.20	µg/L	0.2	EPA 200.8	10/28/09
SILVER	<0.10	µg/L	0.1	EPA 200.8	10/28/09
ZINC	0.50	µg/L	0.5	EPA 200.8	10/28/09
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<0.50	ng/L	0.50	EPA 8081	10/28/09
4,4'-DDE	<0.49	ng/L	0.49	EPA 8081	10/28/09
4,4'-DDT	<0.49	ng/L	0.49	EPA 8081	10/28/09
Aldrin	<0.49	ng/L	0.49	EPA 8081	10/28/09
Alpha-BHC	<0.49	ng/L	0.49	EPA 8081	10/28/09
Alpha-Chlordane	<0.49	ng/L	0.49	EPA 8081	10/28/09
Beta-BHC	<0.49	ng/L	0.49	EPA 8081	10/28/09
Delta-BHC	<0.49	ng/L	0.49	EPA 8081	10/28/09
Dieldrin	<0.49	ng/L	0.49	EPA 8081	10/28/09
Endosulfan I	<0.49	ng/L	0.49	EPA 8081	10/28/09
Endosulfan II	<0.49	ng/L	0.49	EPA 8081	10/28/09
Endosulfan Sulfate	<0.49	ng/L	0.49	EPA 8081	10/28/09
Endrin	<0.49	ng/L	0.49	EPA 8081	10/28/09
Endrin Aldehyde	<0.49	ng/L	0.49	EPA 8081	10/28/09
Endrin Ketone	<0.49	ng/L	0.49	EPA 8081	10/28/09
Gamma-BHC(Lindane)	<0.49	ng/L	0.49	EPA 8081	10/28/09
Gamma-Chlordane	<0.49	ng/L	0.49	EPA 8081	10/28/09
Heptachlor	<0.49	ng/L	0.49	EPA 8081	10/28/09
Heptachlor Epoxide	<0.49	ng/L	0.49	EPA 8081	10/28/09

Report Date: 11/25/09 **Validated By:**

City of Portland
Water Pollution Control Laboratory

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

LABORATORY ANALYSIS REPORT

Sample ID: **FO096057** **Sample Collected:** 10/21/09 09:10 **Sample Received:** 10/21/09 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: FIELD DECON BLANK

Report Page: Page 2 of 2

Sample Point Code: FDBLANK
Sample Type: GRAB
Sample Matrix: DIWTR

System ID: AN10134
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Methoxychlor	<0.49	ng/L	0.49	EPA 8081	10/28/09
Toxaphene	<95	ng/L	95	EPA 8081	10/28/09
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	11/13/09
POLYNUCLEAR AROMATICS & PHTHALATES - TA					
Acenaphthene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Acenaphthylene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Anthracene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Benzo(a)anthracene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Benzo(a)pyrene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Benzo(b)fluoranthene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Benzo(ghi)perylene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Benzo(k)fluoranthene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Bis(2-ethylhexyl) phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Butyl benzyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Chrysene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Dibenzo(a,h)anthracene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Diethyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Dimethyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Di-n-butyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Di-n-octyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	10/23/09
Fluoranthene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Fluorene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Indeno(1,2,3-cd)pyrene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	10/23/09
Naphthalene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Phenanthrene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09
Pyrene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	10/23/09

End of Report for Sample ID: FO096057

Report Date: 11/25/09 **Validated By:**

City of Portland
Water Pollution Control Laboratory

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

LABORATORY ANALYSIS REPORT

Sample ID: **FO096058**
Sample Collected: 10/21/09 00:00
Sample Received: 10/21/09
Sample Status: COMPLETE AND VALIDATED

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

Report Page: Page 1 of 1

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

System ID: AN10135
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SUSPENDED SOLIDS	72	mg/L	2	SM 2540 D	10/22/09
OUTSIDE ANALYSIS					
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	11/13/09

End of Report for Sample ID: FO096058

Report Date: 11/25/09 **Validated By:**

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

November 5, 2009 Analytical Report for Service Request No: K0910195

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

RE: Portland Harbor Stormwater Sample

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on October 22, 2009. For your reference, these analyses have been assigned our service request number K0910195.

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

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

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/cw

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL or LOQ but greater than or equal to the MDL or LOD.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for dilution.
i	The MRL/MDL or LOQ/LOD has been elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL or LOQ but greater than or equal to the MDL or LOD.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for any dilution or
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD has been elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for any dilution or
i	The MRL/MDL or LOQ/LOD has been elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	City of Portland	**Service Request No.:**	K0910195
Project:	Portland Harbor Stormwater Sample	**Date Received:**	10/22/09
Sample Matrix:	Water		

CASE NARRATIVE

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

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 10/22/09. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A – ULL

Second Source Exceptions:
The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the Initial Calibration Verification (ICV) criteria are met for both columns, the higher of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Methoxychlor in CAL 8946. The ICV results were reported from the acceptable column. The data quality was not affected. No further corrective action was necessary.

Sample Confirmation Notes:
The confirmation comparison criteria of 40% difference for Endrin and 4,4'-DDD was exceeded in sample FO 096056. The higher of the two values was reported when no evidence of a matrix interference was observed.

Elevated Detection Limits:
The detection limit was elevated for all analytes in sample FO 096056. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. A semiquantitative screen was performed prior to final analysis. The results of the screening indicated the need to perform a dilution. The result was flagged to indicate the matrix interference.

The detection limit was elevated, or further elevated, for a few analytes in both field samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

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

11/05/09

Approved by_____ **Date**_____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K0910195
Project:	Portland Harbor Stormwater Sample	**Date Collected:**	10/21/2009
Sample Matrix:	Water	**Date Received:**	10/22/2009

Organochlorine Pesticides

Sample Name:	FO 096056	**Units:**	ng/L
Lab Code:	K0910195-001	**Basis:**	NA
Extraction Method:	EPA 3535	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	2.5	1.1	5	10/28/09	11/04/09	KWG0910036	
beta-BHC	ND	Ui	4.8	4.8	5	10/28/09	11/04/09	KWG0910036	
gamma-BHC (Lindane)	ND	Ui	2.7	2.7	5	10/28/09	11/04/09	KWG0910036	
delta-BHC	ND	U	2.5	0.70	5	10/28/09	11/04/09	KWG0910036	
Heptachlor	ND	Ui	2.5	2.5	5	10/28/09	11/04/09	KWG0910036	
Aldrin	ND	Ui	6.7	6.7	5	10/28/09	11/04/09	KWG0910036	
Heptachlor Epoxide	ND	Ui	2.5	2.5	5	10/28/09	11/04/09	KWG0910036	
gamma-Chlordane†	ND	Ui	2.5	2.5	5	10/28/09	11/04/09	KWG0910036	
Endosulfan I	ND	Ui	2.5	2.5	5	10/28/09	11/04/09	KWG0910036	
alpha-Chlordane	ND	U	2.5	1.4	5	10/28/09	11/04/09	KWG0910036	
Dieldrin	ND	U	2.5	1.9	5	10/28/09	11/04/09	KWG0910036	
4,4'-DDE	ND	Ui	6.5	6.5	5	10/28/09	11/04/09	KWG0910036	
Endrin	**5.1**	PD	2.5	2.5	5	10/28/09	11/04/09	KWG0910036	
Endosulfan II	ND	Ui	3.6	3.6	5	10/28/09	11/04/09	KWG0910036	
4,4'-DDD	**7.3**	PD	2.5	1.1	5	10/28/09	11/04/09	KWG0910036	
Endrin Aldehyde	ND	U	2.5	1.1	5	10/28/09	11/04/09	KWG0910036	
Endosulfan Sulfate	ND	Ui	2.5	1.8	5	10/28/09	11/04/09	KWG0910036	
4,4'-DDT	ND	Ui	5.8	5.8	5	10/28/09	11/04/09	KWG0910036	
Endrin Ketone	ND	U	2.5	1.6	5	10/28/09	11/04/09	KWG0910036	
Methoxychlor	ND	U	2.5	1.4	5	10/28/09	11/04/09	KWG0910036	
Toxaphene	ND	Ui	580	580	5	10/28/09	11/04/09	KWG0910036	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	78	20-102	11/04/09	Acceptable
Decachlorobiphenyl	84	35-128	11/04/09	Acceptable

† Analyte Comments

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K0910195
Project:	Portland Harbor Stormwater Sample	**Date Collected:**	10/21/2009
Sample Matrix:	Water	**Date Received:**	10/22/2009

Organochlorine Pesticides

Sample Name:	FO 096057	**Units:**	ng/L
Lab Code:	K0910195-002	**Basis:**	NA
Extraction Method:	EPA 3535	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.49	0.21	1	10/28/09	10/31/09	KWG0910036	
beta-BHC	ND	U	0.49	0.41	1	10/28/09	10/31/09	KWG0910036	
gamma-BHC (Lindane)	ND	U	0.49	0.47	1	10/28/09	10/31/09	KWG0910036	
delta-BHC	ND	U	0.49	0.14	1	10/28/09	10/31/09	KWG0910036	
Heptachlor	ND	U	0.49	0.18	1	10/28/09	10/31/09	KWG0910036	
Aldrin	ND	Ui	0.49	0.49	1	10/28/09	10/31/09	KWG0910036	
Heptachlor Epoxide	ND	U	0.49	0.21	1	10/28/09	10/31/09	KWG0910036	
gamma-Chlordane†	ND	U	0.49	0.31	1	10/28/09	10/31/09	KWG0910036	
Endosulfan I	ND	U	0.49	0.25	1	10/28/09	10/31/09	KWG0910036	
alpha-Chlordane	ND	U	0.49	0.27	1	10/28/09	10/31/09	KWG0910036	
Dieldrin	ND	U	0.49	0.37	1	10/28/09	10/31/09	KWG0910036	
4,4'-DDE	ND	U	0.49	0.19	1	10/28/09	10/31/09	KWG0910036	
Endrin	ND	U	0.49	0.49	1	10/28/09	10/31/09	KWG0910036	
Endosulfan II	ND	U	0.49	0.35	1	10/28/09	10/31/09	KWG0910036	
4,4'-DDD	ND	Ui	0.50	0.50	1	10/28/09	10/31/09	KWG0910036	
Endrin Aldehyde	ND	U	0.49	0.21	1	10/28/09	10/31/09	KWG0910036	
Endosulfan Sulfate	ND	U	0.49	0.28	1	10/28/09	10/31/09	KWG0910036	
4,4'-DDT	ND	Ui	0.49	0.33	1	10/28/09	10/31/09	KWG0910036	
Endrin Ketone	ND	U	0.49	0.32	1	10/28/09	10/31/09	KWG0910036	
Methoxychlor	ND	U	0.49	0.28	1	10/28/09	10/31/09	KWG0910036	
Toxaphene	ND	Ui	95	95	1	10/28/09	10/31/09	KWG0910036	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	58	20-102	10/31/09	Acceptable
Decachlorobiphenyl	48	35-128	10/31/09	Acceptable

† Analyte Comments

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K0910195
Project:	Portland Harbor Stormwater Sample	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Organochlorine Pesticides

Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KWG0910036-3	**Basis:**	NA
Extraction Method:	EPA 3535	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.49	0.21	1	10/28/09	10/31/09	KWG0910036	
beta-BHC	ND	U	0.49	0.41	1	10/28/09	10/31/09	KWG0910036	
gamma-BHC (Lindane)	ND	U	0.49	0.47	1	10/28/09	10/31/09	KWG0910036	
delta-BHC	ND	U	0.49	0.14	1	10/28/09	10/31/09	KWG0910036	
Heptachlor	ND	U	0.49	0.18	1	10/28/09	10/31/09	KWG0910036	
Aldrin	ND	U	0.49	0.11	1	10/28/09	10/31/09	KWG0910036	
Heptachlor Epoxide	ND	U	0.49	0.21	1	10/28/09	10/31/09	KWG0910036	
gamma-Chlordane†	ND	U	0.49	0.31	1	10/28/09	10/31/09	KWG0910036	
Endosulfan I	ND	U	0.49	0.25	1	10/28/09	10/31/09	KWG0910036	
alpha-Chlordane	ND	U	0.49	0.27	1	10/28/09	10/31/09	KWG0910036	
Dieldrin	ND	U	0.49	0.37	1	10/28/09	10/31/09	KWG0910036	
4,4'-DDE	ND	U	0.49	0.19	1	10/28/09	10/31/09	KWG0910036	
Endrin	ND	U	0.49	0.49	1	10/28/09	10/31/09	KWG0910036	
Endosulfan II	ND	U	0.49	0.35	1	10/28/09	10/31/09	KWG0910036	
4,4'-DDD	ND	Ui	1.6	1.6	1	10/28/09	10/31/09	KWG0910036	
Endrin Aldehyde	ND	U	0.49	0.21	1	10/28/09	10/31/09	KWG0910036	
Endosulfan Sulfate	ND	U	0.49	0.28	1	10/28/09	10/31/09	KWG0910036	
4,4'-DDT	ND	U	0.49	0.17	1	10/28/09	10/31/09	KWG0910036	
Endrin Ketone	ND	U	0.49	0.32	1	10/28/09	10/31/09	KWG0910036	
Methoxychlor	ND	U	0.49	0.28	1	10/28/09	10/31/09	KWG0910036	
Toxaphene	ND	Ui	69	69	1	10/28/09	10/31/09	KWG0910036	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	54	20-102	10/31/09	Acceptable
Decachlorobiphenyl	69	35-128	10/31/09	Acceptable

† Analyte Comments

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Portland, City of
Project: Portland Harbor Stormwater Sample
Sample Matrix: Water

Service Request: K0910195

Surrogate Recovery Summary
Organochlorine Pesticides

Extraction Method: EPA 3535
Analysis Method: 8081A

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2
FO 096056	K0910195-001	78 D	84 D
FO 096057	K0910195-002	58	48
Method Blank	KWG0910036-3	54	69
Lab Control Sample	KWG0910036-1	56	76
Duplicate Lab Control Sample	KWG0910036-2	53	74

Surrogate Recovery Control Limits (%)

Sur1	= Tetrachloro-m-xylene	20-102
Sur2	= Decachlorobiphenyl	35-128

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

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

Client:	Portland, City of	**Service Request:**	K0910195
Project:	Portland Harbor Stormwater Sample	**Date Extracted:**	10/28/2009
Sample Matrix:	Water	**Date Analyzed:**	10/31/2009

Lab Control Spike/Duplicate Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method:	EPA 3535	**Units:**	ng/L
Analysis Method:	8081A	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0910036

	Lab Control Sample KWG0910036-1 Lab Control Spike			Duplicate Lab Control Sample KWG0910036-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	10.7	10.0	107	9.63	10.0	96	36-122	10	30
beta-BHC	10.3	10.0	103	9.70	10.0	97	42-125	6	30
gamma-BHC (Lindane)	10.6	10.0	106	9.67	10.0	97	44-117	9	30
delta-BHC	11.1	10.0	111	10.0	10.0	100	48-123	10	30
Heptachlor	10.8	10.0	108	9.90	10.0	99	40-115	9	30
Aldrin	9.97	10.0	100	9.57	10.0	96	10-102	4	30
Heptachlor Epoxide	10.3	10.0	103	10.2	10.0	102	49-109	1	30
gamma-Chlordane	10.6	10.0	106	10.3	10.0	103	47-113	3	30
Endosulfan I	10.6	10.0	106	9.80	10.0	98	35-115	8	30
alpha-Chlordane	9.52	10.0	95	8.47	10.0	85	45-115	12	30
Dieldrin	10.9	10.0	109	10.6	10.0	106	50-115	3	30
4,4'-DDE	10.5	10.0	105	9.85	10.0	98	41-116	7	30
Endrin	11.5	10.0	115	10.8	10.0	108	48-126	7	30
Endosulfan II	10.4	10.0	104	9.49	10.0	95	28-128	9	30
4,4'-DDD	13.2	10.0	132	12.0	10.0	120	33-132	9	30
Endrin Aldehyde	8.93	10.0	89	8.58	10.0	86	27-104	4	30
Endosulfan Sulfate	10.8	10.0	108	9.88	10.0	99	38-118	9	30
4,4'-DDT	12.5	10.0	125	11.7	10.0	117	42-143	7	30
Endrin Ketone	10.4	10.0	104	9.47	10.0	95	30-124	9	30
Methoxychlor	11.6	10.0	116	10.5	10.0	105	43-143	10	30

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

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

Columbia Analytical Services INC.
An Employee - Owned Company

CHAIN OF CUSTODY

SR#: 1C0910195

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE ______ OF ______ COC # ______

PROJECT NAME: Portland Harbor Stormwater Samp
PROJECT NUMBER:
PROJECT MANAGER: Jennifer Shackelford
COMPANY/ADDRESS: City of Portland
CITY/STATE/ZIP:
E-MAIL ADDRESS:
PHONE #: FAX#:
SAMPLER'S SIGNATURE:

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐	Fuel Fingerprint (FIQ) NW-HCID Screen ☐ ☐	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☒ LL 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐				REMARKS
FO096056	10/21/9	0922		W	1							X											
FO096057	↓	0910		W	1							X											

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. #

Bill To: Charles Lytle

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

___ Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: ______ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Please run LL pesticides, Thanks

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [illegible] Date/Time: 10/22/9 1120	Signature: [illegible] Date/Time: 10-22-09 11:20	Signature: [illegible] Date/Time: 10-22-09 1:30	Signature: [illegible] Date/Time: 10/22/09 1330
Printed Name: [illegible] Firm: WPCL	Printed Name: [illegible] Firm: CAS	Printed Name: [illegible] Firm: CAS	Printed Name: [illegible] Firm: CAS

RCOC #1 06/03

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC PD

Client / Project: City of Portland Service Request K09 10195

Received: 10/22/09 Opened: 10/22/09 By: DW

1. Samples were received via? *US Mail* *Fed Ex* *UPS* *DHL* *GH* *GS* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Is shipper's air-bill filed? If not, record air-bill number: _____ NA Y N

5. **Temperature of cooler(s) upon receipt (°C):** _____ _____ _____ _____
   Temperature Blank (°C): _____ _____ _____ _____
   Thermometer ID: _____ _____ _____ _____
6. If applicable, list Chain of Custody Numbers: _____ _____ _____ _____
7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. **Did all bottles arrive in good condition (unbroken)?** *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate in the table below* NA Y N
12. **Were appropriate bottles/containers and volumes received for the tests indicated?** NA Y N
13. Were the pH-preserved bottles tested* received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. **Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?** NA Y N
16. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

*Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN).

Additional Notes, Discrepancies, & Resolutions: _____

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210
ORELAP#: OR100021

November 04, 2009

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

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 10/21/09 17:45. The following list is a summary of the Work Orders contained in this report, generated on 11/04/09 16:03.

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

Work Order	Project	ProjectNumber
PSJ0769	Portland Harbor	36238

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	11/04/09 16:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO 096056	PSJ0769-01	Water	10/21/09 09:22	10/21/09 17:45
FO 096057	PSJ0769-02	Water	10/21/09 09:10	10/21/09 17:45
FO 096058	PSJ0769-03	Water	10/21/09 00:00	10/21/09 17:45

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	11/04/09 16:03

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSJ0769-01 (FO 096056)			Water			Sampled: 10/21/09 09:22				
Bis(2-ethylhexyl)phthalate	EPA 8270m	**3.31**	*0.506*	0.962	ug/l	1x	9100848	10/23/09 14:15	10/30/09 19:00	
Butyl benzyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Diethyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Dimethyl phthalate	"	**0.818**	*0.506*	0.962	"	"	"	"	"	**J**
Acenaphthene	"	**0.0288**	*0.0192*	0.0192	"	"	"	"	10/30/09 17:34	
Acenaphthylene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Anthracene	"	**0.0561**	*0.0192*	0.0192	"	"	"	"	"	
Benzo (a) anthracene	"	**0.0591**	*0.00962*	0.00962	"	"	"	"	"	
Benzo (a) pyrene	"	**0.0613**	*0.00962*	0.00962	"	"	"	"	"	
Benzo (b) fluoranthene	"	**0.0923**	*0.00962*	0.00962	"	"	"	"	"	
Benzo (ghi) perylene	"	**0.0863**	*0.0192*	0.0192	"	"	"	"	"	
Benzo (k) fluoranthene	"	**0.0693**	*0.00962*	0.00962	"	"	"	"	"	
Chrysene	"	**0.135**	*0.00962*	0.00962	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	**0.0114**	*0.00962*	0.00962	"	"	"	"	"	
Fluoranthene	"	**0.434**	*0.0192*	0.0192	"	"	"	"	"	
Fluorene	"	**0.0436**	*0.0192*	0.0192	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**0.0481**	*0.00962*	0.00962	"	"	"	"	"	
Naphthalene	"	**0.0790**	*0.0192*	0.0192	"	"	"	"	"	
Phenanthrene	"	**0.329**	*0.0192*	0.0192	"	"	"	"	"	
Pyrene	"	**0.302**	*0.0192*	0.0192	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*85.7%*			*25 - 125 %*				"
Pyrene-d10			*68.2%*			*23 - 150 %*				"
Benzo (a) pyrene-d12			*81.3%*			*10 - 125 %*				"
PSJ0769-02 (FO 096057)			Water			Sampled: 10/21/09 09:10				
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	*0.506*	0.962	ug/l	1x	9100848	10/23/09 14:15	10/30/09 19:36	
Butyl benzyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Diethyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Dimethyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Acenaphthene	"	ND	*0.0192*	0.0192	"	"	"	"	10/30/09 18:01	
Acenaphthylene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Anthracene	"	ND	*0.0192*	0.0192	"	"	"	"	"	

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Howard Holmes, Project Manager

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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	11/04/09 16:03

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSJ0769-02 (FO 096057)			**Water**			**Sampled: 10/21/09 09:10**				
Benzo (a) anthracene	EPA 8270m	ND	*0.00962*	0.00962	ug/l	1x	9100848	10/23/09 14:15	10/30/09 18:01	
Benzo (a) pyrene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Chrysene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Fluoranthene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Fluorene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Naphthalene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Phenanthrene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Pyrene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*				*92.0%*		*25 - 125 %*				"
Pyrene-d10				*91.5%*		*23 - 150 %*				"
Benzo (a) pyrene-d12				*85.3%*		*10 - 125 %*				"

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	11/04/09 16:03

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

TestAmerica Portland

QC Batch: 9100848 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9100848-BLK1)									**Extracted: 10/23/09 14:15**					
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	0.526	1.00	ug/l	1x	--	--	--	--	--	--	10/30/09 14:13	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Diethyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Acenaphthene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	10/29/09 15:27	
Acenaphthylene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 75.1%*			*Limits: 25-125%*								*10/29/09 15:27*	
Pyrene-d10		*87.4%*			*23-150%*								*"*	
Benzo (a) pyrene-d12		*72.6%*			*10-125%*								*"*	
LCS (9100848-BS1)									**Extracted: 10/23/09 14:15**					
Bis(2-ethylhexyl)phthalate	EPA 8270m	4.70	0.526	1.00	ug/l	1x	--	4.00	118%	(20-150)	--	--	10/30/09 14:49	
Butyl benzyl phthalate	"	4.56	0.526	1.00	"	"	--	"	114%	"	--	--	"	
Di-n-butyl phthalate	"	4.12	0.526	1.00	"	"	--	"	103%	"	--	--	"	
Di-n-octyl phthalate	"	4.58	0.526	1.00	"	"	--	"	115%	"	--	--	"	
Diethyl phthalate	"	3.69	0.526	1.00	"	"	--	"	92.2%	"	--	--	"	
Dimethyl phthalate	"	3.43	0.526	1.00	"	"	--	"	85.7%	"	--	--	"	
Acenaphthene	"	2.50	0.0200	0.0200	"	"	--	2.50	99.9%	(35-120)	--	--	10/29/09 16:55	
Acenaphthylene	"	2.34	0.0200	0.0200	"	"	--	"	93.6%	(34-116)	--	--	"	
Anthracene	"	2.43	0.0200	0.0200	"	"	--	"	97.2%	(24-119)	--	--	"	
Benzo (a) anthracene	"	2.36	0.0100	0.0100	"	"	--	"	94.3%	(36-128)	--	--	"	
Benzo (a) pyrene	"	2.26	0.0100	0.0100	"	"	--	"	90.4%	(17-128)	--	--	"	
Benzo (b) fluoranthene	"	2.50	0.0100	0.0100	"	"	--	"	100%	(37-131)	--	--	"	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	11/04/09 16:03

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

TestAmerica Portland

QC Batch: 9100848 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (9100848-BS1)								**Extracted: 10/23/09 14:15**						
Benzo (ghi) perylene	EPA 8270m	2.21	0.0200	0.0200	ug/l	1x	--	2.50	88.3%	(26-126)	--	--	10/29/09 16:55	
Benzo (k) fluoranthene	"	2.41	0.0100	0.0100	"	"	--	"	96.5%	(18-145)	--	--	"	
Chrysene	"	2.43	0.0100	0.0100	"	"	--	"	97.2%	(16-137)	--	--	"	
Dibenzo (a,h) anthracene	"	2.26	0.0100	0.0100	"	"	--	"	90.5%	(20-141)	--	--	"	
Fluoranthene	"	3.00	0.0200	0.0200	"	"	--	"	120%	(31-125)	--	--	"	
Fluorene	"	2.42	0.0200	0.0200	"	"	--	"	96.9%	(27-124)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	2.21	0.0100	0.0100	"	"	--	"	88.5%	(30-135)	--	--	"	
Naphthalene	"	2.35	0.0200	0.0200	"	"	--	"	94.1%	(30-113)	--	--	"	
Phenanthrene	"	2.47	0.0200	0.0200	"	"	--	"	98.8%	(34-126)	--	--	"	
Pyrene	"	2.48	0.0200	0.0200	"	"	--	"	99.3%	(21-141)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 83.8%*			*Limits: 25-125%*								*10/29/09 16:55*	
Pyrene-d10		*86.1%*			*23-150%*								*"*	
Benzo (a) pyrene-d12		*81.0%*			*10-125%*								*"*	
Matrix Spike (9100848-MS1)					**QC Source: PSJ0770-04**			**Extracted: 10/23/09 14:15**						
Bis(2-ethylhexyl)phthalate	EPA 8270m	3.49	1.01	1.92	ug/l	2x	0.926	3.85	66.7%	(10-150)	--	--	10/30/09 16:01	
Butyl benzyl phthalate	"	4.12	1.01	1.92	"	"	ND	"	107%	"	--	--	"	
Di-n-butyl phthalate	"	3.72	1.01	1.92	"	"	ND	"	96.7%	"	--	--	"	
Di-n-octyl phthalate	"	2.80	1.01	1.92	"	"	ND	"	72.8%	"	--	--	"	
Diethyl phthalate	"	3.32	1.01	1.92	"	"	ND	"	86.4%	"	--	--	"	
Dimethyl phthalate	"	3.00	1.01	1.92	"	"	ND	"	78.0%	"	--	--	"	
Acenaphthene	"	2.03	0.0385	0.0385	"	"	ND	2.40	84.3%	(35-120)	--	--	10/29/09 17:24	
Acenaphthylene	"	1.90	0.0385	0.0385	"	"	ND	"	79.1%	(34-116)	--	--	"	
Anthracene	"	2.04	0.0385	0.0385	"	"	ND	"	84.9%	(24-119)	--	--	"	
Benzo (a) anthracene	"	2.01	0.0192	0.0192	"	"	ND	"	83.7%	(22-129)	--	--	"	
Benzo (a) pyrene	"	1.88	0.0192	0.0192	"	"	ND	"	78.0%	(4-112)	--	--	"	
Benzo (b) fluoranthene	"	2.01	0.0192	0.0192	"	"	ND	"	83.5%	(0-136)	--	--	"	
Benzo (ghi) perylene	"	1.85	0.0385	0.0385	"	"	ND	"	77.0%	(0-126)	--	--	"	
Benzo (k) fluoranthene	"	1.97	0.0192	0.0192	"	"	ND	"	82.1%	(0-145)	--	--	"	
Chrysene	"	2.10	0.0192	0.0192	"	"	ND	"	87.5%	(7-137)	--	--	"	
Dibenzo (a,h) anthracene	"	1.86	0.0192	0.0192	"	"	ND	"	77.3%	(0-141)	--	--	"	
Fluoranthene	"	2.35	0.0385	0.0385	"	"	ND	"	97.9%	(30-125)	--	--	"	
Fluorene	"	2.02	0.0385	0.0385	"	"	ND	"	83.9%	(27-124)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	1.81	0.0192	0.0192	"	"	ND	"	75.3%	(0-135)	--	--	"	
Naphthalene	"	1.87	0.0385	0.0385	"	"	0.0227	"	76.7%	(30-126)	--	--	"	
Phenanthrene	"	2.17	0.0385	0.0385	"	"	ND	"	90.4%	(34-126)	--	--	"	
Pyrene	"	2.15	0.0385	0.0385	"	"	ND	"	89.5%	(14-168)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 74.1%*			*Limits: 25-125%*								*10/29/09 17:24*	
Pyrene-d10		*78.5%*			*23-150%*								*"*	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	11/04/09 16:03

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

TestAmerica Portland

QC Batch: 9100848 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (9100848-MS1)					**QC Source: PSJ0770-04**				**Extracted: 10/23/09 14:15**					
Surrogate(s): Benzo (a) pyrene-d12		*Recovery: 71.4%*			*Limits: 10-125%*								*10/29/09 17:24*	
Matrix Spike Dup (9100848-MSD1)					**QC Source: PSJ0770-04**				**Extracted: 10/23/09 14:15**					
Bis(2-ethylhexyl)phthalate	EPA 8270m	4.38	1.02	1.94	ug/l	2x	0.926	3.88	88.9%	(10-150)	28.5%	(50)	10/30/09 16:37	
Butyl benzyl phthalate	"	4.24	1.02	1.94	"	"	ND	"	109%	"	1.96%	"	"	
Di-n-butyl phthalate	"	3.84	1.02	1.94	"	"	ND	"	98.8%	"	2.18%	"	"	
Di-n-octyl phthalate	"	3.64	1.02	1.94	"	"	ND	"	93.7%	"	25.0%	"	"	
Diethyl phthalate	"	3.45	1.02	1.94	"	"	ND	"	88.7%	"	2.62%	"	"	
Dimethyl phthalate	"	3.13	1.02	1.94	"	"	ND	"	80.7%	"	3.36%	"	"	
Acenaphthene	"	2.08	0.0388	0.0388	"	"	ND	2.43	85.7%	(35-120)	1.64%	(45)	10/29/09 17:53	
Acenaphthylene	"	1.95	0.0388	0.0388	"	"	ND	"	80.5%	(34-116)	1.76%	"	"	
Anthracene	"	2.09	0.0388	0.0388	"	"	ND	"	85.9%	(24-119)	1.24%	"	"	
Benzo (a) anthracene	"	2.08	0.0194	0.0194	"	"	ND	"	85.5%	(22-129)	2.14%	"	"	
Benzo (a) pyrene	"	1.93	0.0194	0.0194	"	"	ND	"	79.6%	(4-112)	1.91%	"	"	
Benzo (b) fluoranthene	"	2.15	0.0194	0.0194	"	"	ND	"	88.4%	(0-136)	5.69%	"	"	
Benzo (ghi) perylene	"	1.92	0.0388	0.0388	"	"	ND	"	79.0%	(0-126)	2.53%	"	"	
Benzo (k) fluoranthene	"	2.10	0.0194	0.0194	"	"	ND	"	86.6%	(0-145)	5.27%	"	"	
Chrysene	"	2.17	0.0194	0.0194	"	"	ND	"	89.3%	(7-137)	2.10%	"	"	
Dibenzo (a,h) anthracene	"	1.92	0.0194	0.0194	"	"	ND	"	79.2%	(0-141)	2.42%	"	"	
Fluoranthene	"	2.51	0.0388	0.0388	"	"	ND	"	103%	(30-125)	5.34%	"	"	
Fluorene	"	2.07	0.0388	0.0388	"	"	ND	"	85.1%	(27-124)	1.51%	"	"	
Indeno (1,2,3-cd) pyrene	"	1.87	0.0194	0.0194	"	"	ND	"	76.9%	(0-135)	2.11%	"	"	
Naphthalene	"	1.91	0.0388	0.0388	"	"	0.0227	"	77.7%	(30-126)	1.34%	"	"	
Phenanthrene	"	2.21	0.0388	0.0388	"	"	ND	"	91.1%	(34-126)	0.775%	"	"	
Pyrene	"	2.17	0.0388	0.0388	"	"	ND	"	89.6%	(14-168)	0.0724%	"	"	
Surrogate(s): Fluorene-d10		*Recovery: 76.4%*			*Limits: 25-125%*								*10/29/09 17:53*	
Pyrene-d10		*79.3%*			*23-150%*								*"*	
Benzo (a) pyrene-d12		*75.0%*			*10-125%*								*"*	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	11/04/09 16:03

Notes and Definitions

Report Specific Notes:

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

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.

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Howard Holmes, Project Manager

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CHAIN OF CUSTODY REPORT

Work Order #: PSJ0769

CLIENT: City of Portland

REPORT TO: Jennifer Shackelford
ADDRESS:

PHONE: FAX:

INVOICE TO: Charles Lytle

P.O. NUMBER: 36238

PROJECT NAME: Portland Harbor Stormwater Samp

PROJECT NUMBER:

SAMPLED BY:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: ☒ 10 (STD.) ☐ 7 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ <1

Petroleum Hydrocarbon Analyses: ☐ 5 (STD.) ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE / REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PCB (AH209) Congeners	PAH + Phthalates LL	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	FO 096056	10/21/9 0922	X	X	W	3		
2	FO 096057	↓ 0910	X	X	↓	3		
3	FO 096058	↓ /	X		↓	1		
4								
5								
6								
7								
8								
9								
10								

RELEASED BY: [signature] PRINT NAME: Mackenzie Zirk FIRM: City of Portland DATE: 10/21/9 TIME: 1512

RECEIVED BY: [signature] PRINT NAME: Bob F FIRM: TAP DATE: 10/21/9 TIME: 15:15

RELEASED BY: [signature] PRINT NAME: Bob F FIRM: TAP DATE: 10/21/9 TIME: 17:45

RECEIVED BY: PRINT NAME: Kristi Hoffman FIRM: TAP DATE: 10/21/09 TIME: 17:45

ADDITIONAL REMARKS: Please send PCB's to PACE, thx. PAH/Phth same detection limits as UIC

TEMP: 5.7 PAGE OF

TAL-1000(0408)

1.0 oc
1.4

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PSJ0769 Date/Time Received: 10/21/09 1745

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): 1 1 1 ____ ____

Temperatures: 5.7 1.1 1.4 ____ ____

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:____

Initials: PS

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 #14, was the residual chlorine test negative? If no, document on NOD.
☑	☐	☐	17. Are dissolved/field filtered metals bottles sediment-free? If no, document on NOD.
☑	☐	☐	18. Is sufficient volume provided for client requested MS/MSD or matrix duplicates? If no, document on NOD and contact PM before proceeding.
☑	☐	☐	19. Are analyses with short holding times received in hold?
	☑	☐	20. Was Standard Turn Around (TAT) requested?
	☑	☐	21. Receipt date(s) < 48 hours past the collection date(s)? If no, notify PM.

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PSS0769

Login Checks:

Initials: PS

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: PS

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).

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Howard Holmes
Test America-Portland
9405 SW Nimbus Avenue
Beaverton OR 97008

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10115378
Sample Receipt Date: 10/23/2009
Client Project #: PSJ0769
Client Sub PO #: N/A
State Cert #: MN200001-005

Invoicing & Reporting Options:

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

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

This report has been reviewed by:

November 23, 2009

Scott Unze, Project Manager
(612) 607-6383
(612) 607-6444 (fax)
scott.unze@pacelabs.com

ACCREDITED IN ACCORDANCE WITH nelac

Report of Laboratory Analysis

Report Prepared Date:
November 22, 2009

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on three samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.25-0.75 parts-per-trillion and were adjusted for the amount of the sample extracted.

The isotopically-labeled PCB internal standards in the sample extracts were recovered at 55-100%. All of the labeled internal standard recoveries obtained for this project were within the target ranges specified in the method. Since the quantification of the native PCB congeners was based on internal standard or isotope dilution methods, the data were automatically corrected for variation in recovery and accurate values were obtained. In some cases, interfering substances impacted the measurement of the internal standards or native PCB congeners. These values are flagged "I" in the sample results tables to indicate that incorrect isotope ratios were obtained.

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 samples.

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 74-107% with relative percent differences of 0-9.5%. These results indicate high levels of accuracy and precision for these analyses. Matrix spikes were not prepared with the sample batch.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN00064_2000
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	08-004r	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN200001-005
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana		South Carolina	74003001
Indiana	C-MN-01	Tennesee	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

Appendix A

Sample Management

SUBCONTRACT ORDER

TestAmerica Portland

PSJ0769

10115378

SENDING LABORATORY:

TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Phone: (503) 906-9200
Fax: (503) 906-9210
Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis
1700 Elm Street Suite 200
Minneapolis, MN 55414
Phone :(612) 607-1700
Fax: (612) 607-6444
Project Location: OR - OREGON
Receipt Temperature: _____ °C Ice: Y / N

needs Excel EDD

Analysis	Units	Due	Expires	Comments
				City of Portland IDs
Sample ID: PSJ0769-01	**Water**		Sampled: **10/21/09 09:22**	FO 096056 001
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/19/10 09:22	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (A) 1L Amber - Unpres. (B)				
Sample ID: PSJ0769-02	**Water**		Sampled: **10/21/09 09:10**	FO 096057 002
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/19/10 09:10	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (A) 1L Amber - Unpres. (B)				
Sample ID: PSJ0769-03	**Water**		Sampled: **10/21/09 00:00**	FO 096058 003
1668 Coplanar PCBs - SUB	ug/l	11/04/09	04/19/10 00:00	***209 Congeners*** to Pace
Containers Supplied:				
1L Amber - Unpres. (A)				

KAREN WILSON 10-22-09 1450
Released By Date/Time

Pace 10/23/09 1006 T= 3.4°
Received By Date/Time

Released By Date/Time

Received By Date/Time

1635

Pace Analytical

Sample Condition Upon Receipt

Client Name: Test America Project # 10115378

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Optional: Proj. Due Date: Proj. Name:

Tracking #: 4170 7524 5565

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals Intact: ☒ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☒ Other _____ Temp Blank: Yes X No _____

Thermometer Used (80344042 or 179425) Type of Ice: Wet (Blue) None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.4° Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C Comments:

Date and Initials of person examining contents: JL 10-23-09

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12. There is only 1 liter for sample PSTO769-03
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	Samp #
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☑No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ **Date:** 10/23/09

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

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

Appendix B

Sample Analysis Summary

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 - Test America-Portland

Client's Sample ID	PSJ0769-01;F0096056		
Lab Sample ID	10115378001		
Filename	P91120A_07		
Injected By	BAL		
Total Amount Extracted	1010 mL	Matrix	Water
% Moisture	NA	Dilution	5
Dry Weight Extracted	NA	Collected	10/21/2009 09:22
ICAL ID	P91120A03	Received	10/23/2009 10:06
CCal Filename(s)	P91120A_04	Extracted	11/13/2009 18:20
Method Blank ID	BLANK-22471	Analyzed	11/21/2009 00:38

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.809	3.00	2.0	1.15	57
13C-4-MoCB	3	12.188	2.98	2.0	1.33	66
13C-2,2'-DiCB	4	12.548	1.54	2.0	1.31	65
13C-4,4'-DiCB	15	20.623	1.62	2.0	1.65	82
13C-2,2',6-TrCB	19	16.945	1.05	2.0	1.49	74
13C-3,4,4'-TrCB	37	28.899	1.11	2.0	1.69	85
13C-2,2',6,6'-TeCB	54	20.951	0.82	2.0	1.47	74
13C-3,4,4',5-TeCB	81	36.159	0.76	2.0	1.70	85
13C-3,3',4,4'-TeCB	77	36.762	0.80	2.0	1.61	81
13C-2,2',4,6,6'-PeCB	104	27.490	1.72	2.0	1.62	81
13C-2,3,3',4,4'-PeCB	105	40.367	1.64	2.0	1.56	78
13C-2,3,4,4',5-PeCB	114	39.697	1.57	2.0	1.59	80
13C-2,3',4,4',5-PeCB	118	39.160	1.56	2.0	1.59	79
13C-2,3',4,4',5'-PeCB	123	38.825	1.57	2.0	1.63	81
13C-3,3',4,4',5-PeCB	126	43.520	1.59	2.0	1.60	80
13C-2,2',4,4',6,6'-HxCB	155	33.711	1.26	2.0	1.76	88
13C-HxCB (156/157)	156/157	46.571	1.30	4.0	3.28	82
13C-2,3',4,4',5,5'-HxCB	167	45.414	1.27	2.0	1.66	83
13C-3,3',4,4',5,5'-HxCB	169	49.875	1.31	2.0	1.64	82
13C-2,2',3,4',5,6,6'-HpCB	188	39.680	1.07	2.0	1.82	91
13C-2,3,3',4,4',5,5'-HpCB	189	52.456	1.06	2.0	1.66	83
13C-2,2',3,3',5,5',6,6'-OcCB	202	45.129	0.93	2.0	1.83	91
13C-2,3,3',4,4',5,5',6-OcCB	205	55.344	0.96	2.0	1.65	83
13C-2,2',3,3',4,4',5,5',6-NoCB	206	57.650	0.80	2.0	1.84	92
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.939	0.77	2.0	1.79	90
13C--DeCB	209	60.064	0.72	2.0	1.83	91
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.305	1.06	2.0	1.74	87
13C-2,3,3',5,5'-PeCB	111	36.796	1.58	2.0	1.73	87
13C-2,2',3,3',5,5',6-HpCB	178	42.782	1.06	2.0	1.90	95
Recovery Standards						
13C-2,5-DiCB	9	15.423	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.451	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.962	1.68	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.329	1.29	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.762	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

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 PSJ0769-01;F0096056
Lab Sample ID 10115378001
Filename P91120A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.248
2		---	---	ND	---	0.248
3		---	---	ND	---	0.248
4		---	---	ND	---	0.248
5		---	---	ND	---	0.248
6		---	---	ND	---	0.248
7		---	---	ND	---	0.248
8		16.597	1.39	0.256	---	0.248
9		---	---	ND	---	0.248
10		---	---	ND	---	0.248
11		---	---	ND	---	1.49
12	12/13	---	---	ND	---	0.496
13	12/13	---	---	ND	---	0.496
14		---	---	ND	---	0.248
15		---	---	ND	---	0.248
16		20.551	1.12	0.277	---	0.248
17		19.988	1.04	0.254	---	0.248
18	18/30	19.461	1.10	0.543	---	0.496
19		---	---	ND	---	0.248
20	20/28	24.338	1.04	0.854	---	0.496
21	21/33	---	---	ND	---	0.496
22		25.076	0.96	0.331	---	0.248
23		---	---	ND	---	0.248
24		---	---	ND	---	0.248
25		---	---	ND	---	0.248
26	26/29	---	---	ND	---	0.496
27		---	---	ND	---	0.248
28	20/28	24.338	1.04	(0.854)	---	0.496
29	26/29	---	---	ND	---	0.496
30	18/30	19.461	1.10	(0.543)	---	0.496
31		24.003	1.01	0.721	---	0.248
32		---	---	ND	---	0.248
33	21/33	---	---	ND	---	0.496
34		---	---	ND	---	0.248
35		---	---	ND	---	0.248
36		---	---	ND	---	0.248
37		28.915	0.93	0.284	---	0.248
38		---	---	ND	---	0.248
39		---	---	ND	---	0.248
40	40/41/71	---	---	ND	---	1.49
41	40/41/71	---	---	ND	---	1.49
42		---	---	ND	---	0.496
43	43/73	---	---	ND	---	0.992
44	44/47/65	---	---	ND	---	1.49
45	45/51	---	---	ND	---	0.992
46		---	---	ND	---	0.496
47	44/47/65	---	---	ND	---	1.49
48		---	---	ND	---	0.496

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

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* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

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 PSJ0769-01;F0096056
Lab Sample ID 10115378001
Filename P91120A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	0.992
50	50/53	---	---	ND	---	0.992
51	45/51	---	---	ND	---	0.992
52		26.451	0.78	1.40	---	0.496
53	50/53	---	---	ND	---	0.992
54		---	---	ND	---	0.496
55		---	---	ND	---	0.496
56		---	---	ND	---	0.496
57		---	---	ND	---	0.496
58		---	---	ND	---	0.496
59	59/62/75	---	---	ND	---	1.49
60		---	---	ND	---	0.496
61	61/70/74/76	---	---	ND	---	1.98
62	59/62/75	---	---	ND	---	1.49
63		---	---	ND	---	0.496
64		---	---	ND	---	0.496
65	44/47/65	---	---	ND	---	1.49
66		32.135	0.73	0.816	---	0.496
67		---	---	ND	---	0.496
68		---	---	ND	---	0.496
69	49/69	---	---	ND	---	0.992
70	61/70/74/76	---	---	ND	---	1.98
71	40/41/71	---	---	ND	---	1.49
72		---	---	ND	---	0.496
73	43/73	---	---	ND	---	0.992
74	61/70/74/76	---	---	ND	---	1.98
75	59/62/75	---	---	ND	---	1.49
76	61/70/74/76	---	---	ND	---	1.98
77		---	---	ND	---	0.496
78		---	---	ND	---	0.496
79		---	---	ND	---	0.496
80		---	---	ND	---	0.496
81		---	---	ND	---	0.496
82		---	---	ND	---	0.496
83		---	---	ND	---	0.496
84		31.967	1.62	0.688	---	0.496
85	85/116/117	---	---	ND	---	1.49
86	86/87/97/108/119/125	---	---	ND	---	2.97
87	86/87/97/108/119/125	---	---	ND	---	2.97
88	88/91	---	---	ND	---	0.992
89		---	---	ND	---	0.496
90	90/101/113	33.996	1.62	2.35	---	1.49
91	88/91	---	---	ND	---	0.992
92		---	---	ND	---	0.496
93	93/98/100/102	---	---	ND	---	1.98
94		---	---	ND	---	0.496
95		30.810	1.58	1.77	---	0.496
96		---	---	ND	---	0.496

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REPORT OF LABORATORY ANALYSIS

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 PSJ0769-01;F0096056
Lab Sample ID 10115378001
Filename P91120A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	2.97
98	93/98/100/102	---	---	ND	---	1.98
99		34.599	1.60	1.02	---	0.496
100	93/98/100/102	---	---	ND	---	1.98
101	90/101/113	33.996	1.62	(2.35)	---	1.49
102	93/98/100/102	---	---	ND	---	1.98
103		---	---	ND	---	0.496
104		---	---	ND	---	0.496
105		40.384	1.61	1.21	---	0.496
106		---	---	ND	---	0.496
107	107/124	---	---	ND	---	0.992
108	86/87/97/108/119/125	---	---	ND	---	2.97
109		---	---	ND	---	0.496
110	110/115	36.058	1.60	3.32	---	0.992
111		---	---	ND	---	0.496
112		---	---	ND	---	0.496
113	90/101/113	33.996	1.62	(2.35)	---	1.49
114		---	---	ND	---	0.496
115	110/115	36.058	1.60	(3.32)	---	0.992
116	85/116/117	---	---	ND	---	1.49
117	85/116/117	---	---	ND	---	1.49
118		39.194	1.53	2.71	---	0.496
119	86/87/97/108/119/125	---	---	ND	---	2.97
120		---	---	ND	---	0.496
121		---	---	ND	---	0.496
122		---	---	ND	---	0.496
123		---	---	ND	---	0.496
124	107/124	---	---	ND	---	0.992
125	86/87/97/108/119/125	---	---	ND	---	2.97
126		---	---	ND	---	0.496
127		---	---	ND	---	0.496
128	128/166	---	---	ND	---	0.992
129	129/138/163	42.363	1.27	3.97	---	1.49
130		---	---	ND	---	0.496
131		---	---	ND	---	0.496
132		39.278	1.30	1.25	---	0.496
133		---	---	ND	---	0.496
134	134/143	---	---	ND	---	0.992
135	135/151	---	---	ND	---	0.992
136		---	---	ND	---	0.496
137		---	---	ND	---	0.496
138	129/138/163	42.363	1.27	(3.97)	---	1.49
139	139/140	---	---	ND	---	0.992
140	139/140	---	---	ND	---	0.992
141		41.290	1.22	0.572	---	0.496
142		---	---	ND	---	0.496
143	134/143	---	---	ND	---	0.992
144		---	---	ND	---	0.496

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PSJ0769-01;F0096056
Lab Sample ID 10115378001
Filename P91120A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.496
146		---	---	ND	---	0.496
147	147/149	37.986	1.24	2.18	---	0.992
148		---	---	ND	---	0.496
149	147/149	37.986	1.24	(2.18)	---	0.992
150		---	---	ND	---	0.496
151	135/151	---	---	ND	---	0.992
152		---	---	ND	---	0.496
153	153/168	41.105	1.25	2.23	---	0.992
154		---	---	ND	---	0.496
155		---	---	ND	---	0.496
156	156/157	---	---	ND	---	0.992
157	156/157	---	---	ND	---	0.992
158		---	---	ND	---	0.496
159		---	---	ND	---	0.496
160		---	---	ND	---	0.496
161		---	---	ND	---	0.496
162		---	---	ND	---	0.496
163	129/138/163	42.363	1.27	(3.97)	---	1.49
164		---	---	ND	---	0.496
165		---	---	ND	---	0.496
166	128/166	---	---	ND	---	0.992
167		---	---	ND	---	0.496
168	153/168	41.105	1.25	(2.23)	---	0.992
169		---	---	ND	---	0.496
170		49.288	1.07	0.717	---	0.496
171	171/173	---	---	ND	---	0.992
172		---	---	ND	---	0.496
173	171/173	---	---	ND	---	0.992
174		44.593	1.03	0.633	---	0.496
175		---	---	ND	---	0.496
176		---	---	ND	---	0.496
177		---	---	ND	---	0.496
178		---	---	ND	---	0.496
179		---	---	ND	---	0.496
180	180/193	47.997	1.02	1.43	---	0.992
181		---	---	ND	---	0.496
182		---	---	ND	---	0.496
183	183/185	---	---	ND	---	0.992
184		---	---	ND	---	0.496
185	183/185	---	---	ND	---	0.992
186		---	---	ND	---	0.496
187		43.738	1.08	0.759	---	0.496
188		---	---	ND	---	0.496
189		---	---	ND	---	0.496
190		---	---	ND	---	0.496
191		---	---	ND	---	0.496
192		---	---	ND	---	0.496

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PSJ0769-01;F0096056
Lab Sample ID	10115378001
Filename	P91120A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	47.997	1.02	(1.43)	---	0.992
194		---	---	ND	---	0.744
195		---	---	ND	---	0.744
196		---	---	ND	---	0.744
197	197/200	---	---	ND	---	1.49
198	198/199	---	---	ND	---	1.49
199	198/199	---	---	ND	---	1.49
200	197/200	---	---	ND	---	1.49
201		---	---	ND	---	0.744
202		---	---	ND	---	0.744
203		---	---	ND	---	0.744
204		---	---	ND	---	0.744
205		---	---	ND	---	0.744
206		---	---	ND	---	0.744
207		---	---	ND	---	0.744
208		---	---	ND	---	0.744
209		---	---	ND	---	0.744

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PSJ0769-01;F0096056
Lab Sample ID	10115378001
Filename	P91120A_07

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	0.256
Total Trichloro Biphenyls	3.26
Total Tetrachloro Biphenyls	2.22
Total Pentachloro Biphenyls	13.1
Total Hexachloro Biphenyls	10.2
Total Heptachloro Biphenyls	3.54
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	32.5

ND = Not Detected

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America-Portland

Client's Sample ID	PSJ0769-02;F0096057		
Lab Sample ID	10115378002		
Filename	P91118A_07		
Injected By	SMT		
Total Amount Extracted	1050 mL	Matrix	Water
% Moisture	NA	Dilution	5
Dry Weight Extracted	NA	Collected	10/21/2009 09:10
ICAL ID	P91118A02	Received	10/23/2009 10:06
CCal Filename(s)	P91118A_01	Extracted	11/13/2009 18:20
Method Blank ID	BLANK-22471	Analyzed	11/18/2009 17:23

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.833	2.65	2.0	1.31	68	I
13C-4-MoCB	3	12.223	2.90	2.0	1.54	77	
13C-2,2'-DiCB	4	12.559	1.60	2.0	1.68	84	
13C-4,4'-DiCB	15	20.670	1.51	2.0	1.09	55	
13C-2,2',6-TrCB	19	16.980	1.09	2.0	1.79	90	
13C-3,4,4'-TrCB	37	28.947	1.09	2.0	1.23	62	
13C-2,2',6,6'-TeCB	54	20.998	0.76	2.0	1.26	63	
13C-3,4,4',5-TeCB	81	36.225	0.78	2.0	1.44	72	
13C-3,3',4,4'-TeCB	77	36.812	0.78	2.0	1.45	72	
13C-2,2',4,6,6'-PeCB	104	27.538	1.64	2.0	1.61	80	
13C-2,3,3',4,4'-PeCB	105	40.400	1.55	2.0	1.36	68	
13C-2,3,4,4',5-PeCB	114	39.746	1.59	2.0	1.31	66	
13C-2,3',4,4',5-PeCB	118	39.210	1.56	2.0	1.34	67	
13C-2,3',4,4',5'-PeCB	123	38.858	1.49	2.0	1.35	67	
13C-3,3',4,4',5-PeCB	126	43.570	1.53	2.0	1.34	67	
13C-2,2',4,4',6,6'-HxCB	155	33.776	1.24	2.0	1.84	92	
13C-HxCB (156/157)	156/157	46.606	1.29	4.0	2.68	67	
13C-2,3',4,4',5,5'-HxCB	167	45.432	1.21	2.0	1.29	65	
13C-3,3',4,4',5,5'-HxCB	169	49.909	1.29	2.0	1.31	66	
13C-2,2',3,4',5,6,6'-HpCB	188	39.713	1.08	2.0	1.99	100	
13C-2,3,3',4,4',5,5'-HpCB	189	52.480	1.05	2.0	1.25	62	
13C-2,2',3,3',5,5',6,6'-OcCB	202	45.163	0.90	2.0	1.85	93	
13C-2,3,3',4,4',5,5',6-OcCB	205	55.368	0.91	2.0	1.67	83	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	57.696	0.77	2.0	1.64	82	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.962	0.78	2.0	1.73	86	
13C--DeCB	209	60.111	0.73	2.0	1.79	90	
Cleanup Standards							
13C-2,4,4'-TrCB	28	24.352	1.13	2.0	1.21	60	
13C-2,3,3',5,5'-PeCB	111	36.828	1.55	2.0	1.75	88	
13C-2,2',3,3',5,5',6-HpCB	178	42.815	1.07	2.0	1.88	94	
Recovery Standards							
13C-2,5-DiCB	9	15.446	1.57	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	26.482	0.79	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	34.011	1.63	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	42.363	1.30	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.786	0.92	2.0	NA	NA	

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PSJ0769-02;F0096057
Lab Sample ID 10115378002
Filename P91118A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.239
2		---	---	ND	---	0.239
3		---	---	ND	---	0.239
4		---	---	ND	---	0.239
5		---	---	ND	---	0.239
6		---	---	ND	---	0.239
7		---	---	ND	---	0.239
8		---	---	ND	---	0.239
9		---	---	ND	---	0.239
10		---	---	ND	---	0.239
11		---	---	ND	---	1.43
12	12/13	---	---	ND	---	0.478
13	12/13	---	---	ND	---	0.478
14		---	---	ND	---	0.239
15		---	---	ND	---	0.239
16		---	---	ND	---	0.239
17		---	---	ND	---	0.239
18	18/30	---	---	ND	---	0.478
19		---	---	ND	---	0.239
20	20/28	---	---	ND	---	0.478
21	21/33	---	---	ND	---	0.478
22		---	---	ND	---	0.239
23		---	---	ND	---	0.239
24		---	---	ND	---	0.239
25		---	---	ND	---	0.239
26	26/29	---	---	ND	---	0.478
27		---	---	ND	---	0.239
28	20/28	---	---	ND	---	0.478
29	26/29	---	---	ND	---	0.478
30	18/30	---	---	ND	---	0.478
31		---	---	ND	---	0.239
32		---	---	ND	---	0.239
33	21/33	---	---	ND	---	0.478
34		---	---	ND	---	0.239
35		---	---	ND	---	0.239
36		---	---	ND	---	0.239
37		---	---	ND	---	0.239
38		---	---	ND	---	0.239
39		---	---	ND	---	0.239
40	40/41/71	---	---	ND	---	1.43
41	40/41/71	---	---	ND	---	1.43
42		---	---	ND	---	0.478
43	43/73	---	---	ND	---	0.956
44	44/47/65	---	---	ND	---	1.43
45	45/51	---	---	ND	---	0.956
46		---	---	ND	---	0.478
47	44/47/65	---	---	ND	---	1.43
48		---	---	ND	---	0.478

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PSJ0769-02;F0096057
Lab Sample ID 10115378002
Filename P91118A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	0.956
50	50/53	---	---	ND	---	0.956
51	45/51	---	---	ND	---	0.956
52		---	---	ND	---	0.478
53	50/53	---	---	ND	---	0.956
54		---	---	ND	---	0.478
55		---	---	ND	---	0.478
56		---	---	ND	---	0.478
57		---	---	ND	---	0.478
58		---	---	ND	---	0.478
59	59/62/75	---	---	ND	---	1.43
60		---	---	ND	---	0.478
61	61/70/74/76	---	---	ND	---	1.91
62	59/62/75	---	---	ND	---	1.43
63		---	---	ND	---	0.478
64		---	---	ND	---	0.478
65	44/47/65	---	---	ND	---	1.43
66		---	---	ND	---	0.478
67		---	---	ND	---	0.478
68		---	---	ND	---	0.478
69	49/69	---	---	ND	---	0.956
70	61/70/74/76	---	---	ND	---	1.91
71	40/41/71	---	---	ND	---	1.43
72		---	---	ND	---	0.478
73	43/73	---	---	ND	---	0.956
74	61/70/74/76	---	---	ND	---	1.91
75	59/62/75	---	---	ND	---	1.43
76	61/70/74/76	---	---	ND	---	1.91
77		---	---	ND	---	0.478
78		---	---	ND	---	0.478
79		---	---	ND	---	0.478
80		---	---	ND	---	0.478
81		---	---	ND	---	0.478
82		---	---	ND	---	0.478
83		---	---	ND	---	0.478
84		---	---	ND	---	0.478
85	85/116/117	---	---	ND	---	1.43
86	86/87/97/108/119/125	---	---	ND	---	2.87
87	86/87/97/108/119/125	---	---	ND	---	2.87
88	88/91	---	---	ND	---	0.956
89		---	---	ND	---	0.478
90	90/101/113	---	---	ND	---	1.43
91	88/91	---	---	ND	---	0.956
92		---	---	ND	---	0.478
93	93/98/100/102	---	---	ND	---	1.91
94		---	---	ND	---	0.478
95		---	---	ND	---	0.478
96		---	---	ND	---	0.478

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Sample Analysis Results

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Filename P91118A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	2.87
98	93/98/100/102	---	---	ND	---	1.91
99		---	---	ND	---	0.478
100	93/98/100/102	---	---	ND	---	1.91
101	90/101/113	---	---	ND	---	1.43
102	93/98/100/102	---	---	ND	---	1.91
103		---	---	ND	---	0.478
104		---	---	ND	---	0.478
105		---	---	ND	---	0.478
106		---	---	ND	---	0.478
107	107/124	---	---	ND	---	0.956
108	86/87/97/108/119/125	---	---	ND	---	2.87
109		---	---	ND	---	0.478
110	110/115	---	---	ND	---	0.956
111		---	---	ND	---	0.478
112		---	---	ND	---	0.478
113	90/101/113	---	---	ND	---	1.43
114		---	---	ND	---	0.478
115	110/115	---	---	ND	---	0.956
116	85/116/117	---	---	ND	---	1.43
117	85/116/117	---	---	ND	---	1.43
118		---	---	ND	---	0.478
119	86/87/97/108/119/125	---	---	ND	---	2.87
120		---	---	ND	---	0.478
121		---	---	ND	---	0.478
122		---	---	ND	---	0.478
123		---	---	ND	---	0.478
124	107/124	---	---	ND	---	0.956
125	86/87/97/108/119/125	---	---	ND	---	2.87
126		---	---	ND	---	0.478
127		---	---	ND	---	0.478
128	128/166	---	---	ND	---	0.956
129	129/138/163	---	---	ND	---	1.43
130		---	---	ND	---	0.478
131		---	---	ND	---	0.478
132		---	---	ND	---	0.478
133		---	---	ND	---	0.478
134	134/143	---	---	ND	---	0.956
135	135/151	---	---	ND	---	0.956
136		---	---	ND	---	0.478
137		---	---	ND	---	0.478
138	129/138/163	---	---	ND	---	1.43
139	139/140	---	---	ND	---	0.956
140	139/140	---	---	ND	---	0.956
141		---	---	ND	---	0.478
142		---	---	ND	---	0.478
143	134/143	---	---	ND	---	0.956
144		---	---	ND	---	0.478

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REPORT OF LABORATORY ANALYSIS

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 PSJ0769-02;F0096057
Lab Sample ID 10115378002
Filename P91118A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.478
146		---	---	ND	---	0.478
147	147/149	---	---	ND	---	0.956
148		---	---	ND	---	0.478
149	147/149	---	---	ND	---	0.956
150		---	---	ND	---	0.478
151	135/151	---	---	ND	---	0.956
152		---	---	ND	---	0.478
153	153/168	---	---	ND	---	0.956
154		---	---	ND	---	0.478
155		---	---	ND	---	0.478
156	156/157	---	---	ND	---	0.956
157	156/157	---	---	ND	---	0.956
158		---	---	ND	---	0.478
159		---	---	ND	---	0.478
160		---	---	ND	---	0.478
161		---	---	ND	---	0.478
162		---	---	ND	---	0.478
163	129/138/163	---	---	ND	---	1.43
164		---	---	ND	---	0.478
165		---	---	ND	---	0.478
166	128/166	---	---	ND	---	0.956
167		---	---	ND	---	0.478
168	153/168	---	---	ND	---	0.956
169		---	---	ND	---	0.478
170		---	---	ND	---	0.478
171	171/173	---	---	ND	---	0.956
172		---	---	ND	---	0.478
173	171/173	---	---	ND	---	0.956
174		---	---	ND	---	0.478
175		---	---	ND	---	0.478
176		---	---	ND	---	0.478
177		---	---	ND	---	0.478
178		---	---	ND	---	0.478
179		---	---	ND	---	0.478
180	180/193	---	---	ND	---	0.956
181		---	---	ND	---	0.478
182		---	---	ND	---	0.478
183	183/185	---	---	ND	---	0.956
184		---	---	ND	---	0.478
185	183/185	---	---	ND	---	0.956
186		---	---	ND	---	0.478
187		---	---	ND	---	0.478
188		---	---	ND	---	0.478
189		---	---	ND	---	0.478
190		---	---	ND	---	0.478
191		---	---	ND	---	0.478
192		---	---	ND	---	0.478

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PSJ0769-02;F0096057
Lab Sample ID	10115378002
Filename	P91118A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	---	---	ND	---	0.956
194		---	---	ND	---	0.717
195		---	---	ND	---	0.717
196		---	---	ND	---	0.717
197	197/200	---	---	ND	---	1.43
198	198/199	---	---	ND	---	1.43
199	198/199	---	---	ND	---	1.43
200	197/200	---	---	ND	---	1.43
201		---	---	ND	---	0.717
202		---	---	ND	---	0.717
203		---	---	ND	---	0.717
204		---	---	ND	---	0.717
205		---	---	ND	---	0.717
206		---	---	ND	---	0.717
207		---	---	ND	---	0.717
208		---	---	ND	---	0.717
209		---	---	ND	---	0.717

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PSJ0769-02;F0096057
Lab Sample ID	10115378002
Filename	P91118A_07

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

ND = Not Detected

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America-Portland

Client's Sample ID	PSJ0769-03;F0096058		
Lab Sample ID	10115378003		
Filename	P91118A_08		
Injected By	SMT		
Total Amount Extracted	995 mL	Matrix	Water
% Moisture	NA	Dilution	5
Dry Weight Extracted	NA	Collected	10/21/2009
ICAL ID	P91118A02	Received	10/23/2009 10:06
CCal Filename(s)	P91118A_01	Extracted	11/13/2009 18:20
Method Blank ID	BLANK-22471	Analyzed	11/18/2009 18:28

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.833	2.56	2.0	1.22	64	I
13C-4-MoCB	3	12.223	3.20	2.0	1.45	73	
13C-2,2'-DiCB	4	12.571	1.52	2.0	1.64	82	
13C-4,4'-DiCB	15	20.681	1.54	2.0	1.43	72	
13C-2,2',6-TrCB	19	16.991	1.08	2.0	1.80	90	
13C-3,4,4'-TrCB	37	28.957	1.05	2.0	1.32	66	
13C-2,2',6,6'-TeCB	54	20.993	0.81	2.0	1.41	70	
13C-3,4,4',5-TeCB	81	36.218	0.79	2.0	1.42	71	
13C-3,3',4,4'-TeCB	77	36.804	0.76	2.0	1.43	71	
13C-2,2',4,6,6'-PeCB	104	27.549	1.58	2.0	1.78	89	
13C-2,3,3',4,4'-PeCB	105	40.426	1.55	2.0	1.28	64	
13C-2,3,4,4',5-PeCB	114	39.756	1.57	2.0	1.31	65	
13C-2,3',4,4',5-PeCB	118	39.219	1.53	2.0	1.31	66	
13C-2,3',4,4',5'-PeCB	123	38.884	1.49	2.0	1.34	67	
13C-3,3',4,4',5-PeCB	126	43.579	1.55	2.0	1.31	65	
13C-2,2',4,4',6,6'-HxCB	155	33.770	1.23	2.0	1.94	97	
13C-HxCB (156/157)	156/157	46.614	1.26	4.0	2.69	67	
13C-2,3',4,4',5,5'-HxCB	167	45.474	1.27	2.0	1.38	69	
13C-3,3',4,4',5,5'-HxCB	169	49.934	1.25	2.0	1.35	68	
13C-2,2',3,4',5,6,6'-HpCB	188	39.722	1.05	2.0	1.87	94	
13C-2,3,3',4,4',5,5'-HpCB	189	52.508	1.07	2.0	1.29	65	
13C-2,2',3,3',5,5',6,6'-OcCB	202	45.189	0.92	2.0	1.79	89	
13C-2,3,3',4,4',5,5',6-OcCB	205	55.396	0.85	2.0	1.68	84	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	57.745	0.77	2.0	1.71	85	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.991	0.80	2.0	1.69	84	
13C--DeCB	209	60.159	0.68	2.0	1.77	89	
Cleanup Standards							
13C-2,4,4'-TrCB	28	24.363	1.10	2.0	1.34	67	
13C-2,3,3',5,5'-PeCB	111	36.855	1.57	2.0	1.69	85	
13C-2,2',3,3',5,5',6-HpCB	178	42.841	1.05	2.0	1.84	92	
Recovery Standards							
13C-2,5-DiCB	9	15.458	1.52	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	26.492	0.79	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	34.021	1.62	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	42.388	1.28	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.836	0.92	2.0	NA	NA	

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REPORT OF LABORATORY ANALYSIS

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PSJ0769-03;F0096058
Lab Sample ID 10115378003
Filename P91118A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.251
2		---	---	ND	---	0.251
3		---	---	ND	---	0.251
4		---	---	ND	---	0.251
5		---	---	ND	---	0.251
6		---	---	ND	---	0.251
7		---	---	ND	---	0.251
8		16.632	1.38	0.268	---	0.251
9		---	---	ND	---	0.251
10		---	---	ND	---	0.251
11		---	---	ND	---	1.51
12	12/13	---	---	ND	---	0.502
13	12/13	---	---	ND	---	0.502
14		---	---	ND	---	0.251
15		---	---	ND	---	0.251
16		---	---	ND	---	0.251
17		---	---	ND	---	0.251
18	18/30	---	---	ND	---	0.502
19		---	---	ND	---	0.251
20	20/28	24.380	1.04	0.920	---	0.502
21	21/33	24.648	1.05	0.558	---	0.502
22		25.117	1.10	0.390	---	0.251
23		---	---	ND	---	0.251
24		---	---	ND	---	0.251
25		---	---	ND	---	0.251
26	26/29	---	---	ND	---	0.502
27		---	---	ND	---	0.251
28	20/28	24.380	1.04	(0.920)	---	0.502
29	26/29	---	---	ND	---	0.502
30	18/30	---	---	ND	---	0.502
31		24.044	0.98	0.773	---	0.251
32		---	---	ND	---	0.251
33	21/33	24.648	1.05	(0.558)	---	0.502
34		---	---	ND	---	0.251
35		---	---	ND	---	0.251
36		---	---	ND	---	0.251
37		28.957	1.02	0.271	---	0.251
38		---	---	ND	---	0.251
39		---	---	ND	---	0.251
40	40/41/71	---	---	ND	---	1.51
41	40/41/71	---	---	ND	---	1.51
42		---	---	ND	---	0.502
43	43/73	---	---	ND	---	1.00
44	44/47/65	---	---	ND	---	1.51
45	45/51	---	---	ND	---	1.00
46		---	---	ND	---	0.502
47	44/47/65	---	---	ND	---	1.51
48		---	---	ND	---	0.502

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PSJ0769-03;F0096058
Lab Sample ID 10115378003
Filename P91118A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	1.00
50	50/53	---	---	ND	---	1.00
51	45/51	---	---	ND	---	1.00
52		26.509	0.79	1.34	---	0.502
53	50/53	---	---	ND	---	1.00
54		---	---	ND	---	0.502
55		---	---	ND	---	0.502
56		---	---	ND	---	0.502
57		---	---	ND	---	0.502
58		---	---	ND	---	0.502
59	59/62/75	---	---	ND	---	1.51
60		---	---	ND	---	0.502
61	61/70/74/76	---	---	ND	---	2.01
62	59/62/75	---	---	ND	---	1.51
63		---	---	ND	---	0.502
64		---	---	ND	---	0.502
65	44/47/65	---	---	ND	---	1.51
66		32.193	0.74	0.805	---	0.502
67		---	---	ND	---	0.502
68		---	---	ND	---	0.502
69	49/69	---	---	ND	---	1.00
70	61/70/74/76	---	---	ND	---	2.01
71	40/41/71	---	---	ND	---	1.51
72		---	---	ND	---	0.502
73	43/73	---	---	ND	---	1.00
74	61/70/74/76	---	---	ND	---	2.01
75	59/62/75	---	---	ND	---	1.51
76	61/70/74/76	---	---	ND	---	2.01
77		---	---	ND	---	0.502
78		---	---	ND	---	0.502
79		---	---	ND	---	0.502
80		---	---	ND	---	0.502
81		---	---	ND	---	0.502
82		---	---	ND	---	0.502
83		---	---	ND	---	0.502
84		32.026	1.69	0.607	---	0.502
85	85/116/117	---	---	ND	---	1.51
86	86/87/97/108/119/125	---	---	ND	---	3.01
87	86/87/97/108/119/125	---	---	ND	---	3.01
88	88/91	---	---	ND	---	1.00
89		---	---	ND	---	0.502
90	90/101/113	34.055	1.66	2.16	---	1.51
91	88/91	---	---	ND	---	1.00
92		---	---	ND	---	0.502
93	93/98/100/102	---	---	ND	---	2.01
94		---	---	ND	---	0.502
95		30.869	1.61	1.65	---	0.502
96		---	---	ND	---	0.502

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

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Lab Sample ID 10115378003
Filename P91118A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	3.01
98	93/98/100/102	---	---	ND	---	2.01
99		34.658	1.51	0.916	---	0.502
100	93/98/100/102	---	---	ND	---	2.01
101	90/101/113	34.055	1.66	(2.16)	---	1.51
102	93/98/100/102	---	---	ND	---	2.01
103		---	---	ND	---	0.502
104		---	---	ND	---	0.502
105		40.443	1.53	1.03	---	0.502
106		---	---	ND	---	0.502
107	107/124	---	---	ND	---	1.00
108	86/87/97/108/119/125	---	---	ND	---	3.01
109		---	---	ND	---	0.502
110	110/115	36.117	1.56	3.08	---	1.00
111		---	---	ND	---	0.502
112		---	---	ND	---	0.502
113	90/101/113	34.055	1.66	(2.16)	---	1.51
114		---	---	ND	---	0.502
115	110/115	36.117	1.56	(3.08)	---	1.00
116	85/116/117	---	---	ND	---	1.51
117	85/116/117	---	---	ND	---	1.51
118		39.236	1.56	2.17	---	0.502
119	86/87/97/108/119/125	---	---	ND	---	3.01
120		---	---	ND	---	0.502
121		---	---	ND	---	0.502
122		---	---	ND	---	0.502
123		---	---	ND	---	0.502
124	107/124	---	---	ND	---	1.00
125	86/87/97/108/119/125	---	---	ND	---	3.01
126		---	---	ND	---	0.502
127		---	---	ND	---	0.502
128	128/166	---	---	ND	---	1.00
129	129/138/163	42.422	1.28	3.88	---	1.51
130		---	---	ND	---	0.502
131		---	---	ND	---	0.502
132		39.320	1.28	1.31	---	0.502
133		---	---	ND	---	0.502
134	134/143	---	---	ND	---	1.00
135	135/151	---	---	ND	---	1.00
136		---	---	ND	---	0.502
137		---	---	ND	---	0.502
138	129/138/163	42.422	1.28	(3.88)	---	1.51
139	139/140	---	---	ND	---	1.00
140	139/140	---	---	ND	---	1.00
141		41.349	1.37	0.622	---	0.502
142		---	---	ND	---	0.502
143	134/143	---	---	ND	---	1.00
144		---	---	ND	---	0.502

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REPORT OF LABORATORY ANALYSIS

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 PSJ0769-03;F0096058
Lab Sample ID 10115378003
Filename P91118A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.502
146		---	---	ND	---	0.502
147	147/149	38.029	1.21	2.47	---	1.00
148		---	---	ND	---	0.502
149	147/149	38.029	1.21	(2.47)	---	1.00
150		---	---	ND	---	0.502
151	135/151	---	---	ND	---	1.00
152		---	---	ND	---	0.502
153	153/168	41.147	1.22	2.37	---	1.00
154		---	---	ND	---	0.502
155		---	---	ND	---	0.502
156	156/157	---	---	ND	---	1.00
157	156/157	---	---	ND	---	1.00
158		---	---	ND	---	0.502
159		---	---	ND	---	0.502
160		---	---	ND	---	0.502
161		---	---	ND	---	0.502
162		---	---	ND	---	0.502
163	129/138/163	42.422	1.28	(3.88)	---	1.51
164		---	---	ND	---	0.502
165		---	---	ND	---	0.502
166	128/166	---	---	ND	---	1.00
167		---	---	ND	---	0.502
168	153/168	41.147	1.22	(2.37)	---	1.00
169		---	---	ND	---	0.502
170		49.313	1.05	0.730	---	0.502
171	171/173	---	---	ND	---	1.00
172		---	---	ND	---	0.502
173	171/173	---	---	ND	---	1.00
174		44.635	1.12	0.719	---	0.502
175		---	---	ND	---	0.502
176		---	---	ND	---	0.502
177		---	---	ND	---	0.502
178		---	---	ND	---	0.502
179		---	---	ND	---	0.502
180	180/193	48.056	1.04	1.43	---	1.00
181		---	---	ND	---	0.502
182		---	---	ND	---	0.502
183	183/185	---	---	ND	---	1.00
184		---	---	ND	---	0.502
185	183/185	---	---	ND	---	1.00
186		---	---	ND	---	0.502
187		43.797	1.10	0.768	---	0.502
188		---	---	ND	---	0.502
189		---	---	ND	---	0.502
190		---	---	ND	---	0.502
191		---	---	ND	---	0.502
192		---	---	ND	---	0.502

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

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

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PSJ0769-03;F0096058
Lab Sample ID	10115378003
Filename	P91118A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	48.056	1.04	(1.43)	---	1.00
194		---	---	ND	---	0.754
195		---	---	ND	---	0.754
196		---	---	ND	---	0.754
197	197/200	---	---	ND	---	1.51
198	198/199	---	---	ND	---	1.51
199	198/199	---	---	ND	---	1.51
200	197/200	---	---	ND	---	1.51
201		---	---	ND	---	0.754
202		---	---	ND	---	0.754
203		---	---	ND	---	0.754
204		---	---	ND	---	0.754
205		---	---	ND	---	0.754
206		---	---	ND	---	0.754
207		---	---	ND	---	0.754
208		---	---	ND	---	0.754
209		---	---	ND	---	0.754

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PSJ0769-03;F0096058
Lab Sample ID	10115378003
Filename	P91118A_08

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	0.268
Total Trichloro Biphenyls	2.91
Total Tetrachloro Biphenyls	2.14
Total Pentachloro Biphenyls	11.6
Total Hexachloro Biphenyls	10.7
Total Heptachloro Biphenyls	3.65
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	31.2

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-22471		
Filename	P91115A_06		
Injected By	BAL	Matrix	Water
Total Amount Extracted	916 mL	Extracted	11/13/2009 18:20
ICAL ID	P91115A02	Analyzed	11/15/2009 22:19
CCal Filename(s)	P91115A_01	Dilution	5

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.144	3.14	2.0	1.08	54
13C-4-MoCB	3	12.571	2.94	2.0	1.18	59
13C-2,2'-DiCB	4	12.918	1.65	2.0	1.14	57
13C-4,4'-DiCB	15	21.065	1.58	2.0	1.20	60
13C-2,2',6-TrCB	19	17.339	1.01	2.0	1.26	63
13C-3,4,4'-TrCB	37	29.389	0.92	2.0	1.15	58
13C-2,2',6,6'-TeCB	54	21.357	0.80	2.0	1.19	60
13C-3,4,4',5-TeCB	81	36.666	0.79	2.0	1.43	71
13C-3,3',4,4'-TeCB	77	37.253	0.82	2.0	1.46	73
13C-2,2',4,6,6'-PeCB	104	27.930	1.63	2.0	1.41	71
13C-2,3,3',4,4'-PeCB	105	40.825	1.64	2.0	1.46	73
13C-2,3,4,4',5-PeCB	114	40.154	1.60	2.0	1.46	73
13C-2,3',4,4',5-PeCB	118	39.634	1.58	2.0	1.50	75
13C-2,3',4,4',5'-PeCB	123	39.282	1.52	2.0	1.44	72
13C-3,3',4,4',5-PeCB	126	43.994	1.62	2.0	1.40	70
13C-2,2',4,4',6,6'-HxCB	155	34.168	1.23	2.0	1.62	81
13C-HxCB (156/157)	156/157	47.046	1.26	4.0	2.96	74
13C-2,3',4,4',5,5'-HxCB	167	45.855	1.29	2.0	1.47	73
13C-3,3',4,4',5,5'-HxCB	169	50.349	1.26	2.0	1.35	68
13C-2,2',3,4',5,6,6'-HpCB	188	40.121	1.06	2.0	1.90	95
13C-2,3,3',4,4',5,5'-HpCB	189	52.936	1.02	2.0	1.36	68
13C-2,2',3,3',5,5',6,6'-OcCB	202	45.554	0.90	2.0	1.88	94
13C-2,3,3',4,4',5,5',6-OcCB	205	55.889	0.92	2.0	1.65	83
13C-2,2',3,3',4,4',5,5',6-NoCB	206	58.281	0.79	2.0	1.71	86
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	52.354	0.81	2.0	1.87	93
13C--DeCB	209	60.803	0.73	2.0	1.67	84
Cleanup Standards						
13C-2,4,4'-TrCB	28	24.761	1.00	2.0	1.35	68
13C-2,3,3',5,5'-PeCB	111	37.253	1.64	2.0	1.72	86
13C-2,2',3,3',5,5',6-HpCB	178	43.223	1.05	2.0	1.80	90
Recovery Standards						
13C-2,5-DiCB	9	15.829	1.61	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	26.874	0.80	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	34.403	1.66	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	42.770	1.28	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	55.307	0.86	2.0	NA	NA

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REPORT OF LABORATORY ANALYSIS

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-22471
Filename P91115A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.273
2		---	---	ND	---	0.273
3		---	---	ND	---	0.273
4		---	---	ND	---	0.273
5		---	---	ND	---	0.273
6		---	---	ND	---	0.273
7		---	---	ND	---	0.273
8		---	---	ND	---	0.273
9		---	---	ND	---	0.273
10		---	---	ND	---	0.273
11		---	---	ND	---	1.64
12	12/13	---	---	ND	---	0.546
13	12/13	---	---	ND	---	0.546
14		---	---	ND	---	0.273
15		---	---	ND	---	0.273
16		---	---	ND	---	0.273
17		---	---	ND	---	0.273
18	18/30	---	---	ND	---	0.546
19		---	---	ND	---	0.273
20	20/28	---	---	ND	---	0.546
21	21/33	---	---	ND	---	0.546
22		---	---	ND	---	0.273
23		---	---	ND	---	0.273
24		---	---	ND	---	0.273
25		---	---	ND	---	0.273
26	26/29	---	---	ND	---	0.546
27		---	---	ND	---	0.273
28	20/28	---	---	ND	---	0.546
29	26/29	---	---	ND	---	0.546
30	18/30	---	---	ND	---	0.546
31		---	---	ND	---	0.273
32		---	---	ND	---	0.273
33	21/33	---	---	ND	---	0.546
34		---	---	ND	---	0.273
35		---	---	ND	---	0.273
36		---	---	ND	---	0.273
37		---	---	ND	---	0.273
38		---	---	ND	---	0.273
39		---	---	ND	---	0.273
40	40/41/71	---	---	ND	---	1.64
41	40/41/71	---	---	ND	---	1.64
42		---	---	ND	---	0.546
43	43/73	---	---	ND	---	1.09
44	44/47/65	---	---	ND	---	1.64
45	45/51	---	---	ND	---	1.09

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-22471
Filename P91115A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46		---	---	ND	---	0.546
47	44/47/65	---	---	ND	---	1.64
48		---	---	ND	---	0.546
49	49/69	---	---	ND	---	1.09
50	50/53	---	---	ND	---	1.09
51	45/51	---	---	ND	---	1.09
52		---	---	ND	---	0.546
53	50/53	---	---	ND	---	1.09
54		---	---	ND	---	0.546
55		---	---	ND	---	0.546
56		---	---	ND	---	0.546
57		---	---	ND	---	0.546
58		---	---	ND	---	0.546
59	59/62/75	---	---	ND	---	1.64
60		---	---	ND	---	0.546
61	61/70/74/76	---	---	ND	---	2.18
62	59/62/75	---	---	ND	---	1.64
63		---	---	ND	---	0.546
64		---	---	ND	---	0.546
65	44/47/65	---	---	ND	---	1.64
66		---	---	ND	---	0.546
67		---	---	ND	---	0.546
68		---	---	ND	---	0.546
69	49/69	---	---	ND	---	1.09
70	61/70/74/76	---	---	ND	---	2.18
71	40/41/71	---	---	ND	---	1.64
72		---	---	ND	---	0.546
73	43/73	---	---	ND	---	1.09
74	61/70/74/76	---	---	ND	---	2.18
75	59/62/75	---	---	ND	---	1.64
76	61/70/74/76	---	---	ND	---	2.18
77		---	---	ND	---	0.546
78		---	---	ND	---	0.546
79		---	---	ND	---	0.546
80		---	---	ND	---	0.546
81		---	---	ND	---	0.546
82		---	---	ND	---	0.546
83		---	---	ND	---	0.546
84		---	---	ND	---	0.546
85	85/116/117	---	---	ND	---	1.64
86	86/87/97/108/119/125	---	---	ND	---	3.28
87	86/87/97/108/119/125	---	---	ND	---	3.28
88	88/91	---	---	ND	---	1.09
89		---	---	ND	---	0.546
90	90/101/113	---	---	ND	---	1.64

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-22471
Filename P91115A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91	---	---	ND	---	1.09
92		---	---	ND	---	0.546
93	93/98/100/102	---	---	ND	---	2.18
94		---	---	ND	---	0.546
95		---	---	ND	---	0.546
96		---	---	ND	---	0.546
97	86/87/97/108/119/125	---	---	ND	---	3.28
98	93/98/100/102	---	---	ND	---	2.18
99		---	---	ND	---	0.546
100	93/98/100/102	---	---	ND	---	2.18
101	90/101/113	---	---	ND	---	1.64
102	93/98/100/102	---	---	ND	---	2.18
103		---	---	ND	---	0.546
104		---	---	ND	---	0.546
105		---	---	ND	---	0.546
106		---	---	ND	---	0.546
107	107/124	---	---	ND	---	1.09
108	86/87/97/108/119/125	---	---	ND	---	3.28
109		---	---	ND	---	0.546
110	110/115	---	---	ND	---	1.09
111		---	---	ND	---	0.546
112		---	---	ND	---	0.546
113	90/101/113	---	---	ND	---	1.64
114		---	---	ND	---	0.546
115	110/115	---	---	ND	---	1.09
116	85/116/117	---	---	ND	---	1.64
117	85/116/117	---	---	ND	---	1.64
118		---	---	ND	---	0.546
119	86/87/97/108/119/125	---	---	ND	---	3.28
120		---	---	ND	---	0.546
121		---	---	ND	---	0.546
122		---	---	ND	---	0.546
123		---	---	ND	---	0.546
124	107/124	---	---	ND	---	1.09
125	86/87/97/108/119/125	---	---	ND	---	3.28
126		---	---	ND	---	0.546
127		---	---	ND	---	0.546
128	128/166	---	---	ND	---	1.09
129	129/138/163	---	---	ND	---	1.64
130		---	---	ND	---	0.546
131		---	---	ND	---	0.546
132		---	---	ND	---	0.546
133		---	---	ND	---	0.546
134	134/143	---	---	ND	---	1.09
135	135/151	---	---	ND	---	1.09

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Lab Sample ID BLANK-22471
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136		---	---	ND	---	0.546
137		---	---	ND	---	0.546
138	129/138/163	---	---	ND	---	1.64
139	139/140	---	---	ND	---	1.09
140	139/140	---	---	ND	---	1.09
141		---	---	ND	---	0.546
142		---	---	ND	---	0.546
143	134/143	---	---	ND	---	1.09
144		---	---	ND	---	0.546
145		---	---	ND	---	0.546
146		---	---	ND	---	0.546
147	147/149	---	---	ND	---	1.09
148		---	---	ND	---	0.546
149	147/149	---	---	ND	---	1.09
150		---	---	ND	---	0.546
151	135/151	---	---	ND	---	1.09
152		---	---	ND	---	0.546
153	153/168	---	---	ND	---	1.09
154		---	---	ND	---	0.546
155		---	---	ND	---	0.546
156	156/157	---	---	ND	---	1.09
157	156/157	---	---	ND	---	1.09
158		---	---	ND	---	0.546
159		---	---	ND	---	0.546
160		---	---	ND	---	0.546
161		---	---	ND	---	0.546
162		---	---	ND	---	0.546
163	129/138/163	---	---	ND	---	1.64
164		---	---	ND	---	0.546
165		---	---	ND	---	0.546
166	128/166	---	---	ND	---	1.09
167		---	---	ND	---	0.546
168	153/168	---	---	ND	---	1.09
169		---	---	ND	---	0.546
170		---	---	ND	---	0.546
171	171/173	---	---	ND	---	1.09
172		---	---	ND	---	0.546
173	171/173	---	---	ND	---	1.09
174		---	---	ND	---	0.546
175		---	---	ND	---	0.546
176		---	---	ND	---	0.546
177		---	---	ND	---	0.546
178		---	---	ND	---	0.546
179		---	---	ND	---	0.546
180	180/193	---	---	ND	---	1.09

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Blank Analysis Results

Lab Sample ID BLANK-22471
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IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181		---	---	ND	---	0.546
182		---	---	ND	---	0.546
183	183/185	---	---	ND	---	1.09
184		---	---	ND	---	0.546
185	183/185	---	---	ND	---	1.09
186		---	---	ND	---	0.546
187		---	---	ND	---	0.546
188		---	---	ND	---	0.546
189		---	---	ND	---	0.546
190		---	---	ND	---	0.546
191		---	---	ND	---	0.546
192		---	---	ND	---	0.546
193	180/193	---	---	ND	---	1.09
194		---	---	ND	---	0.819
195		---	---	ND	---	0.819
196		---	---	ND	---	0.819
197	197/200	---	---	ND	---	1.64
198	198/199	---	---	ND	---	1.64
199	198/199	---	---	ND	---	1.64
200	197/200	---	---	ND	---	1.64
201		---	---	ND	---	0.819
202		---	---	ND	---	0.819
203		---	---	ND	---	0.819
204		---	---	ND	---	0.819
205		---	---	ND	---	0.819
206		---	---	ND	---	0.819
207		---	---	ND	---	0.819
208		---	---	ND	---	0.819
209		---	---	ND	---	0.819

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Client Sample ID
Lab Sample ID BLANK-22471
Filename P91115A_06

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

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-22472		
Filename	P91115A_03	Matrix	Water
Total Amount Extracted	945 mL	Dilution	5
ICAL ID	P91115A02	Extracted	11/13/2009 18:20
CCal Filename(s)	P91115A_01	Analyzed	11/15/2009 19:05
Method Blank ID	BLANK-22471	Injected By	BAL

	Native Analytes			Labeled Analytes		
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**
1	1.0	0.795	80	2.0	1.05	52
3	1.0	0.745	75	2.0	1.14	57
4	1.0	1.05	105	2.0	1.09	54
15	1.0	0.737	74	2.0	1.16	58
19	1.0	1.00	100	2.0	1.19	60
37	1.0	0.761	76	2.0	1.14	57
54	1.0	0.998	100	2.0	1.13	56
81	1.0	0.792	79	2.0	1.51	76
77	1.0	0.799	80	2.0	1.57	79
104	1.0	1.00	100	2.0	1.31	65
105	1.0	0.819	82	2.0	1.49	75
114	1.0	0.789	79	2.0	1.51	75
118	1.0	0.799	80	2.0	1.52	76
123	1.0	0.855	85	2.0	1.46	73
126	1.0	0.771	77	2.0	1.51	76
155	1.0	1.03	103	2.0	1.53	76
156/157	2.0	1.66	83	4.0	3.03	76
167	1.0	0.801	80	2.0	1.50	75
169	1.0	0.824	82	2.0	1.51	76
188	1.0	1.02	102	2.0	1.69	85
189	1.0	0.843	84	2.0	1.35	68
202	1.0	0.965	97	2.0	1.74	87
205	1.0	1.07	107	2.0	1.67	83
206	1.0	1.01	101	2.0	1.71	86
208	1.0	0.979	98	2.0	1.73	86
209	1.0	1.06	106	2.0	1.70	85

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-22473		
Filename	P91115A_04	Matrix	Water
Total Amount Extracted	949 mL	Dilution	5
ICAL ID	P91115A02	Extracted	11/13/2009 18:20
CCal Filename(s)	P91115A_01	Analyzed	11/15/2009 20:08
Method Blank ID	BLANK-22471	Injected By	BAL

	Native Analytes			Labeled Analytes		
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**
1	1.0	0.876	88	2.0	1.06	53
3	1.0	0.824	82	2.0	1.16	58
4	1.0	1.03	103	2.0	1.11	56
15	1.0	0.755	75	2.0	1.24	62
19	1.0	0.995	100	2.0	1.26	63
37	1.0	0.776	78	2.0	1.21	61
54	1.0	0.950	95	2.0	1.24	62
81	1.0	0.781	78	2.0	1.47	73
77	1.0	0.775	78	2.0	1.54	77
104	1.0	1.03	103	2.0	1.35	68
105	1.0	0.805	81	2.0	1.44	72
114	1.0	0.744	74	2.0	1.47	73
118	1.0	0.794	79	2.0	1.48	74
123	1.0	0.796	80	2.0	1.41	71
126	1.0	0.796	80	2.0	1.38	69
155	1.0	1.02	102	2.0	1.55	78
156/157	2.0	1.62	81	4.0	2.90	72
167	1.0	0.774	77	2.0	1.48	74
169	1.0	0.816	82	2.0	1.38	69
188	1.0	1.04	104	2.0	1.74	87
189	1.0	0.813	81	2.0	1.40	70
202	1.0	1.04	104	2.0	1.80	90
205	1.0	1.05	105	2.0	1.58	79
206	1.0	0.953	95	2.0	1.69	85
208	1.0	0.982	98	2.0	1.77	88
209	1.0	0.977	98	2.0	1.61	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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A

Spike Recovery Relative Percent Difference (RPD) Results

Client	Test America-Portland		
Spike 1 ID	LCS-22472	Spike 2 ID	LCSD-22473
Spike 1 Filename	P91115A_03	Spike 2 Filename	P91115A_04

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	80	88	9.5
4-MoCB	3	75	82	8.9
2,2'-DiCB	4	105	103	1.9
4,4'-DiCB	15	74	75	1.3
2,2',6-TrCB	19	100	100	0.0
3,4,4'-TrCB	37	76	78	2.6
2,2',6,6'-TeCB	54	100	95	5.1
3,3',4,4'-TeCB	77	80	78	2.5
3,4,4',5-TeCB	81	79	78	1.3
2,2',4,6,6'-PeCB	104	100	103	3.0
2,3,3',4,4'-PeCB	105	82	81	1.2
2,3,4,4',5-PeCB	114	79	74	6.5
2,3',4,4',5-PeCB	118	80	79	1.3
2,3',4,4',5'-PeCB	123	85	80	6.1
3,3',4,4',5-PeCB	126	77	80	3.8
2,2',4,4',6,6'-HxCB	155	103	102	1.0
(156/157)	156/157	83	81	2.4
2,3',4,4',5,5'-HxCB	167	80	77	3.8
3,3',4,4',5,5'-HxCB	169	82	82	0.0
2,2',3,4',5,6,6'-HpCB	188	102	104	1.9
2,3,3',4,4',5,5'-HpCB	189	84	81	3.6
2,2',3,3',5,5',6,6'-OcCB	202	97	104	7.0
2,3,3',4,4',5,5',6-OcCB	205	107	105	1.9
2,2',3,3',4,4',5,5',6-NoCB	206	101	95	6.1
2,2',3,3',4,5,5',6,6'-NoCB	208	98	98	0.0
Decachlorobiphenyl	209	106	98	7.8

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Event 2: January 4, 2010

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

Laboratory Data QA/QC Review
Upland Source Control Investigation
City Outfall Basin 19A

To: File

From: Andrew Davidson, GSI Water Solutions, Inc.

Date: February 23, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses conducted by the City of Portland (City) in January 2010. One stormwater sample (FO105002), one field duplicate (FO105004), and one field decontamination blank (FO105003) were collected in Outfall Basin 19A on January 4, 2010 and submitted for analysis.

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

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

The WPCL summary reports and the subcontracted laboratory's data reports are attached for all analyses associated with these source control program samples. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

- Chain-of-custody – for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within accuracy 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 from the QA/QC review of the available elements in the laboratory reports are presented below.

Chain-of-Custody

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

Analysis Holding Times

The samples were extracted and analyzed within the acceptable holding times for all analyses.

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analysis of PCBs, PAHs and phthalates, and organochlorine pesticides. No analytes were detected in the method blanks. CAS notes that the chromatogram for the method blank in the pesticide analysis indicated the presence of non-target background constituents. As additional QA/QC elements were not met during the pesticide analysis (as discussed in following sections), no data are reported at concentrations less than the method reporting limits (MRL).

Surrogate Recoveries

Surrogate recoveries were completed during the analyses of pesticides, PAHs and phthalates. Surrogate recoveries in the method blank for the PAH and phthalate analysis were below

acceptance limits and there was no additional sample available to re-extract. Accordingly, these method blank data are rejected. However, surrogate values were within acceptance limits for the field decontamination blank. Only one analyte, naphthalene, was detected in the field decontamination blank indicating that, with the exception of naphthalene, contamination was not potentially introduced during field sampling or analytical procedures. Because the concentration in the field sample FO105002 is less than five times the concentration in the field decontamination blank FO105003, the naphthalene concentration is considered biased high or a false positive. Accordingly, the total PAH concentration is considered biased only slightly high.

Internal Standard Recoveries

Isotopically-labeled internal standards were processed during the subcontracted laboratory analysis of PCB congeners. Labeled internal standard recoveries for the three samples and method blank were within method-specified target ranges with nine exceptions. These exceptions are flagged "R" in the subcontracted laboratory report. Affected congeners were not detected in these samples.

Interfering background components impacted the measurement of one or more isotopically-labeled internal standard for field sample FO0105002 and field decontamination blank FO0105003 during PCB analysis; affected congeners were not detected in these samples.

Matrix Spike/Matrix Spike Duplicates

MS/MSD samples were processed during the laboratory analysis of PAHs and phthalates. All MS/MSD recoveries and relative percent differences were within acceptance limits.

Laboratory Control Sample / Duplicate Laboratory Control Samples

LC samples were processed during the analyses of organochlorine pesticides, PAHs, phthalates, and PCBs. DLC samples were processed during the analysis of PCB congeners and pesticides. One mono-chlorinated PCB congener was not recovered in the LC and DLC samples during PCB analysis. All other spiked native PCB congeners were within acceptance limits. Interference from background components affected the determination of some isotopically-labeled and native PCB congeners in the LC sample. These results were flagged to indicate matrix interference. Pace reports that these results indicate generally high levels of accuracy and precision for these samples.

The upper control criteria were exceeded for three compounds in the LC sample processed during the pesticide analysis, but the analytes in question were not detected in the associated field samples. As such, CAS reports that the sample data were not significantly affected and no further corrective action was appropriate.

Other

Laboratory reporting limits were elevated for all organochlorine pesticides in FO0105002 and for several analytes in FO0105003 due to matrix interference (presence of non-target background components). CAS reports that FO0105002 required cleanup of the extract and dilution due to

the presence of background components. The results are flagged in the CAS laboratory report to indicate matrix interference.

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: 1-3-10 MJS
Page: 1 of 1
Collected By: MJS, LAP

Project Name: PORTLAND HARBOR STORMWATER SAMP
File Number: 1020.005 **Matrix:** STORMWTR

Requested Analyses

FY 2009-10 Stormwater Grab Chain-of-custody

(*) w/ 1-Methyl & 2-Methyl Naphthalene included – * per PHA 1/4/10

0110 # 1/4/09

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General: TSS	Organics: PCB Congeners (All 209)	Organics: PAH + Phthalates (TA) (*)	Organics: Pesticides (CAS)	Metals: Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn)	Metals: Total Mercury	Field: Temperature (Deg C)	Field: Conductivity (umhos/cm)	Field: pH (pH units)
FO105002	SW-19A-AAP905 (MMYY) NW KITTRIDGE & FRONT	19A_SW1	1/4/10	0956	G	●	●	●	●	●	●	7.3	57	6.5
FO105003	FIELD DECON BLANK	FDB	1/4/10	0943	G	●	●	●	●	●	●			
FO105004	DUPLICATE	DUP	1/4/10		G	●	●							

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature: Matt Sullivan Time: 1113	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Matt Sullivan Date: 1/4/10	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Received By: 1.	**Received By:** 2.	**Received By:** 3.	**Received By:** 4.
Signature: Time: 1113	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Mackenzie Zirk Date: 1/4/10	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:

S:\EID\1000\1020.005 - Portland Harbor Stormwater Samp\Sampdoc\FY 2009_2010 Stormwater Sampling\Portland Harbor Stormwater OF 19A Grab COC FY09-10.xls

City of Portland
Water Pollution Control Laboratory

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

LABORATORY ANALYSIS REPORT

Sample ID: **FO105002** **Sample Collected:** 01/04/10 09:56 **Sample Received:** 01/04/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR STORMWATER SAMP	**Report Page:**	Page 1 of 3
Address/Location:	SW-19A-AAP905-0110 NW KITTRIDGE & FRONT	**System ID:**	AO00064
Sample Point Code:	19A_SW1	**EID File # :**	1020.005
Sample Type:	GRAB	**LocCode:**	PORTHASW
Sample Matrix:	STORMWTR	**Collected By:**	MJS/LAP

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For PCB congener analysis, low recoveries for the lightest congener surrogates indicate that results for the mono- and dichlorinated congeners could be low estimates. LAB: Reporting limits are raised for Pesticide analysis due to interfering non-target background components.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	57	µmhos/cm	1	SM 2510 B	01/04/10
pH (FIELD)	6.5	pH Units	0.1	SM 4500-H B	01/04/10
TEMPERATURE	7.3	Deg. C	0.1	SM 2550 B	01/04/10
GENERAL					
TOTAL SUSPENDED SOLIDS	204	mg/L	2	SM 2540 D	01/04/10
METALS					
MERCURY	0.056	µg/L	0.002	WPCLSOP M-10.02	01/09/10
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	1.36	µg/L	0.1	EPA 200.8	01/06/10
CADMIUM	0.72	µg/L	0.1	EPA 200.8	01/06/10
CHROMIUM	12.3	µg/L	0.4	EPA 200.8	01/06/10
COPPER	49.5	µg/L	0.2	EPA 200.8	01/06/10
LEAD	28.9	µg/L	0.1	EPA 200.8	01/06/10
NICKEL	8.01	µg/L	0.2	EPA 200.8	01/06/10
SILVER	0.15	µg/L	0.1	EPA 200.8	01/06/10
ZINC	270	µg/L	0.5	EPA 200.8	01/06/10
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<7.8	ng/L	7.8	EPA 8081	01/11/10
4,4'-DDE	<5.0	ng/L	5.0	EPA 8081	01/11/10
4,4'-DDT	<79	ng/L	79	EPA 8081	01/11/10
Aldrin	<5.0	ng/L	5.0	EPA 8081	01/11/10
Alpha-BHC	<5.0	ng/L	5.0	EPA 8081	01/11/10
Alpha-Chlordane	<5.0	ng/L	5.0	EPA 8081	01/11/10
Beta-BHC	<5.0	ng/L	5.0	EPA 8081	01/11/10
Delta-BHC	<5.0	ng/L	5.0	EPA 8081	01/11/10
Dieldrin	<5.0	ng/L	5.0	EPA 8081	01/11/10
Endosulfan I	<5.0	ng/L	5.0	EPA 8081	01/11/10
Endosulfan II	<17	ng/L	17	EPA 8081	01/11/10
Endosulfan Sulfate	<26	ng/L	26	EPA 8081	01/11/10
Endrin	<5.0	ng/L	5.0	EPA 8081	01/11/10

Report Date: 02/18/10 **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: **FO105002** **Sample Collected:** 01/04/10 09:56 **Sample Received:** 01/04/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR STORMWATER SAMP	**Report Page:**	Page 2 of 3
Address/Location:	SW-19A-AAP905-0110		
	NW KITTRIDGE & FRONT	**System ID:**	AO00064
Sample Point Code:	19A_SW1	**EID File # :**	1020.005
Sample Type:	GRAB	**LocCode:**	PORTHASW
Sample Matrix:	STORMWTR	**Collected By:**	MJS/LAP

Comments:

QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For PCB congener analysis, low recoveries for the lightest congener surrogates indicate that results for the mono- and dichlorinated congeners could be low estimates. LAB: Reporting limits are raised for Pesticide analysis due to interfering non-target background components.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Endrin Aldehyde	<8.0	ng/L	8.0	EPA 8081	01/11/10
Endrin Ketone	<5.0	ng/L	5.0	EPA 8081	01/11/10
Gamma-BHC(Lindane)	<12	ng/L	12	EPA 8081	01/11/10
Gamma-Chlordane	<5.0	ng/L	5.0	EPA 8081	01/11/10
Heptachlor	<5.0	ng/L	5.0	EPA 8081	01/11/10
Heptachlor Epoxide	<5.0	ng/L	5.0	EPA 8081	01/11/10
Methoxychlor	<6.1	ng/L	6.1	EPA 8081	01/11/10
Toxaphene	<1100	ng/L	1100	EPA 8081	01/11/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	01/11/10
POLYNUCLEAR AROMATICS & PHTHALATES - TA					
1-Methylnaphthalene	0.0566	µg/L	0.020	EPA 8270M-SIM	01/07/10
2-Methylnaphthalene	0.0864	µg/L	0.020	EPA 8270M-SIM	01/07/10
Acenaphthene	0.0212	µg/L	0.020	EPA 8270M-SIM	01/07/10
Acenaphthylene	<0.020	µg/L	0.020	EPA 8270M-SIM	01/07/10
Anthracene	0.0309	µg/L	0.020	EPA 8270M-SIM	01/07/10
Benzo(a)anthracene	0.0223	µg/L	0.010	EPA 8270M-SIM	01/07/10
Benzo(a)pyrene	0.0189	µg/L	0.010	EPA 8270M-SIM	01/07/10
Benzo(b)fluoranthene	0.0223	µg/L	0.010	EPA 8270M-SIM	01/07/10
Benzo(ghi)perylene	0.0286	µg/L	0.020	EPA 8270M-SIM	01/07/10
Benzo(k)fluoranthene	0.0165	µg/L	0.010	EPA 8270M-SIM	01/07/10
Bis(2-ethylhexyl) phthalate	1.38	µg/L	1.00	EPA 8270M-SIM	01/07/10
Butyl benzyl phthalate	<1.00	µg/L	1.00	EPA 8270M-SIM	01/07/10
Chrysene	0.0597	µg/L	0.010	EPA 8270M-SIM	01/07/10
Dibenzo(a,h)anthracene	<0.010	µg/L	0.010	EPA 8270M-SIM	01/07/10
Diethyl phthalate	<1.00	µg/L	1.00	EPA 8270M-SIM	01/07/10
Dimethyl phthalate	2.64	µg/L	1.00	EPA 8270M-SIM	01/07/10
Di-n-butyl phthalate	<1.00	µg/L	1.00	EPA 8270M-SIM	01/07/10
Di-n-octyl phthalate	<1.00	µg/L	1.00	EPA 8270M-SIM	01/07/10
Fluoranthene	0.130	µg/L	0.020	EPA 8270M-SIM	01/07/10
Fluorene	0.0421	µg/L	0.020	EPA 8270M-SIM	01/07/10
Indeno(1,2,3-cd)pyrene	0.0138	µg/L	0.010	EPA 8270M-SIM	01/07/10
Naphthalene	0.0722	µg/L	0.020	EPA 8270M-SIM	01/07/10

Report Date: 02/18/10 **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: **FO105002**
Sample Collected: 01/04/10 09:56
Sample Received: 01/04/10
Sample Status: COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR STORMWATER SAMP	**Report Page:**	Page 3 of 3
Address/Location:	SW-19A-AAP905-0110		
	NW KITTRIDGE & FRONT	**System ID:**	AO00064
Sample Point Code:	19A_SW1	**EID File # :**	1020.005
Sample Type:	GRAB	**LocCode:**	PORTHASW
Sample Matrix:	STORMWTR	**Collected By:**	MJS/LAP

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For PCB congener analysis, low recoveries for the lightest congener surrogates indicate that results for the mono- and dichlorinated congeners could be low estimates. LAB: Reporting limits are raised for Pesticide analysis due to interfering non-target background components.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Phenanthrene	0.173	µg/L	0.020	EPA 8270M-SIM	01/07/10
Pyrene	0.154	µg/L	0.020	EPA 8270M-SIM	01/07/10

End of Report for Sample ID: FO105002

Report Date: 02/18/10 **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: FO105003 **Sample Collected:** 01/04/10 09:43 **Sample Received:** 01/04/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: FIELD DECON BLANK

Report Page: Page 1 of 2

Sample Point Code: FDBLANK
Sample Type: GRAB
Sample Matrix: DIWTR

System ID: AO00065
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS/LAP

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%. For PCB congener analysis, low recoveries for the lightest congener surrogates indicate that results for the mono- and dichlorinated congeners could be low estimates.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SUSPENDED SOLIDS	<2	mg/L	2	SM 2540 D	01/04/10
METALS					
MERCURY	<0.0020	µg/L	0.002	WPCLSOP M-10.02	01/09/10
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	<0.10	µg/L	0.1	EPA 200.8	01/08/10
CADMIUM	<0.10	µg/L	0.1	EPA 200.8	01/08/10
CHROMIUM	<0.40	µg/L	0.4	EPA 200.8	01/08/10
COPPER	<0.20	µg/L	0.2	EPA 200.8	01/08/10
LEAD	<0.10	µg/L	0.1	EPA 200.8	01/08/10
NICKEL	<0.20	µg/L	0.2	EPA 200.8	01/08/10
SILVER	<0.10	µg/L	0.1	EPA 200.8	01/08/10
ZINC	0.63	µg/L	0.5	EPA 200.8	01/08/10
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<0.49	ng/L	0.49	EPA 8081	01/11/10
4,4'-DDE	<0.49	ng/L	0.49	EPA 8081	01/11/10
4,4'-DDT	<0.49	ng/L	0.49	EPA 8081	01/11/10
Aldrin	<0.49	ng/L	0.49	EPA 8081	01/11/10
Alpha-BHC	<0.49	ng/L	0.49	EPA 8081	01/11/10
Alpha-Chlordane	<0.49	ng/L	0.49	EPA 8081	01/11/10
Beta-BHC	<0.49	ng/L	0.49	EPA 8081	01/11/10
Delta-BHC	<0.49	ng/L	0.49	EPA 8081	01/11/10
Dieldrin	<0.49	ng/L	0.49	EPA 8081	01/11/10
Endosulfan I	<0.49	ng/L	0.49	EPA 8081	01/11/10
Endosulfan II	EST 0.95	ng/L	0.49	EPA 8081	01/11/10
Endosulfan Sulfate	<0.49	ng/L	0.49	EPA 8081	01/11/10
Endrin	0.58	ng/L	0.49	EPA 8081	01/11/10
Endrin Aldehyde	<0.49	ng/L	0.49	EPA 8081	01/11/10
Endrin Ketone	<0.49	ng/L	0.49	EPA 8081	01/11/10
Gamma-BHC(Lindane)	<0.49	ng/L	0.49	EPA 8081	01/11/10
Gamma-Chlordane	<0.49	ng/L	0.49	EPA 8081	01/11/10
Heptachlor	<0.49	ng/L	0.49	EPA 8081	01/11/10

Report Date: 02/18/10 **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: FO105003 **Sample Collected:** 01/04/10 09:43 **Sample Received:** 01/04/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: FIELD DECON BLANK

Report Page: Page 2 of 2

Sample Point Code: FDBLANK
Sample Type: GRAB
Sample Matrix: DIWTR

System ID: AO00065
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS/LAP

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%. For PCB congener analysis, low recoveries for the lightest congener surrogates indicate that results for the mono- and dichlorinated congeners could be low estimates.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Heptachlor Epoxide	<0.49	ng/L	0.49	EPA 8081	01/11/10
Methoxychlor	<0.49	ng/L	0.49	EPA 8081	01/11/10
Toxaphene	<58	ng/L	58	EPA 8081	01/11/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	01/11/10
POLYNUCLEAR AROMATICS & PHTHALATES - TA					
1-Methylnaphthalene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
2-Methylnaphthalene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
Acenaphthene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
Acenaphthylene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
Anthracene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
Benzo(a)anthracene	<0.00952	µg/L	0.00952	EPA 8270M-SIM	01/07/10
Benzo(a)pyrene	<0.00952	µg/L	0.00952	EPA 8270M-SIM	01/07/10
Benzo(b)fluoranthene	<0.00952	µg/L	0.00952	EPA 8270M-SIM	01/07/10
Benzo(ghi)perylene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
Benzo(k)fluoranthene	<0.00952	µg/L	0.00952	EPA 8270M-SIM	01/07/10
Bis(2-ethylhexyl) phthalate	<0.952	µg/L	0.952	EPA 8270M-SIM	01/07/10
Butyl benzyl phthalate	<0.952	µg/L	0.952	EPA 8270M-SIM	01/07/10
Chrysene	<0.00952	µg/L	0.00952	EPA 8270M-SIM	01/07/10
Dibenzo(a,h)anthracene	<0.00952	µg/L	0.00952	EPA 8270M-SIM	01/07/10
Diethyl phthalate	<0.952	µg/L	0.952	EPA 8270M-SIM	01/07/10
Dimethyl phthalate	<0.952	µg/L	0.952	EPA 8270M-SIM	01/07/10
Di-n-butyl phthalate	<0.952	µg/L	0.952	EPA 8270M-SIM	01/07/10
Di-n-octyl phthalate	<0.952	µg/L	0.952	EPA 8270M-SIM	01/07/10
Fluoranthene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
Fluorene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
Indeno(1,2,3-cd)pyrene	<0.00952	µg/L	0.00952	EPA 8270M-SIM	01/07/10
Naphthalene	0.0312	µg/L	0.019	EPA 8270M-SIM	01/07/10
Phenanthrene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10
Pyrene	<0.019	µg/L	0.019	EPA 8270M-SIM	01/07/10

End of Report for Sample ID: FO105003

Report Date: 02/18/10 **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: **FO105004**
Sample Collected: 01/04/10 00:00
Sample Received: 01/04/10
Sample Status: COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: FIELD DUPLICATE
Report Page: Page 1 of 1

Sample Point Code: DUP
Sample Type: GRAB
Sample Matrix: STORMWTR
System ID: AO00066
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS/LAP

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For PCB congener analysis, low recoveries for the lightest congener surrogates indicate that results for the mono- and dichlorinated congeners could be low estimates.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SUSPENDED SOLIDS	204	mg/L	2	SM 2540 D	01/04/10
OUTSIDE ANALYSIS					
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	01/11/10

End of Report for Sample ID: FO105004

Report Date: 02/18/10
Validated By:

Columbia Analytical Services, Inc.
1317 S. 13th Avenue, Kelso, WA 98626 | 360.577.7222 | 360.636.1068 (fax) | www.caslab.com

January 21, 2010 Analytical Report for Service Request No: K1000061

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

RE: Portland Harbor Stormwater Samp.

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on January 05, 2010. For your reference, these analyses have been assigned our service request number K1000061.

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

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

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/lb

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL or LOQ but greater than or equal to the MDL or LOD.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for dilution.
i	The MRL/MDL or LOQ/LOD has been elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL or LOQ but greater than or equal to the MDL or LOD.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for any dilution or
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD has been elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for any dilution or
i	The MRL/MDL or LOQ/LOD has been elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Portland, City of	**Service Request No.:**	K1000061
Project:	Portland Harbor Stormwater Samp.	**Date Received:**	01/05/10
Sample Matrix:	Water		

CASE NARRATIVE

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

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 01/05/10. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A – ULL

Second Source Exceptions:
The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the Initial Calibration Verification (ICV) criteria are met for both columns, the higher of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Methoxychlor in CAL 8946. The ICV results were reported from the acceptable column. The data quality was not affected. No further corrective action was necessary.

Calibration Verification (CCV) Exceptions:
The primary evaluation criterion was exceeded for 4,4'-DDT and Methoxychlor in CCV 0118F004. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the average percent recovery of all analytes in the verification standard. The standard met the alternative evaluation criteria.

Lab Control Sample (LCS) Exceptions:
The upper control criterion was exceeded for gamma-Chlordane, gamma-BHC and Aldrin in LCS KWG1000297-1LCS/2DLCS. The analytes in question were not detected in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

Sample Confirmation Notes:
The confirmation comparison criteria of 40% difference for Endosulfan II was exceeded in sample F0105003. The higher of the two values was reported because no evidence of a matrix interference was observed.

Elevated Detection Limits:
The MDL is elevated for Toxaphene in sample Method Blank KWG1000297-3. The chromatogram indicated the presence of non-target background components, which were apparently introduced as laboratory artifacts. The contamination prevented adequate resolution of the target compounds at the MDL. Note the level of background was relatively low compared to the MDL, so the affect on the results was minimal. The results are flagged to indicate the problem.

Approved by_____ **Date** 01/21/10

The detection limit was elevated for all analytes in sample F0105002. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extract was highly colored, which indicated the need to perform a dilution prior to injection into the instrument. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. A semiquantitative screen was performed prior to final analysis. The results of the screening indicated the need to perform a dilution. The result was flagged to indicate the matrix interference.

The detection limit was elevated, or further elevated, for several analytes in both samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

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

Approved by_____ **Date** 01/21/10

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K1000061
Project:	Portland Harbor Stormwater Samp.	**Date Collected:**	01/04/2010
Sample Matrix:	Water	**Date Received:**	01/05/2010

Organochlorine Pesticides

Sample Name:	F0105002	**Units:**	ng/L
Lab Code:	K1000061-001	**Basis:**	NA
Extraction Method:	EPA 3535	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	5.0	2.1	10	01/11/10	01/18/10	KWG1000297	
beta-BHC	ND	U	5.0	4.1	10	01/11/10	01/18/10	KWG1000297	
gamma-BHC (Lindane)	ND	Ui	12	12	10	01/11/10	01/18/10	KWG1000297	
delta-BHC	ND	U	5.0	1.4	10	01/11/10	01/18/10	KWG1000297	
Heptachlor	ND	U	5.0	1.8	10	01/11/10	01/18/10	KWG1000297	
Aldrin	ND	Ui	5.0	4.5	10	01/11/10	01/18/10	KWG1000297	
Heptachlor Epoxide	ND	U	5.0	2.1	10	01/11/10	01/18/10	KWG1000297	
gamma-Chlordane†	ND	Ui	5.0	5.0	10	01/11/10	01/18/10	KWG1000297	
Endosulfan I	ND	U	5.0	2.5	10	01/11/10	01/18/10	KWG1000297	
alpha-Chlordane	ND	Ui	5.0	5.0	10	01/11/10	01/18/10	KWG1000297	
Dieldrin	ND	U	5.0	3.7	10	01/11/10	01/18/10	KWG1000297	
4,4'-DDE	**4.2**	JPD	5.0	1.9	10	01/11/10	01/18/10	KWG1000297	
Endrin	ND	U	5.0	4.9	10	01/11/10	01/18/10	KWG1000297	
Endosulfan II	ND	Ui	17	17	10	01/11/10	01/18/10	KWG1000297	
4,4'-DDD	ND	Ui	7.8	7.8	10	01/11/10	01/18/10	KWG1000297	
Endrin Aldehyde	ND	Ui	8.0	8.0	10	01/11/10	01/18/10	KWG1000297	
Endosulfan Sulfate	ND	Ui	26	26	10	01/11/10	01/18/10	KWG1000297	
4,4'-DDT	ND	Ui	79	79	10	01/11/10	01/18/10	KWG1000297	
Endrin Ketone	ND	U	5.0	3.2	10	01/11/10	01/18/10	KWG1000297	
Methoxychlor	ND	Ui	6.1	6.1	10	01/11/10	01/18/10	KWG1000297	
Toxaphene	ND	Ui	1100	1100	10	01/11/10	01/18/10	KWG1000297	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	63	20-102	01/18/10	Acceptable
Decachlorobiphenyl	92	35-128	01/18/10	Acceptable

† **Analyte Comments**

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K1000061
Project:	Portland Harbor Stormwater Samp.	**Date Collected:**	01/04/2010
Sample Matrix:	Water	**Date Received:**	01/05/2010

Organochlorine Pesticides

Sample Name:	F0105003	**Units:**	ng/L
Lab Code:	K1000061-002	**Basis:**	NA
Extraction Method:	EPA 3535	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.49	0.21	1	01/11/10	01/18/10	KWG1000297	
beta-BHC	ND	U	0.49	0.41	1	01/11/10	01/18/10	KWG1000297	
gamma-BHC (Lindane)	ND	U	0.49	0.47	1	01/11/10	01/18/10	KWG1000297	
delta-BHC	ND	U	0.49	0.14	1	01/11/10	01/18/10	KWG1000297	
Heptachlor	ND	U	0.49	0.18	1	01/11/10	01/18/10	KWG1000297	
Aldrin	ND	U	0.49	0.11	1	01/11/10	01/18/10	KWG1000297	
Heptachlor Epoxide	ND	U	0.49	0.21	1	01/11/10	01/18/10	KWG1000297	
gamma-Chlordane†	ND	U	0.49	0.31	1	01/11/10	01/18/10	KWG1000297	
Endosulfan I	ND	U	0.49	0.25	1	01/11/10	01/18/10	KWG1000297	
alpha-Chlordane	ND	U	0.49	0.27	1	01/11/10	01/18/10	KWG1000297	
Dieldrin	**0.40**	J	0.49	0.37	1	01/11/10	01/18/10	KWG1000297	
4,4'-DDE	ND	U	0.49	0.19	1	01/11/10	01/18/10	KWG1000297	
Endrin	**0.58**		0.49	0.49	1	01/11/10	01/18/10	KWG1000297	
Endosulfan II	**0.95**	P	0.49	0.35	1	01/11/10	01/18/10	KWG1000297	
4,4'-DDD	ND	U	0.49	0.21	1	01/11/10	01/18/10	KWG1000297	
Endrin Aldehyde	ND	U	0.49	0.21	1	01/11/10	01/18/10	KWG1000297	
Endosulfan Sulfate	ND	U	0.49	0.28	1	01/11/10	01/18/10	KWG1000297	
4,4'-DDT	ND	Ui	0.49	0.18	1	01/11/10	01/18/10	KWG1000297	
Endrin Ketone	ND	U	0.49	0.32	1	01/11/10	01/18/10	KWG1000297	
Methoxychlor	ND	U	0.49	0.28	1	01/11/10	01/18/10	KWG1000297	
Toxaphene	ND	Ui	58	58	1	01/11/10	01/18/10	KWG1000297	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	58	20-102	01/18/10	Acceptable
Decachlorobiphenyl	63	35-128	01/18/10	Acceptable

† Analyte Comments

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Portland, City of
Project: Portland Harbor Stormwater Samp.
Sample Matrix: Water

Service Request: K1000061
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1000297-3

Extraction Method: EPA 3535
Analysis Method: 8081A

Units: ng/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.49	0.21	1	01/11/10	01/18/10	KWG1000297	
beta-BHC	ND	U	0.49	0.41	1	01/11/10	01/18/10	KWG1000297	
gamma-BHC (Lindane)	ND	U	0.49	0.47	1	01/11/10	01/18/10	KWG1000297	
delta-BHC	ND	U	0.49	0.14	1	01/11/10	01/18/10	KWG1000297	
Heptachlor	ND	U	0.49	0.18	1	01/11/10	01/18/10	KWG1000297	
Aldrin	ND	U	0.49	0.11	1	01/11/10	01/18/10	KWG1000297	
Heptachlor Epoxide	ND	U	0.49	0.21	1	01/11/10	01/18/10	KWG1000297	
gamma-Chlordane†	ND	U	0.49	0.31	1	01/11/10	01/18/10	KWG1000297	
Endosulfan I	ND	U	0.49	0.25	1	01/11/10	01/18/10	KWG1000297	
alpha-Chlordane	ND	U	0.49	0.27	1	01/11/10	01/18/10	KWG1000297	
Dieldrin	ND	U	0.49	0.37	1	01/11/10	01/18/10	KWG1000297	
4,4'-DDE	ND	U	0.49	0.19	1	01/11/10	01/18/10	KWG1000297	
Endrin	ND	U	0.49	0.49	1	01/11/10	01/18/10	KWG1000297	
Endosulfan II	ND	U	0.49	0.35	1	01/11/10	01/18/10	KWG1000297	
4,4'-DDD	ND	U	0.49	0.21	1	01/11/10	01/18/10	KWG1000297	
Endrin Aldehyde	ND	U	0.49	0.21	1	01/11/10	01/18/10	KWG1000297	
Endosulfan Sulfate	ND	U	0.49	0.28	1	01/11/10	01/18/10	KWG1000297	
4,4'-DDT	ND	U	0.49	0.17	1	01/11/10	01/18/10	KWG1000297	
Endrin Ketone	ND	U	0.49	0.32	1	01/11/10	01/18/10	KWG1000297	
Methoxychlor	ND	U	0.49	0.28	1	01/11/10	01/18/10	KWG1000297	
Toxaphene	ND	Ui	70	70	1	01/11/10	01/18/10	KWG1000297	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	55	20-102	01/18/10	Acceptable
Decachlorobiphenyl	65	35-128	01/18/10	Acceptable

† **Analyte Comments**

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Portland, City of
Project: Portland Harbor Stormwater Samp.
Sample Matrix: Water

Service Request: K1000061

Surrogate Recovery Summary
Organochlorine Pesticides

Extraction Method: EPA 3535
Analysis Method: 8081A

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2
F0105002	K1000061-001	63 D	92 D
F0105003	K1000061-002	58	63
Method Blank	KWG1000297-3	55	65
Lab Control Sample	KWG1000297-1	54	64
Duplicate Lab Control Sample	KWG1000297-2	50	64

Surrogate Recovery Control Limits (%)

Sur1	= Tetrachloro-m-xylene	20-102
Sur2	= Decachlorobiphenyl	35-128

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

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

Client: Portland, City of
Project: Portland Harbor Stormwater Samp.
Sample Matrix: Water

Service Request: K1000061
Date Extracted: 01/11/2010
Date Analyzed: 01/18/2010

Lab Control Spike/Duplicate Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3535
Analysis Method: 8081A

Units: ng/L
Basis: NA
Level: Low
Extraction Lot: KWG1000297

	Lab Control Sample KWG1000297-1 Lab Control Spike			Duplicate Lab Control Sample KWG1000297-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	11.6	10.0	116	11.3	10.0	113	36-122	2	30
beta-BHC	11.3	10.0	113	11.0	10.0	110	42-125	3	30
gamma-BHC (Lindane)	11.8	10.0	118 *	11.7	10.0	117	44-117	1	30
delta-BHC	11.9	10.0	119	11.9	10.0	119	48-123	0	30
Heptachlor	11.5	10.0	115	11.3	10.0	113	40-115	2	30
Aldrin	10.5	10.0	105 *	10.4	10.0	104 *	10-102	1	30
Heptachlor Epoxide	10.2	10.0	102	10.2	10.0	102	49-109	0	30
gamma-Chlordane	11.5	10.0	115 *	11.1	10.0	111	47-113	4	30
Endosulfan I	11.4	10.0	114	11.2	10.0	112	35-115	2	30
alpha-Chlordane	11.2	10.0	112	11.1	10.0	111	45-115	1	30
Dieldrin	11.3	10.0	113	11.2	10.0	112	50-115	1	30
4,4'-DDE	11.5	10.0	115	11.3	10.0	113	41-116	1	30
Endrin	12.3	10.0	123	12.3	10.0	123	48-126	0	30
Endosulfan II	11.2	10.0	112	11.7	10.0	117	28-128	5	30
4,4'-DDD	11.3	10.0	113	11.7	10.0	117	33-132	4	30
Endrin Aldehyde	10.1	10.0	101	9.92	10.0	99	27-104	1	30
Endosulfan Sulfate	10.9	10.0	109	10.6	10.0	106	38-118	3	30
4,4'-DDT	11.5	10.0	115	11.7	10.0	117	42-143	1	30
Endrin Ketone	10.7	10.0	107	10.5	10.0	105	30-124	3	30
Methoxychlor	12.4	10.0	124	12.2	10.0	122	43-143	2	30

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

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

Columbia Analytical Services INC.
An Employee - Owned Company

CHAIN OF CUSTODY

SR#: K1000061

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE ______ OF ______ COC # ______

PROJECT NAME: Portland Harbor Stormwater Samp
PROJECT NUMBER:
PROJECT MANAGER: Jennifer Shackelford
COMPANY/ADDRESS:
CITY/STATE/ZIP:
E-MAIL ADDRESS:
PHONE #: FAX#:
SAMPLER'S SIGNATURE:

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS		Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐	Fuel Fingerprint (FIQ) ☐ NW-HCID Screen ☐	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐ (8081A circled, "LL" written)	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐					REMARKS
F0105002	1/4/10	0956		W	1								X												
F0105003	1/4/10	0943		W	1								X												

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. # ______
Bill To: ______

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

______ Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:______ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature: [signature]	Signature: [signature]	Signature: [signature]
Date/Time:	Date/Time: 1-5-10 8:35	Date/Time: 1-5-10 1250	Date/Time: 1/5/10 1250
Printed Name:	Printed Name: [signature]	Printed Name: [signature]	Printed Name: [signature]
Firm:	Firm: CAS	Firm: CAS	Firm: CAS

RCOC #1 06/03

PC 125

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

Client / Project: City of Portland Service Request K10 00061

Received: 1-5-10 Opened: 1-5-10 By: DW

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
5.6	5.0	270			

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: No relinquish

Page 1 of _____

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

January 28, 2010

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

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 01/05/10 13:47. The following list is a summary of the Work Orders contained in this report, generated on 01/28/10 09:43.

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

Work Order	Project	ProjectNumber
PTA0070	Portland Harbor	36238

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	01/28/10 09:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO105002	PTA0070-01	Water	01/04/10 09:56	01/05/10 13:47
FO105003	PTA0070-02	Water	01/04/10 09:43	01/05/10 13:47
FO105004	PTA0070-03	Water	01/04/10 00:00	01/05/10 13:47

TestAmerica Portland

Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	01/28/10 09:43

Analytical Case Narrative

TestAmerica - Portland, OR

PTA0070

8270 SIM PDX UIC
The Method Blank in Batch 10A0111 had very low surrogate recoveries. The surrogate recoveries for the BS, MS/MSD and samples PTA0070-01 & 02 are with in control limits. There was no additional sample available to re-extract. Data was flagged and reported.

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	01/28/10 09:43

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTA0070-01 (FO105002)			**Water**			**Sampled: 01/04/10 09:56**				**N1**
1-Methylnaphthalene	EPA 8270m	**0.0566**	*0.0200*	0.0200	ug/l	1x	10A0111	01/07/10 16:50	01/13/10 01:42	
2-Methylnaphthalene	"	**0.0864**	*0.0200*	0.0200	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	"	**1.38**	*0.526*	1.00	"	"	"	"	"	
Butyl benzyl phthalate	"	ND	*0.526*	1.00	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	*0.526*	1.00	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	*0.526*	1.00	"	"	"	"	"	
Diethyl phthalate	"	ND	*0.526*	1.00	"	"	"	"	"	
Dimethyl phthalate	"	**2.64**	*0.526*	1.00	"	"	"	"	"	
Acenaphthene	"	**0.0212**	*0.0200*	0.0200	"	"	"	"	01/13/10 21:01	
Acenaphthylene	"	ND	*0.0200*	0.0200	"	"	"	"	"	
Anthracene	"	**0.0309**	*0.0200*	0.0200	"	"	"	"	"	
Benzo (a) anthracene	"	**0.0223**	*0.0100*	0.0100	"	"	"	"	"	
Benzo (a) pyrene	"	**0.0189**	*0.0100*	0.0100	"	"	"	"	"	
Benzo (b) fluoranthene	"	**0.0223**	*0.0100*	0.0100	"	"	"	"	"	
Benzo (ghi) perylene	"	**0.0286**	*0.0200*	0.0200	"	"	"	"	"	
Benzo (k) fluoranthene	"	**0.0165**	*0.0100*	0.0100	"	"	"	"	"	
Chrysene	"	**0.0597**	*0.0100*	0.0100	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	*0.0100*	0.0100	"	"	"	"	"	
Fluoranthene	"	**0.130**	*0.0200*	0.0200	"	"	"	"	"	
Fluorene	"	**0.0421**	*0.0200*	0.0200	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**0.0138**	*0.0100*	0.0100	"	"	"	"	"	
Naphthalene	"	**0.0722**	*0.0200*	0.0200	"	"	"	"	"	
Phenanthrene	"	**0.173**	*0.0200*	0.0200	"	"	"	"	"	
Pyrene	"	**0.154**	*0.0200*	0.0200	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*73.9%*	*25 - 125 %*						"
Pyrene-d10			*63.1%*	*23 - 150 %*						"
Benzo (a) pyrene-d12			*65.3%*	*10 - 125 %*						"
PTA0070-02 (FO105003)			**Water**			**Sampled: 01/04/10 09:43**				**N1**
1-Methylnaphthalene	EPA 8270m	ND	*0.0190*	0.0190	ug/l	1x	10A0111	01/07/10 16:50	01/13/10 03:24	
2-Methylnaphthalene	"	ND	*0.0190*	0.0190	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	"	ND	*0.501*	0.952	"	"	"	"	"	
Butyl benzyl phthalate	"	ND	*0.501*	0.952	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	*0.501*	0.952	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	*0.501*	0.952	"	"	"	"	"	
Diethyl phthalate	"	ND	*0.501*	0.952	"	"	"	"	"	

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	01/28/10 09:43

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTA0070-02 (FO105003)			**Water**			**Sampled: 01/04/10 09:43**				**N1**
Dimethyl phthalate	EPA 8270m	ND	*0.501*	0.952	ug/l	1x	10A0111	01/07/10 16:50	01/13/10 03:24	
Acenaphthene	"	ND	*0.0190*	0.0190	"	"	"	"	01/13/10 21:33	
Acenaphthylene	"	ND	*0.0190*	0.0190	"	"	"	"	"	
Anthracene	"	ND	*0.0190*	0.0190	"	"	"	"	"	
Benzo (a) anthracene	"	ND	*0.00952*	0.00952	"	"	"	"	"	
Benzo (a) pyrene	"	ND	*0.00952*	0.00952	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	*0.00952*	0.00952	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	*0.0190*	0.0190	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	*0.00952*	0.00952	"	"	"	"	"	
Chrysene	"	ND	*0.00952*	0.00952	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	*0.00952*	0.00952	"	"	"	"	"	
Fluoranthene	"	ND	*0.0190*	0.0190	"	"	"	"	"	
Fluorene	"	ND	*0.0190*	0.0190	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	*0.00952*	0.00952	"	"	"	"	"	
Naphthalene	"	**0.0312**	*0.0190*	0.0190	"	"	"	"	"	
Phenanthrene	"	ND	*0.0190*	0.0190	"	"	"	"	"	
Pyrene	"	ND	*0.0190*	0.0190	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*89.1%*		*25 - 125 %*					"
Pyrene-d10			*94.3%*		*23 - 150 %*					"
Benzo (a) pyrene-d12			*96.1%*		*10 - 125 %*					"

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	01/28/10 09:43

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

TestAmerica Portland

QC Batch: 10A0111 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (10A0111-BLK1)								**Extracted: 01/07/10 16:50**						N1
2-Methylnaphthalene	EPA 8270m	ND	0.0200	0.0200	ug/l	1x	--	--	--	--	--	--	01/12/10 17:10	
1-Methylnaphthalene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Bis(2-ethylhexyl)phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Diethyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Acenaphthene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	01/13/10 12:24	
Acenaphthylene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 0.820%*			*Limits: 25-125%*								*01/13/10 12:24*	*Z6*
Pyrene-d10		*1.03%*			*23-150%*								*"*	*Z6*
Benzo (a) pyrene-d12		*0.939%*			*10-125%*								*"*	*Z6*
LCS (10A0111-BS1)								**Extracted: 01/07/10 16:50**						N1
2-Methylnaphthalene	EPA 8270m	0.802	0.0200	0.0200	ug/l	1x	--	1.25	64.2%		--	--	01/12/10 18:19	
1-Methylnaphthalene	"	0.781	0.0200	0.0200	"	"	--	"	62.5%		--	--	"	
Bis(2-ethylhexyl)phthalate	"	4.46	0.526	1.00	"	"	--	4.00	112%		--	--	"	
Butyl benzyl phthalate	"	4.42	0.526	1.00	"	"	--	"	110%	"	--	--	"	
Di-n-butyl phthalate	"	3.85	0.526	1.00	"	"	--	"	96.2%	"	--	--	"	
Di-n-octyl phthalate	"	3.99	0.526	1.00	"	"	--	"	99.7%	"	--	--	"	
Diethyl phthalate	"	3.26	0.526	1.00	"	"	--	"	81.5%	"	--	--	"	
Dimethyl phthalate	"	2.98	0.526	1.00	"	"	--	"	74.4%	"	--	--	"	
Acenaphthene	"	0.943	0.0200	0.0200	"	"	--	1.25	75.4%	(35-120)	--	--	01/13/10 12:55	
Acenaphthylene	"	0.995	0.0200	0.0200	"	"	--	"	79.6%	(34-116)	--	--	"	

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	01/28/10 09:43

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

TestAmerica Portland

QC Batch: 10A0111 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (10A0111-BS1)								**Extracted: 01/07/10 16:50**						N1
Anthracene	EPA 8270m	1.07	0.0200	0.0200	ug/l	1x	--	1.25	85.2%	(24-119)	--	--	01/13/10 12:55	
Benzo (a) anthracene	"	1.15	0.0100	0.0100	"	"	--	"	91.8%	(36-128)	--	--	"	
Benzo (a) pyrene	"	1.10	0.0100	0.0100	"	"	--	"	88.3%	(17-128)	--	--	"	
Benzo (b) fluoranthene	"	1.09	0.0100	0.0100	"	"	--	"	86.9%	(37-131)	--	--	"	
Benzo (ghi) perylene	"	1.04	0.0200	0.0200	"	"	--	"	83.4%	(26-126)	--	--	"	
Benzo (k) fluoranthene	"	1.08	0.0100	0.0100	"	"	--	"	86.7%	(18-145)	--	--	"	
Chrysene	"	1.17	0.0100	0.0100	"	"	--	"	94.0%	(16-137)	--	--	"	
Dibenzo (a,h) anthracene	"	1.09	0.0100	0.0100	"	"	--	"	87.3%	(20-141)	--	--	"	
Fluoranthene	"	1.09	0.0200	0.0200	"	"	--	"	87.0%	(31-125)	--	--	"	
Fluorene	"	1.09	0.0200	0.0200	"	"	--	"	87.2%	(27-124)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	1.12	0.0100	0.0100	"	"	--	"	90.0%	(30-135)	--	--	"	
Naphthalene	"	1.05	0.0200	0.0200	"	"	--	"	84.1%	(30-113)	--	--	"	
Phenanthrene	"	1.05	0.0200	0.0200	"	"	--	"	83.7%	(34-126)	--	--	"	
Pyrene	"	1.13	0.0200	0.0200	"	"	--	"	90.4%	(21-141)	--	--	"	
Surrogate(s):	*Fluorene-d10*	*Recovery:*	*72.2%*	*Limits:*	*25-125%*								*01/13/10 12:55*	
	Pyrene-d10		*79.5%*		*23-150%*								*"*	
	Benzo (a) pyrene-d12		*80.2%*		*10-125%*								*"*	
Matrix Spike (10A0111-MS1)						**QC Source: PTA0068-11**		**Extracted: 01/07/10 16:50**						N1
2-Methylnaphthalene	EPA 8270m	0.676	0.0388	0.0388	ug/l	2x	ND	1.21	55.7%		--	--	01/12/10 19:27	
1-Methylnaphthalene	"	0.660	0.0388	0.0388	"	"	ND	"	54.4%		--	--	"	
Bis(2-ethylhexyl)phthalate	"	7.15	1.02	1.94	"	"	1.58	3.88	143%		--	--	"	
Butyl benzyl phthalate	"	5.03	1.02	1.94	"	"	ND	"	130%	"	--	--	"	
Di-n-butyl phthalate	"	4.14	1.02	1.94	"	"	ND	"	107%	"	--	--	"	
Di-n-octyl phthalate	"	5.05	1.02	1.94	"	"	ND	"	130%	"	--	--	"	
Diethyl phthalate	"	3.31	1.02	1.94	"	"	ND	"	85.2%	"	--	--	"	
Dimethyl phthalate	"	2.90	1.02	1.94	"	"	ND	"	74.8%	"	--	--	"	
Acenaphthene	"	0.853	0.0388	0.0388	"	"	ND	1.21	70.3%	(35-120)	--	--	01/13/10 15:02	
Acenaphthylene	"	0.868	0.0388	0.0388	"	"	ND	"	71.5%	(34-116)	--	--	"	
Anthracene	"	1.08	0.0388	0.0388	"	"	ND	"	89.1%	(24-119)	--	--	"	
Benzo (a) anthracene	"	0.918	0.0194	0.0194	"	"	ND	"	75.7%	(22-129)	--	--	"	
Benzo (a) pyrene	"	0.771	0.0194	0.0194	"	"	0.0107	"	62.7%	(4-112)	--	--	"	
Benzo (b) fluoranthene	"	0.768	0.0194	0.0194	"	"	0.0156	"	62.0%	(0-136)	--	--	"	
Benzo (ghi) perylene	"	0.748	0.0388	0.0388	"	"	0.0244	"	59.6%	(0-126)	--	--	"	
Benzo (k) fluoranthene	"	0.757	0.0194	0.0194	"	"	ND	"	62.4%	(0-145)	--	--	"	
Chrysene	"	0.971	0.0194	0.0194	"	"	0.0302	"	77.5%	(7-137)	--	--	"	
Dibenzo (a,h) anthracene	"	0.766	0.0194	0.0194	"	"	ND	"	63.1%	(0-141)	--	--	"	
Fluoranthene	"	1.11	0.0388	0.0388	"	"	0.0429	"	87.8%	(30-125)	--	--	"	
Fluorene	"	1.04	0.0388	0.0388	"	"	ND	"	85.8%	(27-124)	--	--	"	

TestAmerica Portland

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	01/28/10 09:43

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

TestAmerica Portland

QC Batch: 10A0111 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (10A0111-MS1)				**QC Source: PTA0068-11**				**Extracted: 01/07/10 16:50**						N1
Indeno (1,2,3-cd) pyrene	EPA 8270m	0.757	0.0194	0.0194	ug/l	2x	ND	1.21	62.4%	(0-135)	--	--	01/13/10 15:02	
Naphthalene	"	0.930	0.0388	0.0388	"	"	0.0473	"	72.7%	(30-126)	--	--	"	
Phenanthrene	"	1.11	0.0388	0.0388	"	"	0.0468	"	87.2%	(34-126)	--	--	"	
Pyrene	"	1.11	0.0388	0.0388	"	"	0.0621	"	86.3%	(14-168)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 71.0%*		*Limits: 25-125%*									*01/13/10 15:02*	
Pyrene-d10		*74.6%*		*23-150%*									*"*	
Benzo (a) pyrene-d12		*64.2%*		*10-125%*									*"*	
Matrix Spike Dup (10A0111-MSD1)				**QC Source: PTA0068-11**				**Extracted: 01/07/10 16:50**						N1
2-Methylnaphthalene	EPA 8270m	0.777	0.0388	0.0388	ug/l	2x	ND	1.21	64.0%		13.9%		01/12/10 20:01	
1-Methylnaphthalene	"	0.758	0.0388	0.0388	"	"	ND	"	62.4%		13.8%		"	
Bis(2-ethylhexyl)phthalate	"	6.77	1.02	1.94	"	"	1.58	3.88	134%		7.02%		"	
Butyl benzyl phthalate	"	4.79	1.02	1.94	"	"	ND	"	123%	"	4.98%	"	"	
Di-n-butyl phthalate	"	4.17	1.02	1.94	"	"	ND	"	107%	"	0.813%	"	"	
Di-n-octyl phthalate	"	4.70	1.02	1.94	"	"	ND	"	121%	"	7.22%	"	"	
Diethyl phthalate	"	3.69	1.02	1.94	"	"	ND	"	95.0%	"	10.8%	"	"	
Dimethyl phthalate	"	3.31	1.02	1.94	"	"	ND	"	85.3%	"	13.1%	"	"	
Acenaphthene	"	0.947	0.0388	0.0388	"	"	ND	1.21	78.1%	(35-120)	10.5%	(45)	01/13/10 15:35	
Acenaphthylene	"	0.962	0.0388	0.0388	"	"	ND	"	79.2%	(34-116)	10.2%	"	"	
Anthracene	"	1.11	0.0388	0.0388	"	"	ND	"	91.2%	(24-119)	2.39%	"	"	
Benzo (a) anthracene	"	0.964	0.0194	0.0194	"	"	ND	"	79.4%	(22-129)	4.86%	"	"	
Benzo (a) pyrene	"	0.814	0.0194	0.0194	"	"	0.0107	"	66.2%	(4-112)	5.43%	"	"	
Benzo (b) fluoranthene	"	0.818	0.0194	0.0194	"	"	0.0156	"	66.1%	(0-136)	6.50%	"	"	
Benzo (ghi) perylene	"	0.802	0.0388	0.0388	"	"	0.0244	"	64.1%	(0-126)	7.19%	"	"	
Benzo (k) fluoranthene	"	0.816	0.0194	0.0194	"	"	ND	"	67.3%	(0-145)	7.50%	"	"	
Chrysene	"	1.03	0.0194	0.0194	"	"	0.0302	"	82.3%	(7-137)	5.96%	"	"	
Dibenzo (a,h) anthracene	"	0.825	0.0194	0.0194	"	"	ND	"	68.0%	(0-141)	7.44%	"	"	
Fluoranthene	"	1.16	0.0388	0.0388	"	"	0.0429	"	92.0%	(30-125)	4.62%	"	"	
Fluorene	"	1.11	0.0388	0.0388	"	"	ND	"	91.6%	(27-124)	6.57%	"	"	
Indeno (1,2,3-cd) pyrene	"	0.813	0.0194	0.0194	"	"	ND	"	67.0%	(0-135)	7.05%	"	"	
Naphthalene	"	1.07	0.0388	0.0388	"	"	0.0473	"	84.0%	(30-126)	14.4%	"	"	
Phenanthrene	"	1.14	0.0388	0.0388	"	"	0.0468	"	90.4%	(34-126)	3.62%	"	"	
Pyrene	"	1.14	0.0388	0.0388	"	"	0.0621	"	88.8%	(14-168)	2.81%	"	"	
Surrogate(s): Fluorene-d10		*Recovery: 78.0%*		*Limits: 25-125%*									*01/13/10 15:35*	
Pyrene-d10		*77.6%*		*23-150%*									*"*	
Benzo (a) pyrene-d12		*61.2%*		*10-125%*									*"*	

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6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	01/28/10 09:43

Notes and Definitions

Report Specific Notes:

N1	-	See case narrative.
Z6	-	Surrogate recovery was below acceptance limits.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
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

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THE LEADER IN ENVIRONMENTAL TESTING

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2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210 ☐

CHAIN OF CUSTODY REPORT

Work Order #: PTA0070

CLIENT: City of Portland
REPORT TO: Jennifer Shackelford
ADDRESS:
PHONE: FAX:
PROJECT NAME: Portland Harbor Stormwater Samp
PROJECT NUMBER:
SAMPLED BY:

INVOICE TO: Charles Lytle
P.O. NUMBER: 36238

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: ☒ 10 STD. ☐ 7 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ <1
Petroleum Hydrocarbon Analyses: ☐ 5 STD. ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE / REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PCB Congeners (1411 2011)	(*) PAH / Phth											MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	F0105002	1/4/10 0956	X	X											W	2		
2	F0105003	↓ 0943	X	X											↓	2		
3	F0105004	↓ —	X												↓	1		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

RELEASED BY: [signature]		DATE: 1/5/10		RECEIVED BY: [signature]		DATE: 1-5-10	
PRINT NAME: Mackenzie Zick	FIRM: City of Portland	TIME: 1045		PRINT NAME: Max Greene	FIRM: TA - Port	TIME: 10:45	
RELEASED BY: [signature]		DATE: 1/5/10		RECEIVED BY:		DATE: 1-5-10	
PRINT NAME: Max Greene	FIRM: TA - Portland	TIME: 13:47		PRINT NAME: Kristen Hoffman	FIRM: TAP	TIME: 13:47	

ADDITIONAL REMARKS:
(*) Add 1-Methylnaphthalene and 2-Methylnaphthalene to PAH/phthalate list for this project. See Howard Holmes! (Low Level per UIC)

TEMP: 5.3 PAGE OF

TAL-1000(0408)

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PTA0070 Date/Time Received: 01/05/10 1314

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): 1

Temperatures: 5.3

Digi #1 ☐ Digi #2 ☐ IR Gun ☐ (☐Plastic ☐Glass) Raytek

Temperature out of Range:

__Not enough or No Ice
__Ice Melted
__W/in 4 Hrs of collection
__Other:_____

Initials: [illegible]

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 #14, was the residual chlorine test negative? If no, document on NOD.
☒	☐	☐	17. Are dissolved/field filtered metals bottles sediment-free? If no, document on NOD.
☒	☐	☐	18. Is sufficient volume provided for client requested MS/MSD or matrix duplicates? If no, document on NOD and contact PM before proceeding.
☒	☐	☐	19. Are analyses with short holding times received in hold?
	☒	☐	20. Was Standard Turn Around (TAT) requested?
	☒	☐	21. Receipt date(s) < 48 hours past the collection date(s)? If no, notify PM.

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PTA0070

Login Checks:

Initials:

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:

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).

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Howard Holmes
Test America-Portland
9405 SW Nimbus Avenue
Beaverton OR 97008

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10120031
Sample Receipt Date: 01/07/2010
Client Project #: PTA0070
Client Sub PO #: N/A
State Cert #: MN200001-005

Invoicing & Reporting Options:

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

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

This report has been reviewed by:

February 01, 2010

Scott Unze, Project Manager
(612) 607-6383
(612) 607-6444 (fax)
scott.unze@pacelabs.com

Report Prepared Date:
January 29, 2010

Report of Laboratory Analysis

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on three samples submitted by a representative of Test America Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.25-0.75 parts-per-trillion and were adjusted for the amount of the sample extracted.

The isotopically-labeled PCB internal standards in the sample extracts were recovered at 7-97%. The smaller PCB congeners in the sample and QC extracts were poorly recovered and results should be considered estimated for the mono and di chlorinated congeners. Since the quantification of the native PCB congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained for the rest of the PCB congeners.

In some cases, interferences affected the determination of PCB congeners. The affected congeners were flagged "I" where the isotope ratios were found to be outside of the target range for this method.

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 procedures did not significantly contribute to the field sample results.

Laboratory spike samples were also prepared with the sample batch using clean water that had been fortified with native standard materials. The results show that the spiked native compounds were generally recovered at 78-120%, with relative percent differences (RPDs) generally from 0.0-25.4%. Congener #1 was not recovered in the laboratory spikes. These results indicate generally high levels of accuracy and precision for these samples. Matrix spikes were not prepared with the sample batch.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN00064_2000
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		South Carolina	74003001
Indiana	C-MN-01	Tennesee	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

Appendix A

Sample Management

SUBCONTRACT ORDER
TestAmerica Portland
PTA0070 1150 10120031

SENDING LABORATORY:	RECEIVING LABORATORY:
TestAmerica Portland 9405 SW Nimbus Ave. Beaverton, OR 97008 Phone: (503) 906-9200 Fax: (503) 906-9210 Project Manager: Howard Holmes	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: 1/26/10 **Initials:** HZ

Analysis	Units	Expires	Comments	
Sample ID: PTA0070-01 (FO105002* - Water)		Sampled: **01/04/10 09:56**		
1668 Coplanar PCBs - SUB	ug/l	07/03/10 09:56	***209 Congeners*** to Pace	001
Containers Supplied: 1L Amber - Unpres. (B)				
Sample ID: PTA0070-02 (FO105003* - Water)		Sampled: **01/04/10 09:43**		
1668 Coplanar PCBs - SUB	ug/l	07/03/10 09:43	***209 Congeners*** to Pace	002
Containers Supplied: 1L Amber - Unpres. (B)				
Sample ID: PTA0070-03 (FO105004* - Water)		Sampled: **01/04/10 00:00**		
1668 Coplanar PCBs - SUB	ug/l	07/03/10 00:00	***209 Congeners*** to Pace	003
Containers Supplied: 1L Amber - Unpres. (A)				

* City of Portland IDs

Released By	Date/Time	Received By	Date/Time
[signature]	1/6/10	[signature] Pace	1/7/10 1950
Released By	Date/Time	Received By	Date/Time

T = 0.7

Sample Condition Upon Receipt

Pace Analytical

Client Name: TestAmerica **Project #** 10120031

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 4170 7524 8792

Optional: Proj. Due Date: Proj. Name:

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:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 0.7c **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 1/7/10

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	Samp #
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ **Date:** 01/07/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

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

Appendix B

Sample Analysis Summary

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 - Test America-Portland

Client's Sample ID	PTA0070-01 (FO105002)		
Lab Sample ID	10120031001		
Filename	P100126A_09		
Injected By	SMT		
Total Amount Extracted	996 mL	Matrix	Water
% Moisture	NA	Dilution	5
Dry Weight Extracted	NA	Collected	01/04/2010 09:56
ICAL ID	P100126A03	Received	01/07/2010 10:50
CCal Filename(s)	P100126A_02	Extracted	01/11/2010 09:00
Method Blank ID	BLANK-23318	Analyzed	01/26/2010 17:12

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.162	1.86	2.0	0.291	17	IR
13C-4-MoCB	3	11.445	3.26	2.0	0.690	34	
13C-2,2'-DiCB	4	11.792	1.67	2.0	0.638	32	
13C-4,4'-DiCB	15	19.795	1.66	2.0	1.46	73	
13C-2,2',6-TrCB	19	16.141	1.15	2.0	1.12	56	
13C-3,4,4'-TrCB	37	28.006	1.12	2.0	1.74	87	
13C-2,2',6,6'-TeCB	54	20.125	0.81	2.0	1.14	57	
13C-3,4,4',5-TeCB	81	35.250	0.86	2.0	1.77	89	
13C-3,3',4,4'-TeCB	77	35.837	0.78	2.0	1.71	85	
13C-2,2',4,6,6'-PeCB	104	26.631	1.61	2.0	1.36	68	
13C-2,3,3',4,4'-PeCB	105	39.425	1.60	2.0	1.68	84	
13C-2,3,4,4',5-PeCB	114	38.788	1.65	2.0	1.72	86	
13C-2,3',4,4',5-PeCB	118	38.251	1.61	2.0	1.76	88	
13C-2,3',4,4',5'-PeCB	123	37.899	1.63	2.0	1.74	87	
13C-3,3',4,4',5-PeCB	126	42.594	1.52	2.0	1.72	86	
13C-2,2',4,4',6,6'-HxCB	155	32.835	1.27	2.0	1.44	72	
13C-HxCB (156/157)	156/157	45.595	1.25	4.0	3.29	82	
13C-2,3',4,4',5,5'-HxCB	167	44.472	1.22	2.0	1.70	85	
13C-3,3',4,4',5,5'-HxCB	169	48.915	1.22	2.0	1.56	78	
13C-2,2',3,4',5,6,6'-HpCB	188	38.754	1.06	2.0	1.69	84	
13C-2,3,3',4,4',5,5'-HpCB	189	51.471	1.07	2.0	1.84	92	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.187	0.97	2.0	1.77	88	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.208	1.00	2.0	1.64	82	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.342	0.79	2.0	1.59	79	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.975	0.78	2.0	1.67	83	
13C--DeCB	209	58.626	0.71	2.0	1.58	79	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.462	1.12	2.0	1.94	97	
13C-2,3,3',5,5'-PeCB	111	35.887	1.68	2.0	1.72	86	
13C-2,2',3,3',5,5',6-HpCB	178	41.856	1.12	2.0	1.61	81	
Recovery Standards							
13C-2,5-DiCB	9	14.643	1.67	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.592	0.81	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.070	1.62	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.403	1.23	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.669	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
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

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 PTA0070-01 (FO105002)
Lab Sample ID 10120031001
Filename P100126A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.251
2		---	---	ND	---	0.251
3		---	---	ND	---	0.251
4		---	---	ND	---	0.251
5		---	---	ND	---	0.251
6		---	---	ND	---	0.251
7		---	---	ND	---	0.251
8		15.817	1.53	0.369	---	0.251
9		---	---	ND	---	0.251
10		---	---	ND	---	0.251
11		---	---	ND	---	1.51
12	12/13	---	---	ND	---	0.502
13	12/13	---	---	ND	---	0.502
14		---	---	ND	---	0.251
15		19.819	1.45	0.277	---	0.251
16		19.723	0.85 I	---	0.338	0.251
17		19.172	1.04	0.348	---	0.251
18	18/30	18.669	1.10	0.735	---	0.502
19		---	---	ND	---	0.251
20	20/28	23.496	1.04	1.36	---	0.502
21	21/33	23.747	1.02	0.757	---	0.502
22		24.200	0.93	0.573	---	0.251
23		---	---	ND	---	0.251
24		---	---	ND	---	0.251
25		---	---	ND	---	0.251
26	26/29	---	---	ND	---	0.502
27		---	---	ND	---	0.251
28	20/28	23.496	1.04	(1.36)	---	0.502
29	26/29	---	---	ND	---	0.502
30	18/30	18.669	1.10	(0.735)	---	0.502
31		23.160	1.05	1.25	---	0.251
32		---	---	ND	---	0.251
33	21/33	23.747	1.02	(0.757)	---	0.502
34		---	---	ND	---	0.251
35		---	---	ND	---	0.251
36		---	---	ND	---	0.251
37		28.056	0.98	0.500	---	0.251
38		---	---	ND	---	0.251
39		---	---	ND	---	0.251
40	40/41/71	---	---	ND	---	1.51
41	40/41/71	---	---	ND	---	1.51
42		---	---	ND	---	0.502
43	43/73	---	---	ND	---	1.00
44	44/47/65	26.715	0.76	2.03	---	1.51
45	45/51	---	---	ND	---	1.00
46		---	---	ND	---	0.502
47	44/47/65	26.715	0.76	(2.03)	---	1.51
48		---	---	ND	---	0.502

Conc = Concentration
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Nn = Value obtained from additional analyses

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTA0070-01 (FO105002)
Lab Sample ID 10120031001
Filename P100126A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	26.162	0.86	1.06	---	1.00
50	50/53	---	---	ND	---	1.00
51	45/51	---	---	ND	---	1.00
52		25.625	0.80	3.03	---	0.502
53	50/53	---	---	ND	---	1.00
54		---	---	ND	---	0.502
55		---	---	ND	---	0.502
56		31.930	0.72	0.798	---	0.502
57		---	---	ND	---	0.502
58		---	---	ND	---	0.502
59	59/62/75	---	---	ND	---	1.51
60		---	---	ND	---	0.502
61	61/70/74/76	30.890	0.77	3.73	---	2.01
62	59/62/75	---	---	ND	---	1.51
63		---	---	ND	---	0.502
64		28.090	0.81	0.794	---	0.502
65	44/47/65	26.715	0.76	(2.03)	---	1.51
66		31.242	0.72	1.50	---	0.502
67		---	---	ND	---	0.502
68		---	---	ND	---	0.502
69	49/69	26.162	0.86	(1.06)	---	1.00
70	61/70/74/76	30.890	0.77	(3.73)	---	2.01
71	40/41/71	---	---	ND	---	1.51
72		---	---	ND	---	0.502
73	43/73	---	---	ND	---	1.00
74	61/70/74/76	30.890	0.77	(3.73)	---	2.01
75	59/62/75	---	---	ND	---	1.51
76	61/70/74/76	30.890	0.77	(3.73)	---	2.01
77		---	---	ND	---	0.502
78		---	---	ND	---	0.502
79		---	---	ND	---	0.502
80		---	---	ND	---	0.502
81		---	---	ND	---	0.502
82		35.468	1.65	0.674	---	0.502
83		---	---	ND	---	0.502
84		31.075	1.64	1.45	---	0.502
85	85/116/117	---	---	ND	---	1.51
86	86/87/97/108/119/125	34.327	1.56	3.84	---	3.01
87	86/87/97/108/119/125	34.327	1.56	(3.84)	---	3.01
88	88/91	---	---	ND	---	1.00
89		---	---	ND	---	0.502
90	90/101/113	33.103	1.55	5.07	---	1.51
91	88/91	---	---	ND	---	1.00
92		32.483	1.72	0.943	---	0.502
93	93/98/100/102	---	---	ND	---	2.01
94		---	---	ND	---	0.502
95		29.918	1.54	3.78	---	0.502
96		---	---	ND	---	0.502

Conc = Concentration
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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTA0070-01 (FO105002)
Lab Sample ID 10120031001
Filename P100126A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	34.327	1.56	(3.84)	---	3.01
98	93/98/100/102	---	---	ND	---	2.01
99		33.707	1.49	2.06	---	0.502
100	93/98/100/102	---	---	ND	---	2.01
101	90/101/113	33.103	1.55	(5.07)	---	1.51
102	93/98/100/102	---	---	ND	---	2.01
103		---	---	ND	---	0.502
104		---	---	ND	---	0.502
105		39.442	1.60	2.34	---	0.502
106		---	---	ND	---	0.502
107	107/124	---	---	ND	---	1.00
108	86/87/97/108/119/125	34.327	1.56	(3.84)	---	3.01
109		---	---	ND	---	0.502
110	110/115	35.149	1.59	6.46	---	1.00
111		---	---	ND	---	0.502
112		---	---	ND	---	0.502
113	90/101/113	33.103	1.55	(5.07)	---	1.51
114		---	---	ND	---	0.502
115	110/115	35.149	1.59	(6.46)	---	1.00
116	85/116/117	---	---	ND	---	1.51
117	85/116/117	---	---	ND	---	1.51
118		38.268	1.60	5.11	---	0.502
119	86/87/97/108/119/125	34.327	1.56	(3.84)	---	3.01
120		---	---	ND	---	0.502
121		---	---	ND	---	0.502
122		---	---	ND	---	0.502
123		---	---	ND	---	0.502
124	107/124	---	---	ND	---	1.00
125	86/87/97/108/119/125	34.327	1.56	(3.84)	---	3.01
126		---	---	ND	---	0.502
127		---	---	ND	---	0.502
128	128/166	42.695	1.27	1.25	---	1.00
129	129/138/163	41.437	1.29	6.94	---	1.51
130		---	---	ND	---	0.502
131		---	---	ND	---	0.502
132		38.352	1.26	2.39	---	0.502
133		---	---	ND	---	0.502
134	134/143	---	---	ND	---	1.00
135	135/151	36.122	1.35	1.45	---	1.00
136		33.573	1.12	0.646	---	0.502
137		---	---	ND	---	0.502
138	129/138/163	41.437	1.29	(6.94)	---	1.51
139	139/140	---	---	ND	---	1.00
140	139/140	---	---	ND	---	1.00
141		40.364	1.27	1.07	---	0.502
142		---	---	ND	---	0.502
143	134/143	---	---	ND	---	1.00
144		---	---	ND	---	0.502

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REPORT OF LABORATORY ANALYSIS

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 PTA0070-01 (FO105002)
Lab Sample ID 10120031001
Filename P100126A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.502
146		---	---	ND	---	0.502
147	147/149	37.077	1.20	3.84	---	1.00
148		---	---	ND	---	0.502
149	147/149	37.077	1.20	(3.84)	---	1.00
150		---	---	ND	---	0.502
151	135/151	36.122	1.35	(1.45)	---	1.00
152		---	---	ND	---	0.502
153	153/168	40.179	1.25	4.27	---	1.00
154		---	---	ND	---	0.502
155		---	---	ND	---	0.502
156	156/157	---	---	ND	---	1.00
157	156/157	---	---	ND	---	1.00
158		41.839	1.28	0.695	---	0.502
159		---	---	ND	---	0.502
160		---	---	ND	---	0.502
161		---	---	ND	---	0.502
162		---	---	ND	---	0.502
163	129/138/163	41.437	1.29	(6.94)	---	1.51
164		---	---	ND	---	0.502
165		39.576	1.34	0.669	---	0.502
166	128/166	42.695	1.27	(1.25)	---	1.00
167		---	---	ND	---	0.502
168	153/168	40.179	1.25	(4.27)	---	1.00
169		---	---	ND	---	0.502
170		48.312	1.09	0.942	---	0.502
171	171/173	---	---	ND	---	1.00
172		---	---	ND	---	0.502
173	171/173	---	---	ND	---	1.00
174		43.650	0.99	0.769	---	0.502
175		---	---	ND	---	0.502
176		---	---	ND	---	0.502
177		---	---	ND	---	0.502
178		---	---	ND	---	0.502
179		---	---	ND	---	0.502
180	180/193	47.037	1.04	1.81	---	1.00
181		---	---	ND	---	0.502
182		---	---	ND	---	0.502
183	183/185	---	---	ND	---	1.00
184		---	---	ND	---	0.502
185	183/185	---	---	ND	---	1.00
186		---	---	ND	---	0.502
187		42.812	0.98	0.961	---	0.502
188		---	---	ND	---	0.502
189		---	---	ND	---	0.502
190		---	---	ND	---	0.502
191		---	---	ND	---	0.502
192		---	---	ND	---	0.502

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTA0070-01 (FO105002)
Lab Sample ID	10120031001
Filename	P100126A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	47.037	1.04	(1.81)	---	1.00
194		---	---	ND	---	0.753
195		---	---	ND	---	0.753
196		---	---	ND	---	0.753
197	197/200	---	---	ND	---	1.51
198	198/199	---	---	ND	---	1.51
199	198/199	---	---	ND	---	1.51
200	197/200	---	---	ND	---	1.51
201		---	---	ND	---	0.753
202		---	---	ND	---	0.753
203		---	---	ND	---	0.753
204		---	---	ND	---	0.753
205		---	---	ND	---	0.753
206		---	---	ND	---	0.753
207		---	---	ND	---	0.753
208		---	---	ND	---	0.753
209		---	---	ND	---	0.753

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTA0070-01 (FO105002)
Lab Sample ID	10120031001
Filename	P100126A_09

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	0.646
Total Trichloro Biphenyls	5.52
Total Tetrachloro Biphenyls	12.9
Total Pentachloro Biphenyls	31.7
Total Hexachloro Biphenyls	23.2
Total Heptachloro Biphenyls	4.48
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	78.5

ND = Not Detected

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America-Portland

Client's Sample ID	PTA0070-02 (FO105003)		
Lab Sample ID	10120031002		
Filename	P100126A_10		
Injected By	SMT		
Total Amount Extracted	998 mL	Matrix	Water
% Moisture	NA	Dilution	5
Dry Weight Extracted	NA	Collected	01/04/2010 09:43
ICAL ID	P100126A03	Received	01/07/2010 10:50
CCal Filename(s)	P100126A_02	Extracted	01/11/2010 09:00
Method Blank ID	BLANK-23318	Analyzed	01/26/2010 18:17

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.174	1.42	2.0	0.113	7	IR
13C-4-MoCB	3	11.457	1.94	2.0	0.268	15	IR
13C-2,2'-DiCB	4	11.828	1.45	2.0	0.295	15	R
13C-4,4'-DiCB	15	19.819	1.80	2.0	0.809	40	
13C-2,2',6-TrCB	19	16.153	1.35	2.0	0.485	28	I
13C-3,4,4'-TrCB	37	28.040	1.09	2.0	1.45	73	
13C-2,2',6,6'-TeCB	54	20.125	0.81	2.0	0.716	36	
13C-3,4,4',5-TeCB	81	35.250	0.80	2.0	1.77	89	
13C-3,3',4,4'-TeCB	77	35.854	0.77	2.0	1.85	92	
13C-2,2',4,6,6'-PeCB	104	26.631	1.70	2.0	1.10	55	
13C-2,3,3',4,4'-PeCB	105	39.425	1.56	2.0	1.86	93	
13C-2,3,4,4',5-PeCB	114	38.788	1.57	2.0	1.82	91	
13C-2,3',4,4',5-PeCB	118	38.251	1.57	2.0	1.83	92	
13C-2,3',4,4',5'-PeCB	123	37.899	1.66	2.0	1.84	92	
13C-3,3',4,4',5-PeCB	126	42.594	1.52	2.0	1.86	93	
13C-2,2',4,4',6,6'-HxCB	155	32.835	1.33	2.0	1.36	68	
13C-HxCB (156/157)	156/157	45.596	1.25	4.0	3.81	95	
13C-2,3',4,4',5,5'-HxCB	167	44.456	1.26	2.0	1.91	96	
13C-3,3',4,4',5,5'-HxCB	169	48.882	1.22	2.0	1.75	88	
13C-2,2',3,4',5,6,6'-HpCB	188	38.771	1.08	2.0	1.60	80	
13C-2,3,3',4,4',5,5'-HpCB	189	51.450	1.07	2.0	1.89	94	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.187	0.90	2.0	1.81	90	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.166	0.93	2.0	1.78	89	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.299	0.81	2.0	1.79	89	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.933	0.85	2.0	1.74	87	
13C--DeCB	209	58.562	0.71	2.0	1.59	79	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.479	1.12	2.0	1.50	75	
13C-2,3,3',5,5'-PeCB	111	35.904	1.62	2.0	1.70	85	
13C-2,2',3,3',5,5',6-HpCB	178	41.873	1.11	2.0	1.78	89	
Recovery Standards							
13C-2,5-DiCB	9	14.667	1.65	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.592	0.83	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.087	1.60	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.404	1.29	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.648	0.93	2.0	NA	NA	

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTA0070-02 (FO105003)
Lab Sample ID 10120031002
Filename P100126A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.250
2		---	---	ND	---	0.250
3		---	---	ND	---	0.250
4		---	---	ND	---	0.250
5		---	---	ND	---	0.250
6		---	---	ND	---	0.250
7		---	---	ND	---	0.250
8		---	---	ND	---	0.250
9		---	---	ND	---	0.250
10		---	---	ND	---	0.250
11		---	---	ND	---	1.50
12	12/13	---	---	ND	---	0.501
13	12/13	---	---	ND	---	0.501
14		---	---	ND	---	0.250
15		---	---	ND	---	0.250
16		---	---	ND	---	0.250
17		---	---	ND	---	0.250
18	18/30	---	---	ND	---	0.501
19		---	---	ND	---	0.250
20	20/28	---	---	ND	---	0.501
21	21/33	---	---	ND	---	0.501
22		---	---	ND	---	0.250
23		---	---	ND	---	0.250
24		---	---	ND	---	0.250
25		---	---	ND	---	0.250
26	26/29	---	---	ND	---	0.501
27		---	---	ND	---	0.250
28	20/28	---	---	ND	---	0.501
29	26/29	---	---	ND	---	0.501
30	18/30	---	---	ND	---	0.501
31		---	---	ND	---	0.250
32		---	---	ND	---	0.250
33	21/33	---	---	ND	---	0.501
34		---	---	ND	---	0.250
35		---	---	ND	---	0.250
36		---	---	ND	---	0.250
37		---	---	ND	---	0.250
38		---	---	ND	---	0.250
39		---	---	ND	---	0.250
40	40/41/71	---	---	ND	---	1.50
41	40/41/71	---	---	ND	---	1.50
42		---	---	ND	---	0.501
43	43/73	---	---	ND	---	1.00
44	44/47/65	---	---	ND	---	1.50
45	45/51	---	---	ND	---	1.00
46		---	---	ND	---	0.501
47	44/47/65	---	---	ND	---	1.50
48		---	---	ND	---	0.501

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTA0070-02 (FO105003)
Lab Sample ID 10120031002
Filename P100126A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	1.00
50	50/53	---	---	ND	---	1.00
51	45/51	---	---	ND	---	1.00
52		---	---	ND	---	0.501
53	50/53	---	---	ND	---	1.00
54		---	---	ND	---	0.501
55		---	---	ND	---	0.501
56		---	---	ND	---	0.501
57		---	---	ND	---	0.501
58		---	---	ND	---	0.501
59	59/62/75	---	---	ND	---	1.50
60		---	---	ND	---	0.501
61	61/70/74/76	---	---	ND	---	2.00
62	59/62/75	---	---	ND	---	1.50
63		---	---	ND	---	0.501
64		---	---	ND	---	0.501
65	44/47/65	---	---	ND	---	1.50
66		---	---	ND	---	0.501
67		---	---	ND	---	0.501
68		---	---	ND	---	0.501
69	49/69	---	---	ND	---	1.00
70	61/70/74/76	---	---	ND	---	2.00
71	40/41/71	---	---	ND	---	1.50
72		---	---	ND	---	0.501
73	43/73	---	---	ND	---	1.00
74	61/70/74/76	---	---	ND	---	2.00
75	59/62/75	---	---	ND	---	1.50
76	61/70/74/76	---	---	ND	---	2.00
77		---	---	ND	---	0.501
78		---	---	ND	---	0.501
79		---	---	ND	---	0.501
80		---	---	ND	---	0.501
81		---	---	ND	---	0.501
82		---	---	ND	---	0.501
83		---	---	ND	---	0.501
84		---	---	ND	---	0.501
85	85/116/117	---	---	ND	---	1.50
86	86/87/97/108/119/125	---	---	ND	---	3.01
87	86/87/97/108/119/125	---	---	ND	---	3.01
88	88/91	---	---	ND	---	1.00
89		---	---	ND	---	0.501
90	90/101/113	---	---	ND	---	1.50
91	88/91	---	---	ND	---	1.00
92		---	---	ND	---	0.501
93	93/98/100/102	---	---	ND	---	2.00
94		---	---	ND	---	0.501
95		---	---	ND	---	0.501
96		---	---	ND	---	0.501

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Sample Analysis Results

Client Sample ID PTA0070-02 (FO105003)
Lab Sample ID 10120031002
Filename P100126A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	3.01
98	93/98/100/102	---	---	ND	---	2.00
99		---	---	ND	---	0.501
100	93/98/100/102	---	---	ND	---	2.00
101	90/101/113	---	---	ND	---	1.50
102	93/98/100/102	---	---	ND	---	2.00
103		---	---	ND	---	0.501
104		---	---	ND	---	0.501
105		---	---	ND	---	0.501
106		---	---	ND	---	0.501
107	107/124	---	---	ND	---	1.00
108	86/87/97/108/119/125	---	---	ND	---	3.01
109		---	---	ND	---	0.501
110	110/115	---	---	ND	---	1.00
111		---	---	ND	---	0.501
112		---	---	ND	---	0.501
113	90/101/113	---	---	ND	---	1.50
114		---	---	ND	---	0.501
115	110/115	---	---	ND	---	1.00
116	85/116/117	---	---	ND	---	1.50
117	85/116/117	---	---	ND	---	1.50
118		---	---	ND	---	0.501
119	86/87/97/108/119/125	---	---	ND	---	3.01
120		---	---	ND	---	0.501
121		---	---	ND	---	0.501
122		---	---	ND	---	0.501
123		---	---	ND	---	0.501
124	107/124	---	---	ND	---	1.00
125	86/87/97/108/119/125	---	---	ND	---	3.01
126		---	---	ND	---	0.501
127		---	---	ND	---	0.501
128	128/166	---	---	ND	---	1.00
129	129/138/163	---	---	ND	---	1.50
130		---	---	ND	---	0.501
131		---	---	ND	---	0.501
132		---	---	ND	---	0.501
133		---	---	ND	---	0.501
134	134/143	---	---	ND	---	1.00
135	135/151	---	---	ND	---	1.00
136		---	---	ND	---	0.501
137		---	---	ND	---	0.501
138	129/138/163	---	---	ND	---	1.50
139	139/140	---	---	ND	---	1.00
140	139/140	---	---	ND	---	1.00
141		---	---	ND	---	0.501
142		---	---	ND	---	0.501
143	134/143	---	---	ND	---	1.00
144		---	---	ND	---	0.501

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTA0070-02 (FO105003)
Lab Sample ID 10120031002
Filename P100126A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.501
146		---	---	ND	---	0.501
147	147/149	---	---	ND	---	1.00
148		---	---	ND	---	0.501
149	147/149	---	---	ND	---	1.00
150		---	---	ND	---	0.501
151	135/151	---	---	ND	---	1.00
152		---	---	ND	---	0.501
153	153/168	---	---	ND	---	1.00
154		---	---	ND	---	0.501
155		---	---	ND	---	0.501
156	156/157	---	---	ND	---	1.00
157	156/157	---	---	ND	---	1.00
158		---	---	ND	---	0.501
159		---	---	ND	---	0.501
160		---	---	ND	---	0.501
161		---	---	ND	---	0.501
162		---	---	ND	---	0.501
163	129/138/163	---	---	ND	---	1.50
164		---	---	ND	---	0.501
165		---	---	ND	---	0.501
166	128/166	---	---	ND	---	1.00
167		---	---	ND	---	0.501
168	153/168	---	---	ND	---	1.00
169		---	---	ND	---	0.501
170		---	---	ND	---	0.501
171	171/173	---	---	ND	---	1.00
172		---	---	ND	---	0.501
173	171/173	---	---	ND	---	1.00
174		---	---	ND	---	0.501
175		---	---	ND	---	0.501
176		---	---	ND	---	0.501
177		---	---	ND	---	0.501
178		---	---	ND	---	0.501
179		---	---	ND	---	0.501
180	180/193	---	---	ND	---	1.00
181		---	---	ND	---	0.501
182		---	---	ND	---	0.501
183	183/185	---	---	ND	---	1.00
184		---	---	ND	---	0.501
185	183/185	---	---	ND	---	1.00
186		---	---	ND	---	0.501
187		---	---	ND	---	0.501
188		---	---	ND	---	0.501
189		---	---	ND	---	0.501
190		---	---	ND	---	0.501
191		---	---	ND	---	0.501
192		---	---	ND	---	0.501

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
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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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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Minneapolis, MN 55414

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTA0070-02 (FO105003)
Lab Sample ID 10120031002
Filename P100126A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	---	---	ND	---	1.00
194		---	---	ND	---	0.751
195		---	---	ND	---	0.751
196		---	---	ND	---	0.751
197	197/200	---	---	ND	---	1.50
198	198/199	---	---	ND	---	1.50
199	198/199	---	---	ND	---	1.50
200	197/200	---	---	ND	---	1.50
201		---	---	ND	---	0.751
202		---	---	ND	---	0.751
203		---	---	ND	---	0.751
204		---	---	ND	---	0.751
205		---	---	ND	---	0.751
206		---	---	ND	---	0.751
207		---	---	ND	---	0.751
208		---	---	ND	---	0.751
209		---	---	ND	---	0.751

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTA0070-02 (FO105003)
Lab Sample ID	10120031002
Filename	P100126A_10

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

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America-Portland

Client's Sample ID	PTA0070-03 (FO105004)		
Lab Sample ID	10120031003		
Filename	P100126A_11		
Injected By	SMT		
Total Amount Extracted	1020 mL	Matrix	Water
% Moisture	NA	Dilution	5
Dry Weight Extracted	NA	Collected	01/04/2010
ICAL ID	P100126A03	Received	01/07/2010 10:50
CCal Filename(s)	P100126A_02	Extracted	01/11/2010 09:00
Method Blank ID	BLANK-23318	Analyzed	01/26/2010 19:21

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.174	3.36	2.0	0.415	21	R
13C-4-MoCB	3	11.457	3.08	2.0	0.901	45	
13C-2,2'-DiCB	4	11.804	1.47	2.0	0.793	40	
13C-4,4'-DiCB	15	19.795	1.54	2.0	1.62	81	
13C-2,2',6-TrCB	19	16.153	1.04	2.0	1.28	64	
13C-3,4,4'-TrCB	37	28.023	1.03	2.0	1.88	94	
13C-2,2',6,6'-TeCB	54	20.142	0.82	2.0	1.30	65	
13C-3,4,4',5-TeCB	81	35.267	0.76	2.0	1.93	97	
13C-3,3',4,4'-TeCB	77	35.837	0.86	2.0	1.85	92	
13C-2,2',4,6,6'-PeCB	104	26.631	1.58	2.0	1.49	74	
13C-2,3,3',4,4'-PeCB	105	39.442	1.59	2.0	1.87	94	
13C-2,3,4,4',5-PeCB	114	38.788	1.61	2.0	1.88	94	
13C-2,3',4,4',5-PeCB	118	38.251	1.60	2.0	1.89	94	
13C-2,3',4,4',5'-PeCB	123	37.916	1.59	2.0	1.88	94	
13C-3,3',4,4',5-PeCB	126	42.594	1.71	2.0	1.79	90	
13C-2,2',4,4',6,6'-HxCB	155	32.852	1.27	2.0	1.68	84	
13C-HxCB (156/157)	156/157	45.629	1.35	4.0	3.80	95	
13C-2,3',4,4',5,5'-HxCB	167	44.472	1.23	2.0	1.85	93	
13C-3,3',4,4',5,5'-HxCB	169	48.933	1.20	2.0	1.73	87	
13C-2,2',3,4',5,6,6'-HpCB	188	38.788	1.06	2.0	1.78	89	
13C-2,3,3',4,4',5,5'-HpCB	189	51.493	0.97	2.0	1.88	94	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.221	0.86	2.0	1.75	87	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.231	0.86	2.0	1.68	84	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.343	0.82	2.0	1.72	86	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.954	0.89	2.0	1.67	84	
13C--DeCB	209	58.606	0.74	2.0	1.59	79	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.462	1.03	2.0	2.03	101	
13C-2,3,3',5,5'-PeCB	111	35.904	1.65	2.0	1.77	89	
13C-2,2',3,3',5,5',6-HpCB	178	41.890	1.09	2.0	1.84	92	
Recovery Standards							
13C-2,5-DiCB	9	14.655	1.62	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.592	0.86	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.087	1.57	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.421	1.35	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.692	0.89	2.0	NA	NA	

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTA0070-03 (FO105004)
Lab Sample ID 10120031003
Filename P100126A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.245
2		---	---	ND	---	0.245
3		---	---	ND	---	0.245
4		---	---	ND	---	0.245
5		---	---	ND	---	0.245
6		---	---	ND	---	0.245
7		---	---	ND	---	0.245
8		15.805	1.43	0.364	---	0.245
9		---	---	ND	---	0.245
10		---	---	ND	---	0.245
11		---	---	ND	---	1.47
12	12/13	---	---	ND	---	0.490
13	12/13	---	---	ND	---	0.490
14		---	---	ND	---	0.245
15		19.807	1.48	0.256	---	0.245
16		19.723	1.03	0.358	---	0.245
17		19.172	1.00	0.322	---	0.245
18	18/30	18.669	1.06	0.644	---	0.490
19		---	---	ND	---	0.245
20	20/28	23.496	1.06	1.31	---	0.490
21	21/33	23.764	1.00	0.731	---	0.490
22		24.217	1.02	0.548	---	0.245
23		---	---	ND	---	0.245
24		---	---	ND	---	0.245
25		---	---	ND	---	0.245
26	26/29	---	---	ND	---	0.490
27		---	---	ND	---	0.245
28	20/28	23.496	1.06	(1.31)	---	0.490
29	26/29	---	---	ND	---	0.490
30	18/30	18.669	1.06	(0.644)	---	0.490
31		23.177	0.99	1.14	---	0.245
32		---	---	ND	---	0.245
33	21/33	23.764	1.00	(0.731)	---	0.490
34		---	---	ND	---	0.245
35		---	---	ND	---	0.245
36		---	---	ND	---	0.245
37		28.023	0.98	0.486	---	0.245
38		---	---	ND	---	0.245
39		---	---	ND	---	0.245
40	40/41/71	---	---	ND	---	1.47
41	40/41/71	---	---	ND	---	1.47
42		---	---	ND	---	0.490
43	43/73	---	---	ND	---	0.980
44	44/47/65	26.715	0.81	1.78	---	1.47
45	45/51	---	---	ND	---	0.980
46		---	---	ND	---	0.490
47	44/47/65	26.715	0.81	(1.78)	---	1.47
48		---	---	ND	---	0.490

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Sample Analysis Results

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IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	0.980
50	50/53	---	---	ND	---	0.980
51	45/51	---	---	ND	---	0.980
52		25.625	0.80	2.78	---	0.490
53	50/53	---	---	ND	---	0.980
54		---	---	ND	---	0.490
55		---	---	ND	---	0.490
56		31.964	0.86	0.714	---	0.490
57		---	---	ND	---	0.490
58		---	---	ND	---	0.490
59	59/62/75	---	---	ND	---	1.47
60		---	---	ND	---	0.490
61	61/70/74/76	30.890	0.77	3.65	---	1.96
62	59/62/75	---	---	ND	---	1.47
63		---	---	ND	---	0.490
64		28.107	0.78	0.756	---	0.490
65	44/47/65	26.715	0.81	(1.78)	---	1.47
66		31.243	0.71	1.40	---	0.490
67		---	---	ND	---	0.490
68		---	---	ND	---	0.490
69	49/69	---	---	ND	---	0.980
70	61/70/74/76	30.890	0.77	(3.65)	---	1.96
71	40/41/71	---	---	ND	---	1.47
72		---	---	ND	---	0.490
73	43/73	---	---	ND	---	0.980
74	61/70/74/76	30.890	0.77	(3.65)	---	1.96
75	59/62/75	---	---	ND	---	1.47
76	61/70/74/76	30.890	0.77	(3.65)	---	1.96
77		---	---	ND	---	0.490
78		---	---	ND	---	0.490
79		---	---	ND	---	0.490
80		---	---	ND	---	0.490
81		---	---	ND	---	0.490
82		35.468	1.56	0.698	---	0.490
83		---	---	ND	---	0.490
84		31.092	1.60	1.43	---	0.490
85	85/116/117	---	---	ND	---	1.47
86	86/87/97/108/119/125	34.311	1.53	3.81	---	2.94
87	86/87/97/108/119/125	34.311	1.53	(3.81)	---	2.94
88	88/91	---	---	ND	---	0.980
89		---	---	ND	---	0.490
90	90/101/113	33.120	1.65	5.15	---	1.47
91	88/91	---	---	ND	---	0.980
92		32.500	1.48	0.883	---	0.490
93	93/98/100/102	---	---	ND	---	1.96
94		---	---	ND	---	0.490
95		29.951	1.61	3.81	---	0.490
96		---	---	ND	---	0.490

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTA0070-03 (FO105004)
Lab Sample ID 10120031003
Filename P100126A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	34.311	1.53	(3.81)	---	2.94
98	93/98/100/102	---	---	ND	---	1.96
99		33.724	1.53	2.07	---	0.490
100	93/98/100/102	---	---	ND	---	1.96
101	90/101/113	33.120	1.65	(5.15)	---	1.47
102	93/98/100/102	---	---	ND	---	1.96
103		---	---	ND	---	0.490
104		---	---	ND	---	0.490
105		39.475	1.54	2.36	---	0.490
106		---	---	ND	---	0.490
107	107/124	---	---	ND	---	0.980
108	86/87/97/108/119/125	34.311	1.53	(3.81)	---	2.94
109		---	---	ND	---	0.490
110	110/115	35.166	1.52	6.51	---	0.980
111		---	---	ND	---	0.490
112		---	---	ND	---	0.490
113	90/101/113	33.120	1.65	(5.15)	---	1.47
114		---	---	ND	---	0.490
115	110/115	35.166	1.52	(6.51)	---	0.980
116	85/116/117	---	---	ND	---	1.47
117	85/116/117	---	---	ND	---	1.47
118		38.285	1.59	5.33	---	0.490
119	86/87/97/108/119/125	34.311	1.53	(3.81)	---	2.94
120		---	---	ND	---	0.490
121		---	---	ND	---	0.490
122		---	---	ND	---	0.490
123		---	---	ND	---	0.490
124	107/124	---	---	ND	---	0.980
125	86/87/97/108/119/125	34.311	1.53	(3.81)	---	2.94
126		---	---	ND	---	0.490
127		---	---	ND	---	0.490
128	128/166	42.712	1.24	1.27	---	0.980
129	129/138/163	41.454	1.30	7.16	---	1.47
130		---	---	ND	---	0.490
131		---	---	ND	---	0.490
132		38.352	1.28	2.44	---	0.490
133		---	---	ND	---	0.490
134	134/143	---	---	ND	---	0.980
135	135/151	36.139	1.34	1.54	---	0.980
136		33.590	1.32	0.652	---	0.490
137		---	---	ND	---	0.490
138	129/138/163	41.454	1.30	(7.16)	---	1.47
139	139/140	---	---	ND	---	0.980
140	139/140	---	---	ND	---	0.980
141		40.364	1.26	1.13	---	0.490
142		---	---	ND	---	0.490
143	134/143	---	---	ND	---	0.980
144		---	---	ND	---	0.490

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Sample Analysis Results

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IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.490
146		---	---	ND	---	0.490
147	147/149	37.094	1.26	4.08	---	0.980
148		---	---	ND	---	0.490
149	147/149	37.094	1.26	(4.08)	---	0.980
150		---	---	ND	---	0.490
151	135/151	36.139	1.34	(1.54)	---	0.980
152		---	---	ND	---	0.490
153	153/168	40.196	1.27	4.49	---	0.980
154		---	---	ND	---	0.490
155		---	---	ND	---	0.490
156	156/157	45.613	1.36	0.984	---	0.980
157	156/157	45.613	1.36	(0.984)	---	0.980
158		41.840	1.33	0.723	---	0.490
159		---	---	ND	---	0.490
160		---	---	ND	---	0.490
161		---	---	ND	---	0.490
162		---	---	ND	---	0.490
163	129/138/163	41.454	1.30	(7.16)	---	1.47
164		---	---	ND	---	0.490
165		39.576	1.31	0.677	---	0.490
166	128/166	42.712	1.24	(1.27)	---	0.980
167		---	---	ND	---	0.490
168	153/168	40.196	1.27	(4.49)	---	0.980
169		---	---	ND	---	0.490
170		48.312	1.11	1.10	---	0.490
171	171/173	---	---	ND	---	0.980
172		---	---	ND	---	0.490
173	171/173	---	---	ND	---	0.980
174		43.668	1.12	1.01	---	0.490
175		---	---	ND	---	0.490
176		---	---	ND	---	0.490
177		44.104	1.03	0.610	---	0.490
178		---	---	ND	---	0.490
179		---	---	ND	---	0.490
180	180/193	47.055	1.10	2.34	---	0.980
181		---	---	ND	---	0.490
182		---	---	ND	---	0.490
183	183/185	---	---	ND	---	0.980
184		---	---	ND	---	0.490
185	183/185	---	---	ND	---	0.980
186		---	---	ND	---	0.490
187		42.812	1.16	1.19	---	0.490
188		---	---	ND	---	0.490
189		---	---	ND	---	0.490
190		---	---	ND	---	0.490
191		---	---	ND	---	0.490
192		---	---	ND	---	0.490

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

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

REPORT OF LABORATORY ANALYSIS

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	PTA0070-03 (FO105004)
Lab Sample ID	10120031003
Filename	P100126A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	47.055	1.10	(2.34)	---	0.980
194		---	---	ND	---	0.735
195		---	---	ND	---	0.735
196		---	---	ND	---	0.735
197	197/200	---	---	ND	---	1.47
198	198/199	---	---	ND	---	1.47
199	198/199	---	---	ND	---	1.47
200	197/200	---	---	ND	---	1.47
201		---	---	ND	---	0.735
202		---	---	ND	---	0.735
203		---	---	ND	---	0.735
204		---	---	ND	---	0.735
205		---	---	ND	---	0.735
206		---	---	ND	---	0.735
207		---	---	ND	---	0.735
208		---	---	ND	---	0.735
209		---	---	ND	---	0.735

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTA0070-03 (FO105004)
Lab Sample ID	10120031003
Filename	P100126A_11

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	0.620
Total Trichloro Biphenyls	5.54
Total Tetrachloro Biphenyls	11.1
Total Pentachloro Biphenyls	32.1
Total Hexachloro Biphenyls	25.1
Total Heptachloro Biphenyls	6.25
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	80.7

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-23318		
Filename	P100119A_07		
Injected By	SMT	Matrix	Water
Total Amount Extracted	897 mL	Extracted	01/11/2010 09:00
ICAL ID	P100119A03	Analyzed	01/19/2010 19:58
CCal Filename(s)	P100119A_02	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.701	0.75	2.0	0.0303	3	IR
13C-4-MoCB	3	12.032	1.40	2.0	0.0866	6	IR
13C-2,2'-DiCB	4	12.391	2.36	2.0	0.0494	3	IR
13C-4,4'-DiCB	15	20.442	1.73	2.0	0.668	33	
13C-2,2',6-TrCB	19	16.764	1.10	2.0	0.273	14	R
13C-3,4,4'-TrCB	37	28.672	1.05	2.0	1.60	80	
13C-2,2',6,6'-TeCB	54	20.758	0.77	2.0	0.574	29	
13C-3,4,4',5-TeCB	81	35.949	0.75	2.0	1.71	86	
13C-3,3',4,4'-TeCB	77	36.535	0.78	2.0	1.73	87	
13C-2,2',4,6,6'-PeCB	104	27.263	1.75	2.0	0.901	45	
13C-2,3,3',4,4'-PeCB	105	40.123	1.67	2.0	1.88	94	
13C-2,3,4,4',5-PeCB	114	39.470	1.70	2.0	1.83	92	
13C-2,3',4,4',5-PeCB	118	38.933	1.67	2.0	1.79	90	
13C-2,3',4,4',5'-PeCB	123	38.598	1.70	2.0	1.78	89	
13C-3,3',4,4',5-PeCB	126	43.276	1.64	2.0	1.87	94	
13C-2,2',4,4',6,6'-HxCB	155	33.484	1.38	2.0	1.24	62	
13C-HxCB (156/157)	156/157	46.294	1.25	4.0	4.14	103	
13C-2,3',4,4',5,5'-HxCB	167	45.137	1.34	2.0	2.04	102	
13C-3,3',4,4',5,5'-HxCB	169	49.613	1.27	2.0	1.98	99	
13C-2,2',3,4',5,6,6'-HpCB	188	39.419	1.02	2.0	1.44	72	
13C-2,3,3',4,4',5,5'-HpCB	189	52.176	1.09	2.0	1.92	96	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.868	0.95	2.0	1.64	82	
13C-2,3,3',4,4',5,5',6-OcCB	205	55.042	0.93	2.0	1.71	85	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	57.284	0.66	2.0	1.59	80	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.615	0.82	2.0	1.58	79	
13C--DeCB	209	59.590	0.71	2.0	1.48	74	
Cleanup Standards							
13C-2,4,4'-TrCB	28	24.095	1.10	2.0	1.54	77	
13C-2,3,3',5,5'-PeCB	111	36.569	1.62	2.0	1.59	79	
13C-2,2',3,3',5,5',6-HpCB	178	42.538	1.07	2.0	1.81	90	
Recovery Standards							
13C-2,5-DiCB	9	15.242	1.67	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	26.241	0.87	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.719	1.59	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	42.085	1.30	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.417	0.96	2.0	NA	NA	

Conc = Concentration
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R = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

ND = Not Detected
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X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-23318
Filename P100119A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.279
2		---	---	ND	---	0.279
3		---	---	ND	---	0.279
4		---	---	ND	---	0.279
5		---	---	ND	---	0.279
6		---	---	ND	---	0.279
7		---	---	ND	---	0.279
8		---	---	ND	---	0.279
9		---	---	ND	---	0.279
10		---	---	ND	---	0.279
11		---	---	ND	---	1.67
12	12/13	---	---	ND	---	0.557
13	12/13	---	---	ND	---	0.557
14		---	---	ND	---	0.279
15		---	---	ND	---	0.279
16		---	---	ND	---	0.279
17		---	---	ND	---	0.279
18	18/30	---	---	ND	---	0.557
19		---	---	ND	---	0.279
20	20/28	---	---	ND	---	0.557
21	21/33	---	---	ND	---	0.557
22		---	---	ND	---	0.279
23		---	---	ND	---	0.279
24		---	---	ND	---	0.279
25		---	---	ND	---	0.279
26	26/29	---	---	ND	---	0.557
27		---	---	ND	---	0.279
28	20/28	---	---	ND	---	0.557
29	26/29	---	---	ND	---	0.557
30	18/30	---	---	ND	---	0.557
31		---	---	ND	---	0.279
32		---	---	ND	---	0.279
33	21/33	---	---	ND	---	0.557
34		---	---	ND	---	0.279
35		---	---	ND	---	0.279
36		---	---	ND	---	0.279
37		---	---	ND	---	0.279
38		---	---	ND	---	0.279
39		---	---	ND	---	0.279
40	40/41/71	---	---	ND	---	1.67
41	40/41/71	---	---	ND	---	1.67
42		---	---	ND	---	0.557
43	43/73	---	---	ND	---	1.11
44	44/47/65	---	---	ND	---	1.67
45	45/51	---	---	ND	---	1.11

Conc = Concentration
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R = Recovery outside of Method 1668A control limits
ng/L = Nanograms per liter

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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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1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-23318
Filename P100119A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46		---	---	ND	---	0.557
47	44/47/65	---	---	ND	---	1.67
48		---	---	ND	---	0.557
49	49/69	---	---	ND	---	1.11
50	50/53	---	---	ND	---	1.11
51	45/51	---	---	ND	---	1.11
52		---	---	ND	---	0.557
53	50/53	---	---	ND	---	1.11
54		---	---	ND	---	0.557
55		---	---	ND	---	0.557
56		---	---	ND	---	0.557
57		---	---	ND	---	0.557
58		---	---	ND	---	0.557
59	59/62/75	---	---	ND	---	1.67
60		---	---	ND	---	0.557
61	61/70/74/76	---	---	ND	---	2.23
62	59/62/75	---	---	ND	---	1.67
63		---	---	ND	---	0.557
64		---	---	ND	---	0.557
65	44/47/65	---	---	ND	---	1.67
66		---	---	ND	---	0.557
67		---	---	ND	---	0.557
68		---	---	ND	---	0.557
69	49/69	---	---	ND	---	1.11
70	61/70/74/76	---	---	ND	---	2.23
71	40/41/71	---	---	ND	---	1.67
72		---	---	ND	---	0.557
73	43/73	---	---	ND	---	1.11
74	61/70/74/76	---	---	ND	---	2.23
75	59/62/75	---	---	ND	---	1.67
76	61/70/74/76	---	---	ND	---	2.23
77		---	---	ND	---	0.557
78		---	---	ND	---	0.557
79		---	---	ND	---	0.557
80		---	---	ND	---	0.557
81		---	---	ND	---	0.557
82		---	---	ND	---	0.557
83		---	---	ND	---	0.557
84		---	---	ND	---	0.557
85	85/116/117	---	---	ND	---	1.67
86	86/87/97/108/119/125	---	---	ND	---	3.34
87	86/87/97/108/119/125	---	---	ND	---	3.34
88	88/91	---	---	ND	---	1.11
89		---	---	ND	---	0.557
90	90/101/113	---	---	ND	---	1.67

Conc = Concentration
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1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-23318
Filename P100119A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91	---	---	ND	---	1.11
92		---	---	ND	---	0.557
93	93/98/100/102	---	---	ND	---	2.23
94		---	---	ND	---	0.557
95		---	---	ND	---	0.557
96		---	---	ND	---	0.557
97	86/87/97/108/119/125	---	---	ND	---	3.34
98	93/98/100/102	---	---	ND	---	2.23
99		---	---	ND	---	0.557
100	93/98/100/102	---	---	ND	---	2.23
101	90/101/113	---	---	ND	---	1.67
102	93/98/100/102	---	---	ND	---	2.23
103		---	---	ND	---	0.557
104		---	---	ND	---	0.557
105		---	---	ND	---	0.557
106		---	---	ND	---	0.557
107	107/124	---	---	ND	---	1.11
108	86/87/97/108/119/125	---	---	ND	---	3.34
109		---	---	ND	---	0.557
110	110/115	---	---	ND	---	1.11
111		---	---	ND	---	0.557
112		---	---	ND	---	0.557
113	90/101/113	---	---	ND	---	1.67
114		---	---	ND	---	0.557
115	110/115	---	---	ND	---	1.11
116	85/116/117	---	---	ND	---	1.67
117	85/116/117	---	---	ND	---	1.67
118		---	---	ND	---	0.557
119	86/87/97/108/119/125	---	---	ND	---	3.34
120		---	---	ND	---	0.557
121		---	---	ND	---	0.557
122		---	---	ND	---	0.557
123		---	---	ND	---	0.557
124	107/124	---	---	ND	---	1.11
125	86/87/97/108/119/125	---	---	ND	---	3.34
126		---	---	ND	---	0.557
127		---	---	ND	---	0.557
128	128/166	---	---	ND	---	1.11
129	129/138/163	---	---	ND	---	1.67
130		---	---	ND	---	0.557
131		---	---	ND	---	0.557
132		---	---	ND	---	0.557
133		---	---	ND	---	0.557
134	134/143	---	---	ND	---	1.11
135	135/151	---	---	ND	---	1.11

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-23318
Filename P100119A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136		---	---	ND	---	0.557
137		---	---	ND	---	0.557
138	129/138/163	---	---	ND	---	1.67
139	139/140	---	---	ND	---	1.11
140	139/140	---	---	ND	---	1.11
141		---	---	ND	---	0.557
142		---	---	ND	---	0.557
143	134/143	---	---	ND	---	1.11
144		---	---	ND	---	0.557
145		---	---	ND	---	0.557
146		---	---	ND	---	0.557
147	147/149	---	---	ND	---	1.11
148		---	---	ND	---	0.557
149	147/149	---	---	ND	---	1.11
150		---	---	ND	---	0.557
151	135/151	---	---	ND	---	1.11
152		---	---	ND	---	0.557
153	153/168	---	---	ND	---	1.11
154		---	---	ND	---	0.557
155		---	---	ND	---	0.557
156	156/157	---	---	ND	---	1.11
157	156/157	---	---	ND	---	1.11
158		---	---	ND	---	0.557
159		---	---	ND	---	0.557
160		---	---	ND	---	0.557
161		---	---	ND	---	0.557
162		---	---	ND	---	0.557
163	129/138/163	---	---	ND	---	1.67
164		---	---	ND	---	0.557
165		---	---	ND	---	0.557
166	128/166	---	---	ND	---	1.11
167		---	---	ND	---	0.557
168	153/168	---	---	ND	---	1.11
169		---	---	ND	---	0.557
170		---	---	ND	---	0.557
171	171/173	---	---	ND	---	1.11
172		---	---	ND	---	0.557
173	171/173	---	---	ND	---	1.11
174		---	---	ND	---	0.557
175		---	---	ND	---	0.557
176		---	---	ND	---	0.557
177		---	---	ND	---	0.557
178		---	---	ND	---	0.557
179		---	---	ND	---	0.557
180	180/193	---	---	ND	---	1.11

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-23318
Filename P100119A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181		---	---	ND	---	0.557
182		---	---	ND	---	0.557
183	183/185	---	---	ND	---	1.11
184		---	---	ND	---	0.557
185	183/185	---	---	ND	---	1.11
186		---	---	ND	---	0.557
187		---	---	ND	---	0.557
188		---	---	ND	---	0.557
189		---	---	ND	---	0.557
190		---	---	ND	---	0.557
191		---	---	ND	---	0.557
192		---	---	ND	---	0.557
193	180/193	---	---	ND	---	1.11
194		---	---	ND	---	0.836
195		---	---	ND	---	0.836
196		---	---	ND	---	0.836
197	197/200	---	---	ND	---	1.67
198	198/199	---	---	ND	---	1.67
199	198/199	---	---	ND	---	1.67
200	197/200	---	---	ND	---	1.67
201		---	---	ND	---	0.836
202		---	---	ND	---	0.836
203		---	---	ND	---	0.836
204		---	---	ND	---	0.836
205		---	---	ND	---	0.836
206		---	---	ND	---	0.836
207		---	---	ND	---	0.836
208		---	---	ND	---	0.836
209		---	---	ND	---	0.836

Conc = Concentration
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Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Client Sample ID	DFBLKTL
Lab Sample ID	BLANK-23318
Filename	P100119A_07

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

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-23319		
Filename	P100126A_04	Matrix	Water
Total Amount Extracted	893 mL	Dilution	NA
ICAL ID	P100126A03	Extracted	01/11/2010 09:00
CCal Filename(s)	P100126A_02	Analyzed	01/26/2010 11:50
Method Blank ID	BLANK-23318	Injected By	SMT

	Native Analytes				Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**		**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	-10.0	-1000	R	2.0	0.000	0	R
3	1.0	0.784	78		2.0	0.0577	4	IR
4	1.0	0.669	89	I	2.0	0.0540	3	R
15	1.0	0.985	99		2.0	0.484	24	R
19	1.0	0.857	86		2.0	0.216	11	R
37	1.0	1.02	102		2.0	1.31	65	
54	1.0	1.03	103		2.0	0.407	20	R
81	1.0	1.02	102		2.0	1.61	81	
77	1.0	1.03	103		2.0	1.62	81	
104	1.0	0.859	95	I	2.0	0.923	46	
105	1.0	0.944	94		2.0	1.87	94	
114	1.0	1.05	105		2.0	1.83	91	
118	1.0	1.07	107		2.0	1.78	89	
123	1.0	1.05	105		2.0	1.77	89	
126	1.0	1.02	102		2.0	1.81	91	
155	1.0	0.975	97		2.0	1.35	68	
156/157	2.0	2.00	100		4.0	3.89	97	
167	1.0	1.01	101		2.0	1.96	98	
169	1.0	1.04	104		2.0	1.81	90	
188	1.0	1.01	101		2.0	1.61	81	
189	1.0	1.04	104		2.0	1.93	96	
202	1.0	0.994	99		2.0	1.79	90	
205	1.0	1.10	110		2.0	1.74	87	
206	1.0	1.03	103		2.0	1.77	89	
208	1.0	0.984	98		2.0	1.81	91	
209	1.0	1.03	103		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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-23320		
Filename	P100119A_05	Matrix	Water
Total Amount Extracted	865 mL	Dilution	NA
ICAL ID	P100119A03	Extracted	01/11/2010 09:00
CCal Filename(s)	P100119A_02	Analyzed	01/19/2010 17:48
Method Blank ID	BLANK-23318	Injected By	SMT

	Native Analytes				Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**		**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	0.000	0	R	2.0	0.00872	1	IR
3	1.0	0.794	79		2.0	0.0478	3	IR
4	1.0	0.440	86	I	2.0	0.0335	2	IR
15	1.0	1.07	107		2.0	0.502	25	R
19	1.0	1.11	111		2.0	0.180	9	R
37	1.0	0.986	99		2.0	1.46	73	
54	1.0	1.20	120		2.0	0.426	21	R
81	1.0	1.03	103		2.0	1.80	90	
77	1.0	1.10	110		2.0	1.76	88	
104	1.0	1.000	100		2.0	0.841	42	
105	1.0	1.09	109		2.0	1.87	94	
114	1.0	1.04	104		2.0	1.85	93	
118	1.0	1.07	107		2.0	1.85	92	
123	1.0	1.04	104		2.0	1.87	94	
126	1.0	1.03	103		2.0	1.91	96	
155	1.0	0.942	94		2.0	1.29	65	
156/157	2.0	2.08	104		4.0	4.25	106	
167	1.0	1.01	101		2.0	2.16	108	
169	1.0	1.03	103		2.0	2.12	106	
188	1.0	1.13	113		2.0	1.42	71	
189	1.0	1.07	107		2.0	2.09	105	
202	1.0	1.13	113		2.0	1.58	79	
205	1.0	1.08	108		2.0	1.85	93	
206	1.0	1.01	101		2.0	1.66	83	
208	1.0	1.11	111		2.0	1.67	84	
209	1.0	0.954	95		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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A

Spike Recovery Relative Percent Difference (RPD) Results

Client	Test America-Portland		
Spike 1 ID	LCS-23319	Spike 2 ID	LCSD-23320
Spike 1 Filename	P100126A_04	Spike 2 Filename	P100119A_05

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	-1000	0	--
4-MoCB	3	78	79	1.3
2,2'-DiCB	4	89	86	3.4
4,4'-DiCB	15	99	107	7.8
2,2',6-TrCB	19	86	111	25.4
3,4,4'-TrCB	37	102	99	3.0
2,2',6,6'-TeCB	54	103	120	15.2
3,3',4,4'-TeCB	77	103	110	6.6
3,4,4',5-TeCB	81	102	103	1.0
2,2',4,6,6'-PeCB	104	95	100	5.1
2,3,3',4,4'-PeCB	105	94	109	14.8
2,3,4,4',5-PeCB	114	105	104	1.0
2,3',4,4',5-PeCB	118	107	107	0.0
2,3',4,4',5'-PeCB	123	105	104	1.0
3,3',4,4',5-PeCB	126	102	103	1.0
2,2',4,4',6,6'-HxCB	155	97	94	3.1
(156/157)	156/157	100	104	3.9
2,3',4,4',5,5'-HxCB	167	101	101	0.0
3,3',4,4',5,5'-HxCB	169	104	103	1.0
2,2',3,4',5,6,6'-HpCB	188	101	113	11.2
2,3,3',4,4',5,5'-HpCB	189	104	107	2.8
2,2',3,3',5,5',6,6'-OcCB	202	99	113	13.2
2,3,3',4,4',5,5',6-OcCB	205	110	108	1.8
2,2',3,3',4,4',5,5',6-NoCB	206	103	101	2.0
2,2',3,3',4,5,5',6,6'-NoCB	208	98	111	12.4
Decachlorobiphenyl	209	103	95	8.1

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Event 3: February 10, 2010

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

Laboratory Data QA/QC Review
Upland Source Control Investigation
City Outfall Basin 19A

To: File

From: Karen Demsey, GSI Water Solutions, Inc.

Date: March 9, 2011

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses conducted by the City of Portland (City) in February 2010. One stormwater sample (FO105234), one field duplicate (FO105004), and one field decontamination blank (FO105235) were collected in Outfall Basin 19A on February 10, 2010 and submitted for analysis.

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

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

The WPCL summary reports and the subcontracted laboratory's data reports are attached for all analyses associated with these source control program samples. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

- Chain-of-custody – for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within accuracy 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 from the QA/QC review of the available elements in the laboratory reports are presented below.

Chain-of-Custody

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

Analysis Holding Times

The samples were extracted and analyzed within the acceptable holding times for all analyses.

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analysis of PCBs, PAHs and phthalates, and organochlorine pesticides. No analytes were detected in the method blanks.

Surrogate Recoveries

Surrogate recoveries were completed during the analyses of pesticides, PAHs and phthalates. The control criteria were exceeded for surrogate recovery of decachlorbiphenyl in sample FO105234 due to matrix interference. CAS reports that recovery of the alternate surrogate, tetrachloro-m-xylene, was within control limits and therefore no further corrective action was appropriate. All other surrogate recoveries were within acceptance limits.

Internal Standard Recoveries

Isotopically-labeled internal standards were processed during the subcontracted laboratory analysis of PCB congeners. The internal standard recoveries were within method specified target ranges, with four exceptions that are flagged "R" in the subcontracted laboratory report. Pace reports that the data were automatically corrected for variation in recovery and accurate values were obtained.

Matrix Spike/Matrix Spike Duplicates

MS/MSD samples were processed during the laboratory analysis of PAHs and phthalates. All MS/MSD recoveries and relative percent differences were within acceptance limits.

Laboratory Control Sample / Duplicate Laboratory Control Samples

LC samples were processed during the analyses of organochlorine pesticides, PAHs, phthalates, and PCBs. DLC samples were processed during the analysis of PCB congeners and pesticides. LC/DLC recoveries and relative percent differences for all analyses were within acceptance limits.

Other

For one or more of the detected compounds in the pesticide analysis, results from the primary and verification gas chromatography columns varied by more than 40 percent difference. CAS reports that the higher of the two values was reported because no evidence of matrix interference was observed. WPCL has flagged these results as estimates in their summary report.

Laboratory reporting limits were elevated for several organochlorine pesticides in one or both samples due to matrix interference (presence of non-target background components). The results are flagged in the CAS laboratory report to indicate matrix interference.

Laboratory reporting limits also were elevated for two compounds during analysis of PAHs and phthalates due to matrix interference. The results are flagged in the TA laboratory report.

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

City of Portland Chain-of-Custody

Bureau of Environmental Services

Date: 2/10/10
Page: 1 of 1
Collected By: MSS, AJA

Project Name: PORTLAND HARBOR STORMWATER SAMP
File Number: 1020.005 **Matrix:** STORMWTR

FY 2009-10 Stormwater Grab Chain-of-custody

Requested Analyses

	Location	Point Code	Sample Date	Sample Time	Sample Type	General: TSS	Organics: PCB Congeners (All 209)	Organics: PAH + Phthalates (TA)	Organics: Pesticides (CAS)	Metals: Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn)	Metals: Total Mercury	Field: Temperature (Deg C)	Field: Conductivity (umhos/cm)	Field: pH (pH units)
FO105234	SW-19A-AAP905-MMYY NW KITTRIDGE & FRONT	19A_SW1	2/10/10	1110	G	●	●	●	●	●	●	7.5	75	~~5.5~~ MS 5.7
FO105235	FIELD DECON BLANK	FDB	2/10/10	1053	G	●	●	●	●	●	●			
	DUPLICATE	DUP			G	●	●							

Relinquished By: 1.
Signature: Matt Sullivan Time: 1133
Printed Name: Matt Sullivan Date: 2/10/10

Received By: 1.
Signature: Time: 1133
Printed Name: Mackenzie Zink Date: 2/10/10

Relinquished By: 2.
Signature: Time:
Printed Name: Date:

Received By: 2.
Signature: Time:
Printed Name: Date:

Relinquished By: 3.
Signature: Time:
Printed Name: Date:

Received By: 3.
Signature: Time:
Printed Name: Date:

Relinquished By: 4.
Signature: Time:
Printed Name: Date:

Received By: 4.
Signature: Time:
Printed Name: Date:

S:\EID\1000\1020.005 - Portland Harbor Stormwater Samp\Sampdoc\Portland Harbor Stormwater OF 19A Grab COC FY09-10.xls

City of Portland
Water Pollution Control Laboratory

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

LABORATORY ANALYSIS REPORT

Sample ID: FO105234 **Sample Collected:** 02/10/10 11:10 **Sample Received:** 02/10/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: SW-19A-AAP905-0210 NW KITTRIDGE & FRONT
Sample Point Code: 19A_SW1
Sample Type: GRAB
Sample Matrix: STORMWTR

System ID: AO01524
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS/AJA

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%. LAB: Results for Pesticide analysis are raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	75	µmhos/cm	1	SM 2510 B	02/10/10
pH (FIELD)	5.7	pH Units	0.1	SM 4500-H B	02/10/10
TEMPERATURE	7.5	Deg. C	0.1	SM 2550 B	02/10/10
GENERAL					
TOTAL SUSPENDED SOLIDS	246	mg/L	2	SM 2540 D	02/10/10
METALS					
MERCURY	0.051	µg/L	0.002	WPCLSOP M-10.02	02/11/10
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	1.78	µg/L	0.1	EPA 200.8	02/17/10
CADMIUM	0.68	µg/L	0.1	EPA 200.8	02/17/10
CHROMIUM	16.1	µg/L	0.4	EPA 200.8	02/17/10
COPPER	54.1	µg/L	0.2	EPA 200.8	02/17/10
LEAD	29.7	µg/L	0.1	EPA 200.8	02/17/10
NICKEL	11.1	µg/L	0.2	EPA 200.8	02/17/10
SILVER	0.25	µg/L	0.1	EPA 200.8	02/17/10
ZINC	282	µg/L	0.5	EPA 200.8	02/17/10
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	EST 32	ng/L	10.0	EPA 8081	02/17/10
4,4'-DDE	<10.0	ng/L	10.0	EPA 8081	02/17/10
4,4'-DDT	<78.0	ng/L	78.0	EPA 8081	02/17/10
Aldrin	<10.0	ng/L	10.0	EPA 8081	02/17/10
Alpha-BHC	<10.0	ng/L	10.0	EPA 8081	02/17/10
Alpha-Chlordane	<10.0	ng/L	10.0	EPA 8081	02/17/10
Beta-BHC	<93.0	ng/L	93.0	EPA 8081	02/17/10
Delta-BHC	<10.0	ng/L	10.0	EPA 8081	02/17/10
Dieldrin	<10.0	ng/L	10.0	EPA 8081	02/17/10
Endosulfan I	EST 13	ng/L	10.0	EPA 8081	02/17/10
Endosulfan II	<10.0	ng/L	10.0	EPA 8081	02/17/10
Endosulfan Sulfate	<10.0	ng/L	10.0	EPA 8081	02/17/10
Endrin	<10.0	ng/L	10.0	EPA 8081	02/17/10
Endrin Aldehyde	<10.0	ng/L	10.0	EPA 8081	02/17/10

Report Date: 04/02/10 **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: FO105234 **Sample Collected:** 02/10/10 11:10 **Sample Received:** 02/10/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: SW-19A-AAP905-0210
NW KITTRIDGE & FRONT
Sample Point Code: 19A_SW1
Sample Type: GRAB
Sample Matrix: STORMWTR

System ID: AO01524
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS/AJA

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%. LAB: Results for Pesticide analysis are raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Endrin Ketone	<10.0	ng/L	10.0	EPA 8081	02/17/10
Gamma-BHC(Lindane)	<11.0	ng/L	11.0	EPA 8081	02/17/10
Gamma-Chlordane	<10.0	ng/L	10.0	EPA 8081	02/17/10
Heptachlor	<54.0	ng/L	54.0	EPA 8081	02/17/10
Heptachlor Epoxide	<10.0	ng/L	10.0	EPA 8081	02/17/10
Methoxychlor	<10.0	ng/L	10.0	EPA 8081	02/17/10
Toxaphene	<500	ng/L	500	EPA 8081	02/17/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	02/24/10
POLYNUCLEAR AROMATICS & PHTHALATES - TA					
1-Methylnaphthalene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
2-Methylnaphthalene	0.0222	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Acenaphthene	0.0305	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Acenaphthylene	<0.0337	µg/L	0.0337	EPA 8270M-SIM	02/16/10
Anthracene	0.0321	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Benzo(a)anthracene	0.0465	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Benzo(a)pyrene	0.0508	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Benzo(b)fluoranthene	0.0813	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Benzo(ghi)perylene	0.0439	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Benzo(k)fluoranthene	0.0455	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Bis(2-ethylhexyl) phthalate	0.952	µg/L	0.962	EPA 8270M-SIM	02/16/10
Butyl benzyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Chrysene	0.0932	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Dibenzo(a,h)anthracene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Diethyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Dimethyl phthalate	2.31	µg/L	0.962	EPA 8270M-SIM	02/16/10
Di-n-butyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Di-n-octyl phthalate	<1.92	µg/L	1.92	EPA 8270M-SIM	02/16/10
Fluoranthene	0.200	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Fluorene	0.0527	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Indeno(1,2,3-cd)pyrene	0.0291	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Naphthalene	0.0492	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Phenanthrene	0.150	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Pyrene	0.280	µg/L	0.0192	EPA 8270M-SIM	02/16/10

Report Date: 04/02/10 **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: **FO105234** **Sample Collected:** 02/10/10 11:10 **Sample Received:** 02/10/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR STORMWATER SAMP	**Report Page:**	Page 3 of 3
Address/Location:	SW-19A-AAP905-0210		
	NW KITTRIDGE & FRONT	**System ID:**	AO01524
Sample Point Code:	19A_SW1	**EID File # :**	1020.005
Sample Type:	GRAB	**LocCode:**	PORTHASW
Sample Matrix:	STORMWTR	**Collected By:**	MJS/AJA

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%. LAB: Results for Pesticide analysis are raised due to matrix interferences.

Test Parameter	Result	Units	MRL	Method	Analysis Date

End of Report for Sample ID: FO105234

Report Date: 04/02/10 **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: FO105235 **Sample Collected:** 02/10/10 10:53 **Sample Received:** 02/10/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: FIELD DECON BLANK

Report Page: Page 1 of 2

Sample Point Code: FDBLANK
Sample Type: GRAB
Sample Matrix: DIWTR

System ID: AO01525
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS/AJA

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SUSPENDED SOLIDS	<2	mg/L	2	SM 2540 D	02/10/10
METALS					
MERCURY	<0.0020	µg/L	0.002	WPCLSOP M-10.02	02/11/10
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	<0.10	µg/L	0.1	EPA 200.8	02/17/10
CADMIUM	<0.10	µg/L	0.1	EPA 200.8	02/17/10
CHROMIUM	<0.40	µg/L	0.4	EPA 200.8	02/17/10
COPPER	<0.20	µg/L	0.2	EPA 200.8	02/17/10
LEAD	<0.10	µg/L	0.1	EPA 200.8	02/17/10
NICKEL	<0.20	µg/L	0.2	EPA 200.8	02/17/10
SILVER	<0.10	µg/L	0.1	EPA 200.8	02/17/10
ZINC	<0.50	µg/L	0.5	EPA 200.8	02/17/10
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<1.6	ng/L	1.6	EPA 8081	02/17/10
4,4'-DDE	<1.4	ng/L	1.4	EPA 8081	02/17/10
4,4'-DDT	<0.5	ng/L	0.5	EPA 8081	02/17/10
Aldrin	<0.5	ng/L	0.5	EPA 8081	02/17/10
Alpha-BHC	<0.5	ng/L	0.5	EPA 8081	02/17/10
Alpha-Chlordane	<0.5	ng/L	0.5	EPA 8081	02/17/10
Beta-BHC	<0.5	ng/L	0.5	EPA 8081	02/17/10
Delta-BHC	<0.5	ng/L	0.5	EPA 8081	02/17/10
Dieldrin	<0.5	ng/L	0.5	EPA 8081	02/17/10
Endosulfan I	<0.5	ng/L	0.5	EPA 8081	02/17/10
Endosulfan II	<0.57	ng/L	0.57	EPA 8081	02/17/10
Endosulfan Sulfate	<0.5	ng/L	0.5	EPA 8081	02/17/10
Endrin	0.59	ng/L	0.5	EPA 8081	02/17/10
Endrin Aldehyde	<0.5	ng/L	0.5	EPA 8081	02/17/10
Endrin Ketone	<0.5	ng/L	0.5	EPA 8081	02/17/10
Gamma-BHC(Lindane)	<0.5	ng/L	0.5	EPA 8081	02/17/10
Gamma-Chlordane	<0.5	ng/L	0.5	EPA 8081	02/17/10
Heptachlor	<0.5	ng/L	0.5	EPA 8081	02/17/10
Heptachlor Epoxide	<0.5	ng/L	0.5	EPA 8081	02/17/10

Report Date: 04/02/10 **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: FO105235 **Sample Collected:** 02/10/10 10:53 **Sample Received:** 02/10/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: FIELD DECON BLANK

Report Page: Page 2 of 2

Sample Point Code: FDBLANK
Sample Type: GRAB
Sample Matrix: DIWTR

System ID: AO01525
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS/AJA

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Methoxychlor	<0.5	ng/L	0.5	EPA 8081	02/17/10
Toxaphene	<45	ng/L	45	EPA 8081	02/17/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	02/24/10
POLYNUCLEAR AROMATICS & PHTHALATES - TA					
1-Methylnaphthalene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
2-Methylnaphthalene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Acenaphthene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Acenaphthylene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Anthracene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Benzo(a)anthracene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Benzo(a)pyrene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Benzo(b)fluoranthene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Benzo(ghi)perylene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Benzo(k)fluoranthene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Bis(2-ethylhexyl) phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Butyl benzyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Chrysene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Dibenzo(a,h)anthracene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Diethyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Dimethyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Di-n-butyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Di-n-octyl phthalate	<0.962	µg/L	0.962	EPA 8270M-SIM	02/16/10
Fluoranthene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Fluorene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Indeno(1,2,3-cd)pyrene	<0.00962	µg/L	0.00962	EPA 8270M-SIM	02/16/10
Naphthalene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Phenanthrene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10
Pyrene	<0.0192	µg/L	0.0192	EPA 8270M-SIM	02/16/10

End of Report for Sample ID: FO105235

Report Date: 04/02/10 **Validated By:**

Columbia Analytical Services, Inc.
1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

March 4, 2010 Analytical Report for Service Request No: K1001301

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

RE: Portland Harbor Stormwater Samp

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on February 11, 2010. For your reference, these analyses have been assigned our service request number K1001301.

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

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

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/rh

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	City of Portland	**Service Request No.:**	K1001301
Project:	Portland Harbor Stormwater Samp	**Date Received:**	02/11/10
Sample Matrix:	Water		

CASE NARRATIVE

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

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 02/11/10. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A

Calibration Verification (CCV) Exceptions:
The primary evaluation criterion was exceeded for a few analytes in CCV 0224F004. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the average percent recovery of all analytes in the verification standard. The standard met the alternative evaluation criteria.

The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the CCV criterion is met for both columns, the higher of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Methoxychlor and Decachlorobiphenyl in CCV 0224F004. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Surrogate Exceptions:
The control criteria were exceeded for Decachlorobiphenyl in sample FO 105234 due to suspected matrix interference. The sample contained suspended particulate, which caused the sample to be extracted via EPA Method 3520C instead of EPA Method 3535. The recovery of the alternate surrogate, Tetrachloro-m-xylene, was within control limits. The recoveries of the surrogates in all associated QC samples were within control criteria. No further corrective action was appropriate.

Elevated Detection Limits:
The detection limit was elevated for several analytes in samples FO 105234 and FO 105234. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

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

Approved by_____ **Date** 03/05/10

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K1001301
Project:	Portland Harbor Stormwater Samp	**Date Collected:**	02/10/2010
Sample Matrix:	Water	**Date Received:**	02/11/2010

Organochlorine Pesticides

Sample Name:	FO 105234	**Units:**	ug/L
Lab Code:	K1001301-001	**Basis:**	NA
Extraction Method:	EPA 3535A	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	Ui	0.010	0.010	1	02/17/10	02/25/10	KWG1001507	
beta-BHC	ND	Ui	0.093	0.093	1	02/17/10	02/25/10	KWG1001507	
gamma-BHC (Lindane)	ND	Ui	0.011	0.011	1	02/17/10	02/25/10	KWG1001507	
delta-BHC	ND	Ui	0.010	0.010	1	02/17/10	02/25/10	KWG1001507	
Heptachlor	ND	Ui	0.054	0.054	1	02/17/10	02/25/10	KWG1001507	
Aldrin	ND	Ui	0.010	0.0024	1	02/17/10	02/25/10	KWG1001507	
Heptachlor Epoxide	ND	Ui	0.010	0.0014	1	02/17/10	02/25/10	KWG1001507	
gamma-Chlordane†	ND	Ui	0.010	0.010	1	02/17/10	02/25/10	KWG1001507	
Endosulfan I	**0.013**	P	0.010	0.00044	1	02/17/10	02/25/10	KWG1001507	
alpha-Chlordane	ND	U	0.010	0.0040	1	02/17/10	02/25/10	KWG1001507	
Dieldrin	ND	Ui	0.010	0.010	1	02/17/10	02/25/10	KWG1001507	
4,4'-DDE	ND	Ui	0.010	0.0041	1	02/17/10	02/25/10	KWG1001507	
Endrin	ND	Ui	0.010	0.0011	1	02/17/10	02/25/10	KWG1001507	
Endosulfan II	ND	Ui	0.010	0.0057	1	02/17/10	02/25/10	KWG1001507	
4,4'-DDD	**0.032**	P	0.010	0.0015	1	02/17/10	02/25/10	KWG1001507	
Endrin Aldehyde	ND	Ui	0.010	0.0095	1	02/17/10	02/25/10	KWG1001507	
Endosulfan Sulfate	**0.0019**	JP	0.010	0.00047	1	02/17/10	02/25/10	KWG1001507	
4,4'-DDT	ND	Ui	0.078	0.078	1	02/17/10	02/25/10	KWG1001507	
Endrin Ketone	ND	Ui	0.010	0.0015	1	02/17/10	02/25/10	KWG1001507	
Methoxychlor	ND	U	0.010	0.00093	1	02/17/10	02/25/10	KWG1001507	
Toxaphene	ND	Ui	0.50	0.47	1	02/17/10	02/25/10	KWG1001507	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	83	20-102	02/25/10	Acceptable
Decachlorobiphenyl	27	35-128	02/25/10	Outside Control Limits

† **Analyte Comments**

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K1001301
Project:	Portland Harbor Stormwater Samp	**Date Collected:**	02/10/2010
Sample Matrix:	Water	**Date Received:**	02/11/2010

Organochlorine Pesticides

Sample Name:	FO 105235	**Units:**	ng/L
Lab Code:	K1001301-002	**Basis:**	NA
Extraction Method:	EPA 3535	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.50	0.21	1	02/17/10	02/24/10	KWG1001359	
beta-BHC	ND	U	0.50	0.41	1	02/17/10	02/24/10	KWG1001359	
gamma-BHC (Lindane)	ND	U	0.50	0.47	1	02/17/10	02/24/10	KWG1001359	
delta-BHC	ND	U	0.50	0.14	1	02/17/10	02/24/10	KWG1001359	
Heptachlor	ND	U	0.50	0.18	1	02/17/10	02/24/10	KWG1001359	
Aldrin	ND	U	0.50	0.11	1	02/17/10	02/24/10	KWG1001359	
Heptachlor Epoxide	ND	U	0.50	0.21	1	02/17/10	02/24/10	KWG1001359	
gamma-Chlordane†	ND	U	0.50	0.31	1	02/17/10	02/24/10	KWG1001359	
Endosulfan I	ND	U	0.50	0.25	1	02/17/10	02/24/10	KWG1001359	
alpha-Chlordane	ND	U	0.50	0.27	1	02/17/10	02/24/10	KWG1001359	
Dieldrin	ND	U	0.50	0.37	1	02/17/10	02/24/10	KWG1001359	
4,4'-DDE	ND	Ui	1.4	1.4	1	02/17/10	02/24/10	KWG1001359	
Endrin	**0.59**		0.50	0.49	1	02/17/10	02/24/10	KWG1001359	
Endosulfan II	ND	Ui	0.57	0.57	1	02/17/10	02/24/10	KWG1001359	
4,4'-DDD	ND	Ui	1.6	1.6	1	02/17/10	02/24/10	KWG1001359	
Endrin Aldehyde	ND	U	0.50	0.21	1	02/17/10	02/24/10	KWG1001359	
Endosulfan Sulfate	ND	U	0.50	0.28	1	02/17/10	02/24/10	KWG1001359	
4,4'-DDT	ND	U	0.50	0.17	1	02/17/10	02/24/10	KWG1001359	
Endrin Ketone	ND	U	0.50	0.32	1	02/17/10	02/24/10	KWG1001359	
Methoxychlor	ND	U	0.50	0.28	1	02/17/10	02/24/10	KWG1001359	
Toxaphene	ND	Ui	45	45	1	02/17/10	02/24/10	KWG1001359	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	63	20-102	02/24/10	Acceptable
Decachlorobiphenyl	74	35-128	02/24/10	Acceptable

† **Analyte Comments**

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K1001301
Project:	Portland Harbor Stormwater Samp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Organochlorine Pesticides

Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KWG1001359-3	**Basis:**	NA
Extraction Method:	EPA 3535	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.50	0.21	1	02/17/10	02/24/10	KWG1001359	
beta-BHC	ND	U	0.50	0.41	1	02/17/10	02/24/10	KWG1001359	
gamma-BHC (Lindane)	ND	U	0.50	0.47	1	02/17/10	02/24/10	KWG1001359	
delta-BHC	ND	U	0.50	0.14	1	02/17/10	02/24/10	KWG1001359	
Heptachlor	ND	U	0.50	0.18	1	02/17/10	02/24/10	KWG1001359	
Aldrin	ND	U	0.50	0.11	1	02/17/10	02/24/10	KWG1001359	
Heptachlor Epoxide	ND	U	0.50	0.21	1	02/17/10	02/24/10	KWG1001359	
gamma-Chlordane†	ND	U	0.50	0.31	1	02/17/10	02/24/10	KWG1001359	
Endosulfan I	ND	U	0.50	0.25	1	02/17/10	02/24/10	KWG1001359	
alpha-Chlordane	ND	U	0.50	0.27	1	02/17/10	02/24/10	KWG1001359	
Dieldrin	**0.42**	J	0.50	0.37	1	02/17/10	02/24/10	KWG1001359	
4,4'-DDE	ND	U	0.50	0.19	1	02/17/10	02/24/10	KWG1001359	
Endrin	ND	U	0.50	0.49	1	02/17/10	02/24/10	KWG1001359	
Endosulfan II	ND	U	0.50	0.35	1	02/17/10	02/24/10	KWG1001359	
4,4'-DDD	ND	U	0.50	0.21	1	02/17/10	02/24/10	KWG1001359	
Endrin Aldehyde	ND	U	0.50	0.21	1	02/17/10	02/24/10	KWG1001359	
Endosulfan Sulfate	ND	U	0.50	0.28	1	02/17/10	02/24/10	KWG1001359	
4,4'-DDT	ND	U	0.50	0.17	1	02/17/10	02/24/10	KWG1001359	
Endrin Ketone	ND	U	0.50	0.32	1	02/17/10	02/24/10	KWG1001359	
Methoxychlor	ND	U	0.50	0.28	1	02/17/10	02/24/10	KWG1001359	
Toxaphene	ND	Ui	46	46	1	02/17/10	02/24/10	KWG1001359	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	57	20-102	02/24/10	Acceptable
Decachlorobiphenyl	69	35-128	02/24/10	Acceptable

† **Analyte Comments**

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K1001301
Project:	Portland Harbor Stormwater Samp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Organochlorine Pesticides

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1001507-3	**Basis:**	NA
Extraction Method:	EPA 3535A	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.010	0.00033	1	02/17/10	02/25/10	KWG1001507	
beta-BHC	ND	U	0.010	0.00083	1	02/17/10	02/25/10	KWG1001507	
gamma-BHC (Lindane)	ND	U	0.010	0.00044	1	02/17/10	02/25/10	KWG1001507	
delta-BHC	ND	U	0.010	0.00057	1	02/17/10	02/25/10	KWG1001507	
Heptachlor	ND	U	0.010	0.00036	1	02/17/10	02/25/10	KWG1001507	
Aldrin	ND	U	0.010	0.00040	1	02/17/10	02/25/10	KWG1001507	
Heptachlor Epoxide	ND	U	0.010	0.00032	1	02/17/10	02/25/10	KWG1001507	
gamma-Chlordane†	ND	U	0.010	0.00032	1	02/17/10	02/25/10	KWG1001507	
Endosulfan I	ND	U	0.010	0.00044	1	02/17/10	02/25/10	KWG1001507	
alpha-Chlordane	ND	U	0.010	0.0040	1	02/17/10	02/25/10	KWG1001507	
Dieldrin	ND	U	0.010	0.00035	1	02/17/10	02/25/10	KWG1001507	
4,4'-DDE	ND	U	0.010	0.00036	1	02/17/10	02/25/10	KWG1001507	
Endrin	ND	U	0.010	0.00068	1	02/17/10	02/25/10	KWG1001507	
Endosulfan II	ND	U	0.010	0.00040	1	02/17/10	02/25/10	KWG1001507	
4,4'-DDD	ND	U	0.010	0.0015	1	02/17/10	02/25/10	KWG1001507	
Endrin Aldehyde	ND	U	0.010	0.00046	1	02/17/10	02/25/10	KWG1001507	
Endosulfan Sulfate	ND	U	0.010	0.00047	1	02/17/10	02/25/10	KWG1001507	
4,4'-DDT	ND	U	0.010	0.00058	1	02/17/10	02/25/10	KWG1001507	
Endrin Ketone	ND	U	0.010	0.00066	1	02/17/10	02/25/10	KWG1001507	
Methoxychlor	ND	U	0.010	0.00093	1	02/17/10	02/25/10	KWG1001507	
Toxaphene	ND	U	0.50	0.028	1	02/17/10	02/25/10	KWG1001507	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	71	20-102	02/25/10	Acceptable
Decachlorobiphenyl	98	35-128	02/25/10	Acceptable

† **Analyte Comments**

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Portland, City of
Project: Portland Harbor Stormwater Samp
Sample Matrix: Water

Service Request: K1001301

Surrogate Recovery Summary
Organochlorine Pesticides

Extraction Method: EPA 3535A
Analysis Method: 8081A

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	
FO 105234	K1001301-001	83	27	*
FO 105235	K1001301-002	63	74	
Method Blank	KWG1001359-3	57	69	
Method Blank	KWG1001507-3	71	98	
Lab Control Sample	KWG1001359-1	54	67	
Lab Control Sample Dup	KWG1001359-2	63	75	
Lab Control Sample	KWG1001507-1	57	99	
Lab Control Sample Dup	KWG1001507-2	80	104	

Surrogate Recovery Control Limits (%)

Sur1 =	Tetrachloro-m-xylene	20-102
Sur2 =	Decachlorobiphenyl	35-128

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

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

Client: Portland, City of
Project: Portland Harbor Stormwater Samp
Sample Matrix: Water

Service Request: K1001301
Date Extracted: 02/17/2010
Date Analyzed: 02/24/2010

Lab Control Spike/Duplicate Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3535
Analysis Method: 8081A

Units: ng/L
Basis: NA
Level: Low
Extraction Lot: KWG1001359

	Lab Control Sample KWG1001359-1 Lab Control Spike			Lab Control Sample Dup KWG1001359-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	9.46	10.0	95	10.0	10.0	100	36-122	6	30
beta-BHC	9.23	10.0	92	9.67	10.0	97	42-125	5	30
gamma-BHC (Lindane)	9.65	10.0	96	10.3	10.0	103	44-117	7	30
delta-BHC	9.43	10.0	94	10.3	10.0	103	48-123	9	30
Heptachlor	9.07	10.0	91	9.90	10.0	99	40-115	9	30
Aldrin	7.47	10.0	75	8.61	10.0	86	10-102	14	30
Heptachlor Epoxide	8.66	10.0	87	10.1	10.0	101	49-109	16	30
gamma-Chlordane	9.11	10.0	91	9.51	10.0	95	47-113	4	30
Endosulfan I	9.02	10.0	90	9.48	10.0	95	35-115	5	30
alpha-Chlordane	8.31	10.0	83	9.10	10.0	91	45-115	9	30
Dieldrin	9.09	10.0	91	9.82	10.0	98	50-115	8	30
4,4'-DDE	9.08	10.0	91	10.4	10.0	104	41-116	14	30
Endrin	10.5	10.0	105	11.3	10.0	113	48-126	7	30
Endosulfan II	9.81	10.0	98	10.4	10.0	104	28-128	6	30
4,4'-DDD	10.4	10.0	104	11.3	10.0	113	33-132	9	30
Endrin Aldehyde	8.71	10.0	87	9.49	10.0	95	27-104	9	30
Endosulfan Sulfate	9.08	10.0	91	9.66	10.0	97	38-118	6	30
4,4'-DDT	9.41	10.0	94	10.0	10.0	100	42-143	6	30
Endrin Ketone	8.85	10.0	89	9.37	10.0	94	30-124	6	30
Methoxychlor	9.35	10.0	94	10.1	10.0	101	43-143	8	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Portland, City of	**Service Request:**	K1001301
Project:	Portland Harbor Stormwater Samp	**Date Extracted:**	02/17/2010
Sample Matrix:	Water	**Date Analyzed:**	02/25/2010

Lab Control Spike/Duplicate Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method:	EPA 3535A	**Units:**	ug/L
Analysis Method:	8081A	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1001507

	Lab Control Sample KWG1001507-1 Lab Control Spike			Lab Control Sample Dup KWG1001507-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
alpha-BHC	0.159	0.200	79	0.190	0.200	95	36-122	18	30
beta-BHC	0.208	0.200	104	0.196	0.200	98	42-125	6	30
gamma-BHC (Lindane)	0.178	0.200	89	0.195	0.200	97	44-117	9	30
delta-BHC	0.194	0.200	97	0.201	0.200	100	48-123	4	30
Heptachlor	0.156	0.200	78	0.171	0.200	86	40-115	9	30
Aldrin	0.155	0.200	77	0.171	0.200	86	10-102	10	30
Heptachlor Epoxide	0.178	0.200	89	0.175	0.200	88	49-109	2	30
gamma-Chlordane	0.204	0.200	102	0.196	0.200	98	47-113	4	30
Endosulfan I	0.185	0.200	93	0.180	0.200	90	35-115	3	30
alpha-Chlordane	0.204	0.200	102	0.196	0.200	98	45-115	4	30
Dieldrin	0.208	0.200	104	0.201	0.200	100	50-115	4	30
4,4'-DDE	0.210	0.200	105	0.198	0.200	99	41-116	6	30
Endrin	0.224	0.200	112	0.213	0.200	107	48-126	5	30
Endosulfan II	0.209	0.200	105	0.197	0.200	99	28-128	6	30
4,4'-DDD	0.214	0.200	107	0.201	0.200	100	33-132	6	30
Endrin Aldehyde	0.189	0.200	95	0.187	0.200	93	27-104	1	30
Endosulfan Sulfate	0.211	0.200	106	0.203	0.200	101	38-118	4	30
4,4'-DDT	0.219	0.200	110	0.208	0.200	104	42-143	6	30
Endrin Ketone	0.220	0.200	110	0.208	0.200	104	30-124	6	30
Methoxychlor	0.213	0.200	107	0.201	0.200	100	43-143	6	30

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

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

Columbia Analytical Services INC
An Employee - Owned Company

CHAIN OF CUSTODY

SR#: K1001701

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE _____ OF _____ COC #_____

PROJECT NAME: Portland Harbor Stormwater Samp
PROJECT NUMBER:
PROJECT MANAGER: Jennifer Shackelford
COMPANY/ADDRESS: City of Portland
CITY/STATE/ZIP:
E-MAIL ADDRESS:
PHONE #: FAX#:
SAMPLER'S SIGNATURE:

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐	Hydrocarbons (*see below) Gas ☐ 8021 ☐ BTEX ☐	Fuel Fingerprint (FIQ) Diesel ☐ Oil ☐	NW-HCID Screen	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8151A ☐	Chlorophenolics 8141A ☐	Tri ☐ Tetra ☐ 8151M	PAHS 8310 ☐ SIM ☐ POP ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐	Hex-Chrom ☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	REMARKS
FD105234	2/10/10	1110		W	1							X											
FD105235	2/10/10	1053		W	1							X											

REPORT REQUIREMENTS

X I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. # _____
Bill To: _____

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: [signature]	Signature: [signature]	Signature: [signature]
Date/Time: 2/11/10 1005	Date/Time: 2-11-10 10:05	Date/Time: 2/11/10 12:55	Date/Time: 2/11/10 1255
Printed Name: Mackenzie Zink	Printed Name: Bridget Bullight	Printed Name: Bridget Bullight	Printed Name: [illegible]
Firm: COP	Firm: CAS	Firm: CAS	Firm: CAS

RCOC #1 06/03

13

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC PD

Client / Project: C. of PHd Service Request *K10* 01301

Received: 2/11/10 Opened: 2/11/10 By: AF

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* (*Courier*) *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ (NA)
3. Were custody seals on coolers? (NA) Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? NA (Y) N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Page 1 of _____

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

March 04, 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 02/11/10 17:10. The following list is a summary of the Work Orders contained in this report, generated on 03/04/10 13:37.

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

Work Order	Project	ProjectNumber
PTB0340	Portland Harbor	36238

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	03/04/10 13:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO 105234	PTB0340-01	Water	02/10/10 11:10	02/11/10 17:10
FO 105235	PTB0340-02	Water	02/10/10 10:53	02/11/10 17:10

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	03/04/10 13:37

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTB0340-01 (FO 105234)			**Water**			**Sampled: 02/10/10 11:10**				
1-Methylnaphthalene	EPA 8270m	ND	*0.0192*	0.0192	ug/l	1x	10B0433	02/16/10 09:20	02/19/10 19:59	
2-Methylnaphthalene	"	**0.0222**	*0.0192*	0.0192	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	"	**0.952**	*0.506*	0.962	"	"	"	"	02/19/10 19:43	**J**
Butyl benzyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	*1.01*	1.92	"	2x	"	"	02/23/10 21:00	**RL1**
Diethyl phthalate	"	ND	*0.506*	0.962	"	1x	"	"	02/19/10 19:43	
Dimethyl phthalate	"	**2.31**	*0.506*	0.962	"	"	"	"	"	
Acenaphthene	"	**0.0305**	*0.0192*	0.0192	"	"	"	"	02/19/10 19:59	
Acenaphthylene	"	ND	*0.0337*	0.0337	"	"	"	"	"	**RL1**
Anthracene	"	**0.0321**	*0.0192*	0.0192	"	"	"	"	"	
Benzo (a) anthracene	"	**0.0465**	*0.00962*	0.00962	"	"	"	"	"	
Benzo (a) pyrene	"	**0.0508**	*0.00962*	0.00962	"	"	"	"	"	
Benzo (b) fluoranthene	"	**0.0813**	*0.00962*	0.00962	"	"	"	"	"	
Benzo (ghi) perylene	"	**0.0439**	*0.0192*	0.0192	"	"	"	"	"	
Benzo (k) fluoranthene	"	**0.0455**	*0.00962*	0.00962	"	"	"	"	"	
Chrysene	"	**0.0932**	*0.00962*	0.00962	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Fluoranthene	"	**0.200**	*0.0192*	0.0192	"	"	"	"	"	
Fluorene	"	**0.0527**	*0.0192*	0.0192	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	**0.0291**	*0.00962*	0.00962	"	"	"	"	"	
Naphthalene	"	**0.0492**	*0.0192*	0.0192	"	"	"	"	"	
Phenanthrene	"	**0.150**	*0.0192*	0.0192	"	"	"	"	"	
Pyrene	"	**0.280**	*0.0192*	0.0192	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*				*77.3%*		*25 - 125 %*				"
Pyrene-d10				*87.5%*		*23 - 150 %*				"
Benzo (a) pyrene-d12				*82.8%*		*10 - 125 %*				"
PTB0340-02 (FO 105235)			**Water**			**Sampled: 02/10/10 10:53**				
1-Methylnaphthalene	EPA 8270m	ND	*0.0192*	0.0192	ug/l	1x	10B0433	02/16/10 09:20	02/19/10 01:06	
2-Methylnaphthalene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	"	ND	*0.506*	0.962	"	"	"	"	02/19/10 13:30	
Butyl benzyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	
Diethyl phthalate	"	ND	*0.506*	0.962	"	"	"	"	"	

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	03/04/10 13:37

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTB0340-02 (FO 105235)			**Water**			**Sampled: 02/10/10 10:53**				
Dimethyl phthalate	EPA 8270m	ND	*0.506*	0.962	ug/l	1x	10B0433	02/16/10 09:20	02/19/10 13:30	
Acenaphthene	"	ND	*0.0192*	0.0192	"	"	"	"	02/19/10 01:06	
Acenaphthylene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Anthracene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Benzo (a) anthracene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Benzo (a) pyrene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Chrysene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Fluoranthene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Fluorene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	*0.00962*	0.00962	"	"	"	"	"	
Naphthalene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Phenanthrene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Pyrene	"	ND	*0.0192*	0.0192	"	"	"	"	"	
Surrogate(s): *Fluorene-d10*			*62.1%*			*25 - 125 %*				"
Pyrene-d10			*104%*			*23 - 150 %*				"
Benzo (a) pyrene-d12			*89.7%*			*10 - 125 %*				"

TestAmerica Portland

Howard Holmes, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	03/04/10 13:37

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

TestAmerica Portland

QC Batch: 10B0433 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (10B0433-BLK1)									**Extracted: 02/16/10 09:20**					
2-Methylnaphthalene	EPA 8270m	ND	0.0200	0.0200	ug/l	1x	--	--	--	--	--	--	02/18/10 16:26	
1-Methylnaphthalene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Bis(2-ethylhexyl)phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	02/17/10 18:16	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Diethyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Acenaphthene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	02/18/10 16:26	
Acenaphthylene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 64.0%*			*Limits: 25-125%*								*02/18/10 16:26*	
Pyrene-d10		*120%*			*23-150%*								*"*	
Benzo (a) pyrene-d12		*95.0%*			*10-125%*								*"*	
LCS (10B0433-BS1)									**Extracted: 02/16/10 09:20**					
2-Methylnaphthalene	EPA 8270m	1.01	0.0200	0.0200	ug/l	1x	--	1.25	81.1%	(20-150)	--	--	02/18/10 17:00	
1-Methylnaphthalene	"	0.943	0.0200	0.0200	"	"	--	"	75.5%	"	--	--	"	
Bis(2-ethylhexyl)phthalate	"	3.61	0.526	1.00	"	"	--	4.00	90.2%	"	--	--	02/17/10 18:50	
Butyl benzyl phthalate	"	3.59	0.526	1.00	"	"	--	"	89.7%	"	--	--	"	
Di-n-butyl phthalate	"	3.39	0.526	1.00	"	"	--	"	84.8%	"	--	--	"	
Di-n-octyl phthalate	"	4.15	0.526	1.00	"	"	--	"	104%	"	--	--	"	
Diethyl phthalate	"	3.17	0.526	1.00	"	"	--	"	79.2%	"	--	--	"	
Dimethyl phthalate	"	3.13	0.526	1.00	"	"	--	"	78.3%	"	--	--	"	
Acenaphthene	"	1.16	0.0200	0.0200	"	"	--	1.25	92.7%	(35-120)	--	--	02/18/10 17:00	
Acenaphthylene	"	1.24	0.0200	0.0200	"	"	--	"	99.6%	(34-116)	--	--	"	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	03/04/10 13:37

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

TestAmerica Portland

QC Batch: 10B0433 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (10B0433-BS1)								**Extracted: 02/16/10 09:20**						
Anthracene	EPA 8270m	1.18	0.0200	0.0200	ug/l	1x	--	1.25	94.4%	(24-119)	--	--	02/18/10 17:00	
Benzo (a) anthracene	"	1.44	0.0100	0.0100	"	"	--	"	115%	(36-128)	--	--	"	
Benzo (a) pyrene	"	1.34	0.0100	0.0100	"	"	--	"	107%	(17-128)	--	--	"	
Benzo (b) fluoranthene	"	1.21	0.0100	0.0100	"	"	--	"	96.5%	(37-131)	--	--	"	
Benzo (ghi) perylene	"	1.35	0.0200	0.0200	"	"	--	"	108%	(26-126)	--	--	"	
Benzo (k) fluoranthene	"	1.21	0.0100	0.0100	"	"	--	"	97.0%	(18-145)	--	--	"	
Chrysene	"	1.48	0.0100	0.0100	"	"	--	"	118%	(16-137)	--	--	"	
Dibenzo (a,h) anthracene	"	1.39	0.0100	0.0100	"	"	--	"	111%	(20-141)	--	--	"	
Fluoranthene	"	1.17	0.0200	0.0200	"	"	--	"	93.7%	(31-125)	--	--	"	
Fluorene	"	1.35	0.0200	0.0200	"	"	--	"	108%	(27-124)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	1.32	0.0100	0.0100	"	"	--	"	106%	(30-135)	--	--	"	
Naphthalene	"	1.38	0.0200	0.0200	"	"	--	"	110%	(30-113)	--	--	"	
Phenanthrene	"	1.14	0.0200	0.0200	"	"	--	"	91.0%	(34-126)	--	--	"	
Pyrene	"	1.68	0.0200	0.0200	"	"	--	"	134%	(21-141)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 66.7%*			*Limits: 25-125%*								*02/18/10 17:00*	
Pyrene-d10		*119%*			*23-150%*								*"*	
Benzo (a) pyrene-d12		*92.2%*			*10-125%*								*"*	
Matrix Spike (10B0433-MS1)							**QC Source: PTB0336-01**						**Extracted: 02/16/10 09:20**	
2-Methylnaphthalene	EPA 8270m	1.01	0.0769	0.0769	ug/l	4x	0.0864	1.20	77.0%		--	--	02/18/10 17:30	
1-Methylnaphthalene	"	0.997	0.0769	0.0769	"	"	0.0622	"	77.8%		--	--	"	
Bis(2-ethylhexyl)phthalate	"	7.48	2.02	3.85	"	"	2.22	3.85	137%		--	--	02/17/10 19:24	
Butyl benzyl phthalate	"	3.95	2.02	3.85	"	"	ND	"	103%	"	--	--	"	
Di-n-butyl phthalate	"	3.78	2.02	3.85	"	"	ND	"	98.4%	"	--	--	"	J
Di-n-octyl phthalate	"	5.99	2.02	3.85	"	"	0.614	"	140%	"	--	--	"	
Diethyl phthalate	"	3.57	2.02	3.85	"	"	ND	"	92.8%	"	--	--	"	J
Dimethyl phthalate	"	3.61	2.02	3.85	"	"	ND	"	93.8%	"	--	--	"	J
Acenaphthene	"	1.15	0.0769	0.0769	"	"	ND	1.20	95.9%	(35-120)	--	--	02/18/10 17:30	
Acenaphthylene	"	1.23	0.0769	0.0769	"	"	0.0444	"	98.6%	(34-116)	--	--	"	
Anthracene	"	1.21	0.0769	0.0769	"	"	0.0330	"	98.1%	(24-119)	--	--	"	
Benzo (a) anthracene	"	1.37	0.0385	0.0385	"	"	0.0284	"	111%	(22-129)	--	--	"	
Benzo (a) pyrene	"	1.25	0.0385	0.0385	"	"	0.0353	"	101%	(4-112)	--	--	"	
Benzo (b) fluoranthene	"	1.21	0.0385	0.0385	"	"	0.0352	"	97.7%	(0-136)	--	--	"	
Benzo (ghi) perylene	"	1.31	0.0769	0.0769	"	"	0.0532	"	105%	(0-126)	--	--	"	
Benzo (k) fluoranthene	"	1.21	0.0385	0.0385	"	"	0.0192	"	98.9%	(0-145)	--	--	"	
Chrysene	"	1.54	0.0385	0.0385	"	"	0.0723	"	122%	(7-137)	--	--	"	
Dibenzo (a,h) anthracene	"	1.35	0.0385	0.0385	"	"	ND	"	112%	(0-141)	--	--	"	
Fluoranthene	"	1.24	0.0769	0.0769	"	"	0.116	"	93.1%	(30-125)	--	--	"	
Fluorene	"	1.39	0.0769	0.0769	"	"	0.0575	"	111%	(27-124)	--	--	"	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	03/04/10 13:37

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

TestAmerica Portland

QC Batch: 10B0433 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (10B0433-MS1)				**QC Source: PTB0336-01**				**Extracted: 02/16/10 09:20**						
Indeno (1,2,3-cd) pyrene	EPA 8270m	1.33	0.0385	0.0385	ug/l	4x	0.0151	1.20	109%	(0-135)	--	--	02/18/10 17:30	
Naphthalene	"	1.48	0.0769	0.0769	"	"	0.0993	"	115%	(30-126)	--	--	"	
Phenanthrene	"	1.39	0.0769	0.0769	"	"	0.158	"	103%	(34-126)	--	--	"	
Pyrene	"	1.83	0.0769	0.0769	"	"	0.219	"	134%	(14-168)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 70.9%*		*Limits: 25-125%*									*02/18/10 17:30*	
Pyrene-d10		*108%*		*23-150%*									*"*	
Benzo (a) pyrene-d12		*96.1%*		*10-125%*									*"*	
Matrix Spike Dup (10B0433-MSD1)				**QC Source: PTB0336-01**				**Extracted: 02/16/10 09:20**						
2-Methylnaphthalene	EPA 8270m	0.992	0.0762	0.0762	ug/l	4x	0.0864	1.19	76.0%		1.19%		02/18/10 18:01	
1-Methylnaphthalene	"	0.902	0.0762	0.0762	"	"	0.0622	"	70.5%		9.72%		"	
Bis(2-ethylhexyl)phthalate	"	7.42	2.00	3.81	"	"	2.22	3.81	136%		0.133%		02/17/10 19:58	
Butyl benzyl phthalate	"	3.87	2.00	3.81	"	"	ND	"	102%	"	1.03%	"	"	
Di-n-butyl phthalate	"	3.69	2.00	3.81	"	"	ND	"	96.9%	"	1.54%	"	"	J
Di-n-octyl phthalate	"	6.03	2.00	3.81	"	"	0.614	"	142%	"	1.59%	"	"	
Diethyl phthalate	"	3.50	2.00	3.81	"	"	ND	"	92.0%	"	0.822%	"	"	J
Dimethyl phthalate	"	3.50	2.00	3.81	"	"	ND	"	91.8%	"	2.07%	"	"	J
Acenaphthene	"	1.12	0.0762	0.0762	"	"	ND	1.19	94.0%	(35-120)	2.09%	(45)	02/18/10 18:01	
Acenaphthylene	"	1.23	0.0762	0.0762	"	"	0.0444	"	99.8%	(34-116)	1.22%	"	"	
Anthracene	"	1.09	0.0762	0.0762	"	"	0.0330	"	88.7%	(24-119)	10.1%	"	"	
Benzo (a) anthracene	"	1.32	0.0381	0.0381	"	"	0.0284	"	108%	(22-129)	2.81%	"	"	
Benzo (a) pyrene	"	1.19	0.0381	0.0381	"	"	0.0353	"	97.1%	(4-112)	3.68%	"	"	
Benzo (b) fluoranthene	"	1.20	0.0381	0.0381	"	"	0.0352	"	97.8%	(0-136)	0.0236%	"	"	
Benzo (ghi) perylene	"	1.29	0.0762	0.0762	"	"	0.0532	"	104%	(0-126)	1.04%	"	"	
Benzo (k) fluoranthene	"	1.16	0.0381	0.0381	"	"	0.0192	"	95.9%	(0-145)	3.12%	"	"	
Chrysene	"	1.49	0.0381	0.0381	"	"	0.0723	"	119%	(7-137)	2.28%	"	"	
Dibenzo (a,h) anthracene	"	1.24	0.0381	0.0381	"	"	ND	"	104%	(0-141)	7.13%	"	"	
Fluoranthene	"	1.30	0.0762	0.0762	"	"	0.116	"	99.7%	(30-125)	6.83%	"	"	
Fluorene	"	1.38	0.0762	0.0762	"	"	0.0575	"	111%	(27-124)	0.0558%	"	"	
Indeno (1,2,3-cd) pyrene	"	1.23	0.0381	0.0381	"	"	0.0151	"	102%	(0-135)	6.79%	"	"	
Naphthalene	"	1.50	0.0762	0.0762	"	"	0.0993	"	117%	(30-126)	2.43%	"	"	
Phenanthrene	"	1.32	0.0762	0.0762	"	"	0.158	"	97.6%	(34-126)	5.23%	"	"	
Pyrene	"	1.69	0.0762	0.0762	"	"	0.219	"	124%	(14-168)	7.86%	"	"	
Surrogate(s): Fluorene-d10		*Recovery: 71.0%*		*Limits: 25-125%*									*02/18/10 18:01*	
Pyrene-d10		*92.3%*		*23-150%*									*"*	
Benzo (a) pyrene-d12		*85.5%*		*10-125%*									*"*	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	03/04/10 13:37

Notes and Definitions

Report Specific Notes:

J	-	Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.
RL1	-	Reporting limit raised due to sample matrix effects.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
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

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9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: PTB0340

CLIENT: City of Portland

REPORT TO: Jennifer Shackelford
ADDRESS:

PHONE: FAX:

INVOICE TO: Charles Lytle

P.O. NUMBER: 36238

PROJECT NAME: Portland Harbor
PROJECT NUMBER:
SAMPLED BY:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: ~~10~~ STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: PCB Congeners ATL 209 **	REQUESTED ANALYSES: PAH + Methylnaphthalenes ** LL	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1 F0105234	2/10/10 1110		X	X	W	2		
2 F0105235	2/10/10 1053		X	X	W	2		
3								
4								
5								
6								
7								
8								
9								
10								

RELEASED BY:	[signature]	DATE: 2/11/10	RECEIVED BY:	[signature]	DATE: 2/11/10
PRINT NAME: Mackenzie Zirk	FIRM: City of Portland	TIME: 14:35	PRINT NAME: Bob F	FIRM: TAP	TIME: 14:35
RELEASED BY:	[signature]	DATE: 2/11/10	RECEIVED BY:	[signature]	DATE: 2/11/10
PRINT NAME: Bob F	FIRM: TAP	TIME: 17:10	PRINT NAME: Megan Henning	FIRM: TAP	TIME: 17:10

ADDITIONAL REMARKS: Please Send to PACE for 209 congeners. ** Extended PAH list → methylnaphthalenes - thanks

TEMP: 3.7 4.3 6.0

PAGE 1 OF 1

TAL-1000(0408)

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PTB0340 Date/Time Received: 2/1/10 1710

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): 1 1 1 ____ ____

Temperatures: 3.7 4.3 16.0 ____ ____

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:____

Initials: BS

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 #14, was the residual chlorine test negative? If no, document on NOD.
☒	☐	☐	17. Are dissolved/field filtered metals bottles sediment-free? If no, document on NOD.
☒	☐	☐	18. Is sufficient volume provided for client requested MS/MSD or matrix duplicates? If no, document on NOD and contact PM before proceeding.
☒	☐	☐	19. Are analyses with short holding times received in hold?
	☒	☐	20. Was Standard Turn Around (TAT) requested?
	☒	☐	21. Receipt date(s) < 48 hours past the collection date(s)? If no, notify PM.

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PTB0340

Login Checks:

Initials: PS

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: PS

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).

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Howard Holmes
Test America-Portland
9405 SW Nimbus Avenue
Beaverton OR 97008

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10122401
Sample Receipt Date: 02/16/2010
Client Project #: PTB0340
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:

March 16, 2010

Nate Habte, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
natnael.habte@pacelabs.com

Report Prepared Date:
March 2, 2010

Report of Laboratory Analysis

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

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
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DISCUSSION

This report presents the results from the analyses performed on two samples submitted by a representative of Test America Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.25-0.75 parts-per-trillion and were adjusted for the amount of the sample extracted.

The recoveries of the isotopically-labeled PCB internal standards in the sample extracts ranged from 30-103%. With four exceptions, flagged "R" on the LCS results tables, the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1668A. Since the quantification of the native congeners was based on isotope dilution and internal standard 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 procedures did not significantly contribute to the levels determined for the field samples.

Laboratory spike samples were also prepared with the sample batch using clean water that had been fortified with native standards. The results show that the spiked native compounds were recovered at 83-107%, with relative percent differences of 0.0-8.9%. These results indicate high degrees of accuracy and precision for these determinations. Matrix spikes were not prepared with the sample batch.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN00064_2000
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		South Carolina	74003001
Indiana	C-MN-01	Tennesee	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

Appendix A

Sample Management

1157

SUBCONTRACT ORDER
TestAmerica Portland
PTB0340

10122401

SENDING LABORATORY:

TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Phone: (503) 906-9200
Fax: (503) 906-9210
Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis
1700 Elm Street Suite 200
Minneapolis, MN 55414
Phone :(612) 607-1700
Fax: (612) 607-6444
Project Location: OR - OREGON
Receipt Temperature:_______°C Ice: Y / N

needs Excel EDD

Standard TAT is requested unless specific due date is requested. => Due Date: 2/25/10 **Initials:** PS

Analysis	Units	Expires	Comments
Sample ID: PTB0340-01 (FO 105234 - Water)		Sampled: **02/10/10 11:10**	001
1668 Coplanar PCBs - SUB	ug/l	08/09/10 11:10	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (B)			
Sample ID: PTB0340-02 (FO 105235 - Water)		Sampled: **02/10/10 10:53**	002
1668 Coplanar PCBs - SUB	ug/l	08/09/10 10:53	***209 Congeners*** to Pace
Containers Supplied: 1L Amber - Unpres. (B)			

Released By [signature] Date/Time 2/15/10

Received By [signature] / Pace Date/Time 2/16/10 958

Released By Date/Time

Received By Date/Time

Sample Condition Upon Receipt

Pace Analytical

Client Name: Test America **Project #** 10122401

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 4170 7525 0520

Optional: Proj. Due Date: Proj. Name:

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:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 0.3 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and Initials of person examining contents: 2/16/10 SG

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☐Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	Samp #
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: Howard Holmes **Date/Time:** 2/16/10 @ 18:25

Comments/ Resolution:

Std. 4 WK TAT is fine.

Project Manager Review: MAH **Date:** 2/16/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

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

Appendix B

Sample Analysis Summary

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 - Test America-Portland

Client's Sample ID	PTB0340-01 (FO 105234-Water)		
Lab Sample ID	10122401001		
Filename	P100227A_10		
Injected By	BAL		
Total Amount Extracted	1020 mL	Matrix	Water
% Moisture	NA	Dilution	3
Dry Weight Extracted	NA	Collected	02/10/2010 11:10
ICAL ID	P100227A02	Received	02/16/2010 09:58
CCal Filename(s)	P100227A_01	Extracted	02/24/2010 17:00
Method Blank ID	BLANK-24104	Analyzed	02/27/2010 21:10

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.114	3.14	2.0	1.06	53
13C-4-MoCB	3	11.373	3.37	2.0	1.20	60
13C-2,2'-DiCB	4	11.709	1.53	2.0	1.06	53
13C-4,4'-DiCB	15	19.688	1.59	2.0	1.45	72
13C-2,2',6-TrCB	19	16.070	1.17	2.0	1.27	63
13C-3,4,4'-TrCB	37	27.919	1.09	2.0	1.80	90
13C-2,2',6,6'-TeCB	54	20.021	0.83	2.0	1.36	68
13C-3,4,4',5-TeCB	81	35.163	0.79	2.0	1.82	91
13C-3,3',4,4'-TeCB	77	35.750	0.81	2.0	1.87	93
13C-2,2',4,6,6'-PeCB	104	26.527	1.61	2.0	1.31	66
13C-2,3,3',4,4'-PeCB	105	39.356	1.66	2.0	1.70	85
13C-2,3,4,4',5-PeCB	114	38.685	1.64	2.0	1.70	85
13C-2,3',4,4',5-PeCB	118	38.149	1.58	2.0	1.66	83
13C-2,3',4,4',5'-PeCB	123	37.813	1.61	2.0	1.68	84
13C-3,3',4,4',5-PeCB	126	42.509	1.69	2.0	1.79	89
13C-2,2',4,4',6,6'-HxCB	155	32.732	1.31	2.0	1.36	68
13C-HxCB (156/157)	156/157	45.527	1.33	4.0	3.22	80
13C-2,3',4,4',5,5'-HxCB	167	44.370	1.31	2.0	1.63	81
13C-3,3',4,4',5,5'-HxCB	169	48.831	1.26	2.0	1.61	80
13C-2,2',3,4',5,6,6'-HpCB	188	38.669	1.11	2.0	1.43	71
13C-2,3,3',4,4',5,5'-HpCB	189	51.391	1.05	2.0	1.73	87
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.102	0.91	2.0	1.49	75
13C-2,3,3',4,4',5,5',6-OcCB	205	54.086	0.91	2.0	1.52	76
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.220	0.79	2.0	1.40	70
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.874	0.79	2.0	1.40	70
13C--DeCB	209	58.461	0.65	2.0	1.16	58
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.358	1.05	2.0	1.87	94
13C-2,3,3',5,5'-PeCB	111	35.801	1.63	2.0	1.66	83
13C-2,2',3,3',5,5',6-HpCB	178	41.771	1.09	2.0	1.55	78
Recovery Standards						
13C-2,5-DiCB	9	14.548	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.488	0.85	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	32.983	1.64	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.301	1.23	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.568	0.95	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

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 PTB0340-01 (FO 105234-Water)
Lab Sample ID 10122401001
Filename P100227A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.245
2		---	---	ND	---	0.245
3		---	---	ND	---	0.245
4		---	---	ND	---	0.245
5		---	---	ND	---	0.245
6		---	---	ND	---	0.245
7		---	---	ND	---	0.245
8		15.699	1.48	0.304	---	0.245
9		---	---	ND	---	0.245
10		---	---	ND	---	0.245
11		---	---	ND	---	1.47
12	12/13	---	---	ND	---	0.491
13	12/13	---	---	ND	---	0.491
14		---	---	ND	---	0.245
15		19.712	1.52	0.262	---	0.245
16		---	---	ND	---	0.245
17		---	---	ND	---	0.245
18	18/30	---	---	ND	---	0.491
19		---	---	ND	---	0.245
20	20/28	23.392	1.02	0.960	---	0.491
21	21/33	23.677	1.01	0.520	---	0.491
22		24.113	1.00	0.360	---	0.245
23		---	---	ND	---	0.245
24		---	---	ND	---	0.245
25		---	---	ND	---	0.245
26	26/29	---	---	ND	---	0.491
27		---	---	ND	---	0.245
28	20/28	23.392	1.02	(0.960)	---	0.491
29	26/29	---	---	ND	---	0.491
30	18/30	---	---	ND	---	0.491
31		23.056	1.04	0.836	---	0.245
32		---	---	ND	---	0.245
33	21/33	23.677	1.01	(0.520)	---	0.491
34		---	---	ND	---	0.245
35		---	---	ND	---	0.245
36		---	---	ND	---	0.245
37		27.952	1.18	0.395	---	0.245
38		---	---	ND	---	0.245
39		---	---	ND	---	0.245
40	40/41/71	---	---	ND	---	1.47
41	40/41/71	---	---	ND	---	1.47
42		---	---	ND	---	0.491
43	43/73	---	---	ND	---	0.981
44	44/47/65	---	---	ND	---	1.47
45	45/51	---	---	ND	---	0.981
46		---	---	ND	---	0.491
47	44/47/65	---	---	ND	---	1.47
48		---	---	ND	---	0.491

Conc = Concentration
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I = Interference
ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

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 PTB0340-01 (FO 105234-Water)
Lab Sample ID 10122401001
Filename P100227A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	0.981
50	50/53	---	---	ND	---	0.981
51	45/51	---	---	ND	---	0.981
52		25.521	0.81	1.90	---	0.491
53	50/53	---	---	ND	---	0.981
54		---	---	ND	---	0.491
55		---	---	ND	---	0.491
56		---	---	ND	---	0.491
57		---	---	ND	---	0.491
58		---	---	ND	---	0.491
59	59/62/75	---	---	ND	---	1.47
60		---	---	ND	---	0.491
61	61/70/74/76	30.803	0.78	2.22	---	1.96
62	59/62/75	---	---	ND	---	1.47
63		---	---	ND	---	0.491
64		27.986	0.82	0.498	---	0.491
65	44/47/65	---	---	ND	---	1.47
66		31.155	0.77	0.928	---	0.491
67		---	---	ND	---	0.491
68		---	---	ND	---	0.491
69	49/69	---	---	ND	---	0.981
70	61/70/74/76	30.803	0.78	(2.22)	---	1.96
71	40/41/71	---	---	ND	---	1.47
72		---	---	ND	---	0.491
73	43/73	---	---	ND	---	0.981
74	61/70/74/76	30.803	0.78	(2.22)	---	1.96
75	59/62/75	---	---	ND	---	1.47
76	61/70/74/76	30.803	0.78	(2.22)	---	1.96
77		---	---	ND	---	0.491
78		---	---	ND	---	0.491
79		---	---	ND	---	0.491
80		---	---	ND	---	0.491
81		---	---	ND	---	0.491
82		---	---	ND	---	0.491
83		---	---	ND	---	0.491
84		31.005	1.65	0.843	---	0.491
85	85/116/117	---	---	ND	---	1.47
86	86/87/97/108/119/125	---	---	ND	---	2.94
87	86/87/97/108/119/125	---	---	ND	---	2.94
88	88/91	---	---	ND	---	0.981
89		---	---	ND	---	0.491
90	90/101/113	33.000	1.63	3.12	---	1.47
91	88/91	---	---	ND	---	0.981
92		32.380	1.63	0.582	---	0.491
93	93/98/100/102	---	---	ND	---	1.96
94		---	---	ND	---	0.491
95		29.847	1.59	2.39	---	0.491
96		---	---	ND	---	0.491

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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 PTB0340-01 (FO 105234-Water)
Lab Sample ID 10122401001
Filename P100227A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	2.94
98	93/98/100/102	---	---	ND	---	1.96
99		33.621	1.49	1.08	---	0.491
100	93/98/100/102	---	---	ND	---	1.96
101	90/101/113	33.000	1.63	(3.12)	---	1.47
102	93/98/100/102	---	---	ND	---	1.96
103		---	---	ND	---	0.491
104		---	---	ND	---	0.491
105		39.373	1.58	1.87	---	0.491
106		---	---	ND	---	0.491
107	107/124	---	---	ND	---	0.981
108	86/87/97/108/119/125	---	---	ND	---	2.94
109		---	---	ND	---	0.491
110	110/115	35.063	1.61	4.11	---	0.981
111		---	---	ND	---	0.491
112		---	---	ND	---	0.491
113	90/101/113	33.000	1.63	(3.12)	---	1.47
114		---	---	ND	---	0.491
115	110/115	35.063	1.61	(4.11)	---	0.981
116	85/116/117	---	---	ND	---	1.47
117	85/116/117	---	---	ND	---	1.47
118		38.182	1.59	4.19	---	0.491
119	86/87/97/108/119/125	---	---	ND	---	2.94
120		---	---	ND	---	0.491
121		---	---	ND	---	0.491
122		---	---	ND	---	0.491
123		---	---	ND	---	0.491
124	107/124	---	---	ND	---	0.981
125	86/87/97/108/119/125	---	---	ND	---	2.94
126		---	---	ND	---	0.491
127		---	---	ND	---	0.491
128	128/166	---	---	ND	---	0.981
129	129/138/163	41.352	1.28	4.59	---	1.47
130		---	---	ND	---	0.491
131		---	---	ND	---	0.491
132		38.249	1.28	1.32	---	0.491
133		---	---	ND	---	0.491
134	134/143	---	---	ND	---	0.981
135	135/151	---	---	ND	---	0.981
136		---	---	ND	---	0.491
137		---	---	ND	---	0.491
138	129/138/163	41.352	1.28	(4.59)	---	1.47
139	139/140	---	---	ND	---	0.981
140	139/140	---	---	ND	---	0.981
141		40.278	1.30	0.695	---	0.491
142		---	---	ND	---	0.491
143	134/143	---	---	ND	---	0.981
144		---	---	ND	---	0.491

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REPORT OF LABORATORY ANALYSIS

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 PTB0340-01 (FO 105234-Water)
Lab Sample ID 10122401001
Filename P100227A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.491
146		---	---	ND	---	0.491
147	147/149	36.975	1.30	2.30	---	0.981
148		---	---	ND	---	0.491
149	147/149	36.975	1.30	(2.30)	---	0.981
150		---	---	ND	---	0.491
151	135/151	---	---	ND	---	0.981
152		---	---	ND	---	0.491
153	153/168	40.094	1.29	2.59	---	0.981
154		---	---	ND	---	0.491
155		---	---	ND	---	0.491
156	156/157	---	---	ND	---	0.981
157	156/157	---	---	ND	---	0.981
158		---	---	ND	---	0.491
159		---	---	ND	---	0.491
160		---	---	ND	---	0.491
161		---	---	ND	---	0.491
162		---	---	ND	---	0.491
163	129/138/163	41.352	1.28	(4.59)	---	1.47
164		---	---	ND	---	0.491
165		---	---	ND	---	0.491
166	128/166	---	---	ND	---	0.981
167		---	---	ND	---	0.491
168	153/168	40.094	1.29	(2.59)	---	0.981
169		---	---	ND	---	0.491
170		48.210	1.03	0.714	---	0.491
171	171/173	---	---	ND	---	0.981
172		---	---	ND	---	0.491
173	171/173	---	---	ND	---	0.981
174		43.565	1.07	0.585	---	0.491
175		---	---	ND	---	0.491
176		---	---	ND	---	0.491
177		---	---	ND	---	0.491
178		---	---	ND	---	0.491
179		---	---	ND	---	0.491
180	180/193	46.953	1.07	1.43	---	0.981
181		---	---	ND	---	0.491
182		---	---	ND	---	0.491
183	183/185	---	---	ND	---	0.981
184		---	---	ND	---	0.491
185	183/185	---	---	ND	---	0.981
186		---	---	ND	---	0.491
187		42.710	1.00	0.658	---	0.491
188		---	---	ND	---	0.491
189		---	---	ND	---	0.491
190		---	---	ND	---	0.491
191		---	---	ND	---	0.491
192		---	---	ND	---	0.491

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTB0340-01 (FO 105234-Water)
Lab Sample ID 10122401001
Filename P100227A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.953	1.07	(1.43)	---	0.981
194		---	---	ND	---	0.736
195		---	---	ND	---	0.736
196		---	---	ND	---	0.736
197	197/200	---	---	ND	---	1.47
198	198/199	---	---	ND	---	1.47
199	198/199	---	---	ND	---	1.47
200	197/200	---	---	ND	---	1.47
201		---	---	ND	---	0.736
202		---	---	ND	---	0.736
203		---	---	ND	---	0.736
204		---	---	ND	---	0.736
205		---	---	ND	---	0.736
206		---	---	ND	---	0.736
207		---	---	ND	---	0.736
208		---	---	ND	---	0.736
209		---	---	ND	---	0.736

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTB0340-01 (FO 105234-Water)
Lab Sample ID	10122401001
Filename	P100227A_10

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	0.566
Total Trichloro Biphenyls	3.07
Total Tetrachloro Biphenyls	5.55
Total Pentachloro Biphenyls	18.2
Total Hexachloro Biphenyls	11.5
Total Heptachloro Biphenyls	3.39
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	42.2

ND = Not Detected

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America-Portland

Client's Sample ID	PTB0340-02 (FO 105235-Water)		
Lab Sample ID	10122401002		
Filename	P100227A_11		
Injected By	BAL		
Total Amount Extracted	998 mL	Matrix	Water
% Moisture	NA	Dilution	3
Dry Weight Extracted	NA	Collected	02/10/2010 10:53
ICAL ID	P100227A02	Received	02/16/2010 09:58
CCal Filename(s)	P100227A_01	Extracted	02/24/2010 17:00
Method Blank ID	BLANK-24104	Analyzed	02/27/2010 22:15

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.138	3.43	2.0	0.606	30
13C-4-MoCB	3	11.385	3.12	2.0	0.763	38
13C-2,2'-DiCB	4	11.720	1.57	2.0	0.741	37
13C-4,4'-DiCB	15	19.688	1.59	2.0	1.18	59
13C-2,2',6-TrCB	19	16.046	1.03	2.0	0.905	45
13C-3,4,4'-TrCB	37	27.919	1.02	2.0	1.71	85
13C-2,2',6,6'-TeCB	54	20.021	0.80	2.0	1.07	54
13C-3,4,4',5-TeCB	81	35.147	0.80	2.0	1.80	90
13C-3,3',4,4'-TeCB	77	35.734	0.77	2.0	1.88	94
13C-2,2',4,6,6'-PeCB	104	26.527	1.61	2.0	1.33	66
13C-2,3,3',4,4'-PeCB	105	39.322	1.62	2.0	1.89	95
13C-2,3,4,4',5-PeCB	114	38.668	1.63	2.0	1.86	93
13C-2,3',4,4',5-PeCB	118	38.132	1.55	2.0	1.82	91
13C-2,3',4,4',5'-PeCB	123	37.796	1.59	2.0	1.85	93
13C-3,3',4,4',5-PeCB	126	42.475	1.63	2.0	2.06	103
13C-2,2',4,4',6,6'-HxCB	155	32.715	1.25	2.0	1.47	73
13C-HxCB (156/157)	156/157	45.510	1.28	4.0	3.62	90
13C-2,3',4,4',5,5'-HxCB	167	44.336	1.26	2.0	1.79	90
13C-3,3',4,4',5,5'-HxCB	169	48.780	1.31	2.0	1.77	89
13C-2,2',3,4',5,6,6'-HpCB	188	38.635	1.02	2.0	1.58	79
13C-2,3,3',4,4',5,5'-HpCB	189	51.327	1.05	2.0	1.92	96
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.068	0.92	2.0	1.73	87
13C-2,3,3',4,4',5,5',6-OcCB	205	54.064	0.91	2.0	1.68	84
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.155	0.78	2.0	1.58	79
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.831	0.81	2.0	1.64	82
13C--DeCB	209	58.375	0.70	2.0	1.26	63
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.358	1.07	2.0	1.52	76
13C-2,3,3',5,5'-PeCB	111	35.784	1.59	2.0	1.74	87
13C-2,2',3,3',5,5',6-HpCB	178	41.737	1.07	2.0	1.67	83
Recovery Standards						
13C-2,5-DiCB	9	14.548	1.59	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.471	0.82	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	32.983	1.63	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.284	1.29	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.525	0.95	2.0	NA	NA

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTB0340-02 (FO 105235-Water)
Lab Sample ID 10122401002
Filename P100227A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.251
2		---	---	ND	---	0.251
3		---	---	ND	---	0.251
4		---	---	ND	---	0.251
5		---	---	ND	---	0.251
6		---	---	ND	---	0.251
7		---	---	ND	---	0.251
8		---	---	ND	---	0.251
9		---	---	ND	---	0.251
10		---	---	ND	---	0.251
11		---	---	ND	---	1.50
12	12/13	---	---	ND	---	0.501
13	12/13	---	---	ND	---	0.501
14		---	---	ND	---	0.251
15		---	---	ND	---	0.251
16		---	---	ND	---	0.251
17		---	---	ND	---	0.251
18	18/30	---	---	ND	---	0.501
19		---	---	ND	---	0.251
20	20/28	---	---	ND	---	0.501
21	21/33	---	---	ND	---	0.501
22		---	---	ND	---	0.251
23		---	---	ND	---	0.251
24		---	---	ND	---	0.251
25		---	---	ND	---	0.251
26	26/29	---	---	ND	---	0.501
27		---	---	ND	---	0.251
28	20/28	---	---	ND	---	0.501
29	26/29	---	---	ND	---	0.501
30	18/30	---	---	ND	---	0.501
31		---	---	ND	---	0.251
32		---	---	ND	---	0.251
33	21/33	---	---	ND	---	0.501
34		---	---	ND	---	0.251
35		---	---	ND	---	0.251
36		---	---	ND	---	0.251
37		---	---	ND	---	0.251
38		---	---	ND	---	0.251
39		---	---	ND	---	0.251
40	40/41/71	---	---	ND	---	1.50
41	40/41/71	---	---	ND	---	1.50
42		---	---	ND	---	0.501
43	43/73	---	---	ND	---	1.00
44	44/47/65	---	---	ND	---	1.50
45	45/51	---	---	ND	---	1.00
46		---	---	ND	---	0.501
47	44/47/65	---	---	ND	---	1.50
48		---	---	ND	---	0.501

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTB0340-02 (FO 105235-Water)
Lab Sample ID 10122401002
Filename P100227A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	1.00
50	50/53	---	---	ND	---	1.00
51	45/51	---	---	ND	---	1.00
52		---	---	ND	---	0.501
53	50/53	---	---	ND	---	1.00
54		---	---	ND	---	0.501
55		---	---	ND	---	0.501
56		---	---	ND	---	0.501
57		---	---	ND	---	0.501
58		---	---	ND	---	0.501
59	59/62/75	---	---	ND	---	1.50
60		---	---	ND	---	0.501
61	61/70/74/76	---	---	ND	---	2.00
62	59/62/75	---	---	ND	---	1.50
63		---	---	ND	---	0.501
64		---	---	ND	---	0.501
65	44/47/65	---	---	ND	---	1.50
66		---	---	ND	---	0.501
67		---	---	ND	---	0.501
68		---	---	ND	---	0.501
69	49/69	---	---	ND	---	1.00
70	61/70/74/76	---	---	ND	---	2.00
71	40/41/71	---	---	ND	---	1.50
72		---	---	ND	---	0.501
73	43/73	---	---	ND	---	1.00
74	61/70/74/76	---	---	ND	---	2.00
75	59/62/75	---	---	ND	---	1.50
76	61/70/74/76	---	---	ND	---	2.00
77		---	---	ND	---	0.501
78		---	---	ND	---	0.501
79		---	---	ND	---	0.501
80		---	---	ND	---	0.501
81		---	---	ND	---	0.501
82		---	---	ND	---	0.501
83		---	---	ND	---	0.501
84		---	---	ND	---	0.501
85	85/116/117	---	---	ND	---	1.50
86	86/87/97/108/119/125	---	---	ND	---	3.01
87	86/87/97/108/119/125	---	---	ND	---	3.01
88	88/91	---	---	ND	---	1.00
89		---	---	ND	---	0.501
90	90/101/113	---	---	ND	---	1.50
91	88/91	---	---	ND	---	1.00
92		---	---	ND	---	0.501
93	93/98/100/102	---	---	ND	---	2.00
94		---	---	ND	---	0.501
95		---	---	ND	---	0.501
96		---	---	ND	---	0.501

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Sample Analysis Results

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Lab Sample ID 10122401002
Filename P100227A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	3.01
98	93/98/100/102	---	---	ND	---	2.00
99		---	---	ND	---	0.501
100	93/98/100/102	---	---	ND	---	2.00
101	90/101/113	---	---	ND	---	1.50
102	93/98/100/102	---	---	ND	---	2.00
103		---	---	ND	---	0.501
104		---	---	ND	---	0.501
105		---	---	ND	---	0.501
106		---	---	ND	---	0.501
107	107/124	---	---	ND	---	1.00
108	86/87/97/108/119/125	---	---	ND	---	3.01
109		---	---	ND	---	0.501
110	110/115	---	---	ND	---	1.00
111		---	---	ND	---	0.501
112		---	---	ND	---	0.501
113	90/101/113	---	---	ND	---	1.50
114		---	---	ND	---	0.501
115	110/115	---	---	ND	---	1.00
116	85/116/117	---	---	ND	---	1.50
117	85/116/117	---	---	ND	---	1.50
118		---	---	ND	---	0.501
119	86/87/97/108/119/125	---	---	ND	---	3.01
120		---	---	ND	---	0.501
121		---	---	ND	---	0.501
122		---	---	ND	---	0.501
123		---	---	ND	---	0.501
124	107/124	---	---	ND	---	1.00
125	86/87/97/108/119/125	---	---	ND	---	3.01
126		---	---	ND	---	0.501
127		---	---	ND	---	0.501
128	128/166	---	---	ND	---	1.00
129	129/138/163	---	---	ND	---	1.50
130		---	---	ND	---	0.501
131		---	---	ND	---	0.501
132		---	---	ND	---	0.501
133		---	---	ND	---	0.501
134	134/143	---	---	ND	---	1.00
135	135/151	---	---	ND	---	1.00
136		---	---	ND	---	0.501
137		---	---	ND	---	0.501
138	129/138/163	---	---	ND	---	1.50
139	139/140	---	---	ND	---	1.00
140	139/140	---	---	ND	---	1.00
141		---	---	ND	---	0.501
142		---	---	ND	---	0.501
143	134/143	---	---	ND	---	1.00
144		---	---	ND	---	0.501

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Nn = Value obtained from additional analyses

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

REPORT OF LABORATORY ANALYSIS

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 PTB0340-02 (FO 105235-Water)
Lab Sample ID 10122401002
Filename P100227A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.501
146		---	---	ND	---	0.501
147	147/149	---	---	ND	---	1.00
148		---	---	ND	---	0.501
149	147/149	---	---	ND	---	1.00
150		---	---	ND	---	0.501
151	135/151	---	---	ND	---	1.00
152		---	---	ND	---	0.501
153	153/168	---	---	ND	---	1.00
154		---	---	ND	---	0.501
155		---	---	ND	---	0.501
156	156/157	---	---	ND	---	1.00
157	156/157	---	---	ND	---	1.00
158		---	---	ND	---	0.501
159		---	---	ND	---	0.501
160		---	---	ND	---	0.501
161		---	---	ND	---	0.501
162		---	---	ND	---	0.501
163	129/138/163	---	---	ND	---	1.50
164		---	---	ND	---	0.501
165		---	---	ND	---	0.501
166	128/166	---	---	ND	---	1.00
167		---	---	ND	---	0.501
168	153/168	---	---	ND	---	1.00
169		---	---	ND	---	0.501
170		---	---	ND	---	0.501
171	171/173	---	---	ND	---	1.00
172		---	---	ND	---	0.501
173	171/173	---	---	ND	---	1.00
174		---	---	ND	---	0.501
175		---	---	ND	---	0.501
176		---	---	ND	---	0.501
177		---	---	ND	---	0.501
178		---	---	ND	---	0.501
179		---	---	ND	---	0.501
180	180/193	---	---	ND	---	1.00
181		---	---	ND	---	0.501
182		---	---	ND	---	0.501
183	183/185	---	---	ND	---	1.00
184		---	---	ND	---	0.501
185	183/185	---	---	ND	---	1.00
186		---	---	ND	---	0.501
187		---	---	ND	---	0.501
188		---	---	ND	---	0.501
189		---	---	ND	---	0.501
190		---	---	ND	---	0.501
191		---	---	ND	---	0.501
192		---	---	ND	---	0.501

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
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ng's = Nanograms

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTB0340-02 (FO 105235-Water)
Lab Sample ID 10122401002
Filename P100227A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	---	---	ND	---	1.00
194		---	---	ND	---	0.752
195		---	---	ND	---	0.752
196		---	---	ND	---	0.752
197	197/200	---	---	ND	---	1.50
198	198/199	---	---	ND	---	1.50
199	198/199	---	---	ND	---	1.50
200	197/200	---	---	ND	---	1.50
201		---	---	ND	---	0.752
202		---	---	ND	---	0.752
203		---	---	ND	---	0.752
204		---	---	ND	---	0.752
205		---	---	ND	---	0.752
206		---	---	ND	---	0.752
207		---	---	ND	---	0.752
208		---	---	ND	---	0.752
209		---	---	ND	---	0.752

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTB0340-02 (FO 105235-Water)
Lab Sample ID	10122401002
Filename	P100227A_11

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

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-24104		
Filename	P100226A_07		
Injected By	BAL	Matrix	Water
Total Amount Extracted	949 mL	Extracted	02/24/2010 17:00
ICAL ID	P100226A03	Analyzed	02/26/2010 14:52
CCal Filename(s)	P100226A_02	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.138	3.30	2.0	0.811	41
13C-4-MoCB	3	11.374	3.02	2.0	0.973	49
13C-2,2'-DiCB	4	11.733	1.58	2.0	0.857	43
13C-4,4'-DiCB	15	19.690	1.56	2.0	1.23	62
13C-2,2',6-TrCB	19	16.059	1.15	2.0	1.09	55
13C-3,4,4'-TrCB	37	27.905	1.16	2.0	1.78	89
13C-2,2',6,6'-TeCB	54	20.023	0.80	2.0	1.22	61
13C-3,4,4',5-TeCB	81	35.132	0.83	2.0	1.89	94
13C-3,3',4,4'-TeCB	77	35.736	0.83	2.0	1.96	98
13C-2,2',4,6,6'-PeCB	104	26.513	1.60	2.0	1.32	66
13C-2,3,3',4,4'-PeCB	105	39.325	1.57	2.0	1.80	90
13C-2,3,4,4',5-PeCB	114	38.671	1.59	2.0	1.80	90
13C-2,3',4,4',5-PeCB	118	38.134	1.58	2.0	1.79	89
13C-2,3',4,4',5'-PeCB	123	37.782	1.59	2.0	1.79	90
13C-3,3',4,4',5-PeCB	126	42.460	1.57	2.0	1.93	97
13C-2,2',4,4',6,6'-HxCB	155	32.717	1.27	2.0	1.53	76
13C-HxCB (156/157)	156/157	45.496	1.28	4.0	3.70	93
13C-2,3',4,4',5,5'-HxCB	167	44.339	1.25	2.0	1.89	95
13C-3,3',4,4',5,5'-HxCB	169	48.782	1.30	2.0	1.87	94
13C-2,2',3,4',5,6,6'-HpCB	188	38.637	1.04	2.0	1.55	78
13C-2,3,3',4,4',5,5'-HpCB	189	51.329	1.06	2.0	1.85	92
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.070	0.94	2.0	1.61	81
13C-2,3,3',4,4',5,5',6-OcCB	205	54.044	0.92	2.0	1.75	88
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.157	0.76	2.0	1.65	82
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.811	0.81	2.0	1.70	85
13C--DeCB	209	58.398	0.73	2.0	1.39	70
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.344	1.12	2.0	1.80	90
13C-2,3,3',5,5'-PeCB	111	35.786	1.57	2.0	1.71	85
13C-2,2',3,3',5,5',6-HpCB	178	41.739	1.04	2.0	1.74	87
Recovery Standards						
13C-2,5-DiCB	9	14.549	1.56	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.473	0.77	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	32.952	1.56	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.287	1.31	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.527	0.91	2.0	NA	NA

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RT = Retention Time
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ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24104
Filename P100226A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.263
2		---	---	ND	---	0.263
3		---	---	ND	---	0.263
4		---	---	ND	---	0.263
5		---	---	ND	---	0.263
6		---	---	ND	---	0.263
7		---	---	ND	---	0.263
8		---	---	ND	---	0.263
9		---	---	ND	---	0.263
10		---	---	ND	---	0.263
11		---	---	ND	---	1.58
12	12/13	---	---	ND	---	0.527
13	12/13	---	---	ND	---	0.527
14		---	---	ND	---	0.263
15		---	---	ND	---	0.263
16		---	---	ND	---	0.263
17		---	---	ND	---	0.263
18	18/30	---	---	ND	---	0.527
19		---	---	ND	---	0.263
20	20/28	---	---	ND	---	0.527
21	21/33	---	---	ND	---	0.527
22		---	---	ND	---	0.263
23		---	---	ND	---	0.263
24		---	---	ND	---	0.263
25		---	---	ND	---	0.263
26	26/29	---	---	ND	---	0.527
27		---	---	ND	---	0.263
28	20/28	---	---	ND	---	0.527
29	26/29	---	---	ND	---	0.527
30	18/30	---	---	ND	---	0.527
31		---	---	ND	---	0.263
32		---	---	ND	---	0.263
33	21/33	---	---	ND	---	0.527
34		---	---	ND	---	0.263
35		---	---	ND	---	0.263
36		---	---	ND	---	0.263
37		---	---	ND	---	0.263
38		---	---	ND	---	0.263
39		---	---	ND	---	0.263
40	40/41/71	---	---	ND	---	1.58
41	40/41/71	---	---	ND	---	1.58
42		---	---	ND	---	0.527
43	43/73	---	---	ND	---	1.05
44	44/47/65	---	---	ND	---	1.58
45	45/51	---	---	ND	---	1.05

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Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24104
Filename P100226A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46		---	---	ND	---	0.527
47	44/47/65	---	---	ND	---	1.58
48		---	---	ND	---	0.527
49	49/69	---	---	ND	---	1.05
50	50/53	---	---	ND	---	1.05
51	45/51	---	---	ND	---	1.05
52		---	---	ND	---	0.527
53	50/53	---	---	ND	---	1.05
54		---	---	ND	---	0.527
55		---	---	ND	---	0.527
56		---	---	ND	---	0.527
57		---	---	ND	---	0.527
58		---	---	ND	---	0.527
59	59/62/75	---	---	ND	---	1.58
60		---	---	ND	---	0.527
61	61/70/74/76	---	---	ND	---	2.11
62	59/62/75	---	---	ND	---	1.58
63		---	---	ND	---	0.527
64		---	---	ND	---	0.527
65	44/47/65	---	---	ND	---	1.58
66		---	---	ND	---	0.527
67		---	---	ND	---	0.527
68		---	---	ND	---	0.527
69	49/69	---	---	ND	---	1.05
70	61/70/74/76	---	---	ND	---	2.11
71	40/41/71	---	---	ND	---	1.58
72		---	---	ND	---	0.527
73	43/73	---	---	ND	---	1.05
74	61/70/74/76	---	---	ND	---	2.11
75	59/62/75	---	---	ND	---	1.58
76	61/70/74/76	---	---	ND	---	2.11
77		---	---	ND	---	0.527
78		---	---	ND	---	0.527
79		---	---	ND	---	0.527
80		---	---	ND	---	0.527
81		---	---	ND	---	0.527
82		---	---	ND	---	0.527
83		---	---	ND	---	0.527
84		---	---	ND	---	0.527
85	85/116/117	---	---	ND	---	1.58
86	86/87/97/108/119/125	---	---	ND	---	3.16
87	86/87/97/108/119/125	---	---	ND	---	3.16
88	88/91	---	---	ND	---	1.05
89		---	---	ND	---	0.527
90	90/101/113	---	---	ND	---	1.58

Conc = Concentration
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NC = Not Calculated
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X = Outside QC Limits
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24104
Filename P100226A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91	---	---	ND	---	1.05
92		---	---	ND	---	0.527
93	93/98/100/102	---	---	ND	---	2.11
94		---	---	ND	---	0.527
95		---	---	ND	---	0.527
96		---	---	ND	---	0.527
97	86/87/97/108/119/125	---	---	ND	---	3.16
98	93/98/100/102	---	---	ND	---	2.11
99		---	---	ND	---	0.527
100	93/98/100/102	---	---	ND	---	2.11
101	90/101/113	---	---	ND	---	1.58
102	93/98/100/102	---	---	ND	---	2.11
103		---	---	ND	---	0.527
104		---	---	ND	---	0.527
105		---	---	ND	---	0.527
106		---	---	ND	---	0.527
107	107/124	---	---	ND	---	1.05
108	86/87/97/108/119/125	---	---	ND	---	3.16
109		---	---	ND	---	0.527
110	110/115	---	---	ND	---	1.05
111		---	---	ND	---	0.527
112		---	---	ND	---	0.527
113	90/101/113	---	---	ND	---	1.58
114		---	---	ND	---	0.527
115	110/115	---	---	ND	---	1.05
116	85/116/117	---	---	ND	---	1.58
117	85/116/117	---	---	ND	---	1.58
118		---	---	ND	---	0.527
119	86/87/97/108/119/125	---	---	ND	---	3.16
120		---	---	ND	---	0.527
121		---	---	ND	---	0.527
122		---	---	ND	---	0.527
123		---	---	ND	---	0.527
124	107/124	---	---	ND	---	1.05
125	86/87/97/108/119/125	---	---	ND	---	3.16
126		---	---	ND	---	0.527
127		---	---	ND	---	0.527
128	128/166	---	---	ND	---	1.05
129	129/138/163	---	---	ND	---	1.58
130		---	---	ND	---	0.527
131		---	---	ND	---	0.527
132		---	---	ND	---	0.527
133		---	---	ND	---	0.527
134	134/143	---	---	ND	---	1.05
135	135/151	---	---	ND	---	1.05

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24104
Filename P100226A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136		---	---	ND	---	0.527
137		---	---	ND	---	0.527
138	129/138/163	---	---	ND	---	1.58
139	139/140	---	---	ND	---	1.05
140	139/140	---	---	ND	---	1.05
141		---	---	ND	---	0.527
142		---	---	ND	---	0.527
143	134/143	---	---	ND	---	1.05
144		---	---	ND	---	0.527
145		---	---	ND	---	0.527
146		---	---	ND	---	0.527
147	147/149	---	---	ND	---	1.05
148		---	---	ND	---	0.527
149	147/149	---	---	ND	---	1.05
150		---	---	ND	---	0.527
151	135/151	---	---	ND	---	1.05
152		---	---	ND	---	0.527
153	153/168	---	---	ND	---	1.05
154		---	---	ND	---	0.527
155		---	---	ND	---	0.527
156	156/157	---	---	ND	---	1.05
157	156/157	---	---	ND	---	1.05
158		---	---	ND	---	0.527
159		---	---	ND	---	0.527
160		---	---	ND	---	0.527
161		---	---	ND	---	0.527
162		---	---	ND	---	0.527
163	129/138/163	---	---	ND	---	1.58
164		---	---	ND	---	0.527
165		---	---	ND	---	0.527
166	128/166	---	---	ND	---	1.05
167		---	---	ND	---	0.527
168	153/168	---	---	ND	---	1.05
169		---	---	ND	---	0.527
170		---	---	ND	---	0.527
171	171/173	---	---	ND	---	1.05
172		---	---	ND	---	0.527
173	171/173	---	---	ND	---	1.05
174		---	---	ND	---	0.527
175		---	---	ND	---	0.527
176		---	---	ND	---	0.527
177		---	---	ND	---	0.527
178		---	---	ND	---	0.527
179		---	---	ND	---	0.527
180	180/193	---	---	ND	---	1.05

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24104
Filename P100226A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181		---	---	ND	---	0.527
182		---	---	ND	---	0.527
183	183/185	---	---	ND	---	1.05
184		---	---	ND	---	0.527
185	183/185	---	---	ND	---	1.05
186		---	---	ND	---	0.527
187		---	---	ND	---	0.527
188		---	---	ND	---	0.527
189		---	---	ND	---	0.527
190		---	---	ND	---	0.527
191		---	---	ND	---	0.527
192		---	---	ND	---	0.527
193	180/193	---	---	ND	---	1.05
194		---	---	ND	---	0.790
195		---	---	ND	---	0.790
196		---	---	ND	---	0.790
197	197/200	---	---	ND	---	1.58
198	198/199	---	---	ND	---	1.58
199	198/199	---	---	ND	---	1.58
200	197/200	---	---	ND	---	1.58
201		---	---	ND	---	0.790
202		---	---	ND	---	0.790
203		---	---	ND	---	0.790
204		---	---	ND	---	0.790
205		---	---	ND	---	0.790
206		---	---	ND	---	0.790
207		---	---	ND	---	0.790
208		---	---	ND	---	0.790
209		---	---	ND	---	0.790

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Client Sample ID	DFBLKDS
Lab Sample ID	BLANK-24104
Filename	P100226A_07

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

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-24105		
Filename	P100226A_04	Matrix	Water
Total Amount Extracted	948 mL	Dilution	NA
ICAL ID	P100226A03	Extracted	02/24/2010 17:00
CCal Filename(s)	P100226A_02	Analyzed	02/26/2010 11:41
Method Blank ID	BLANK-24104	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	0.937	94	2.0	0.517	26	R
3	1.0	1.05	105	2.0	0.897	45	
4	1.0	0.978	98	2.0	0.803	40	
15	1.0	1.02	102	2.0	1.46	73	
19	1.0	0.877	88	2.0	1.23	61	
37	1.0	0.985	99	2.0	1.88	94	
54	1.0	0.877	88	2.0	1.40	70	
81	1.0	0.984	98	2.0	1.99	100	
77	1.0	0.923	92	2.0	2.10	105	
104	1.0	0.936	94	2.0	1.43	71	
105	1.0	0.980	98	2.0	1.99	99	
114	1.0	0.999	100	2.0	1.99	100	
118	1.0	1.03	103	2.0	1.91	96	
123	1.0	0.984	98	2.0	1.92	96	
126	1.0	0.927	93	2.0	2.10	105	
155	1.0	0.885	88	2.0	1.61	80	
156/157	2.0	1.96	98	4.0	4.00	100	
167	1.0	1.03	103	2.0	1.92	96	
169	1.0	0.955	96	2.0	1.95	98	
188	1.0	0.923	92	2.0	1.67	84	
189	1.0	0.977	98	2.0	1.97	99	
202	1.0	0.894	89	2.0	1.75	88	
205	1.0	0.914	91	2.0	1.81	91	
206	1.0	0.888	89	2.0	1.76	88	
208	1.0	0.918	92	2.0	1.77	89	
209	1.0	1.05	105	2.0	1.43	71	

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-24106		
Filename	P100226A_05	Matrix	Water
Total Amount Extracted	936 mL	Dilution	NA
ICAL ID	P100226A03	Extracted	02/24/2010 17:00
CCal Filename(s)	P100226A_02	Analyzed	02/26/2010 12:42
Method Blank ID	BLANK-24104	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	0.859	86	2.0	0.136	7	R
3	1.0	1.06	106	2.0	0.400	20	R
4	1.0	1.02	102	2.0	0.373	19	R
15	1.0	1.00	100	2.0	1.17	58	
19	1.0	0.860	86	2.0	0.828	41	
37	1.0	1.00	100	2.0	1.70	85	
54	1.0	0.959	96	2.0	1.05	52	
81	1.0	0.975	98	2.0	1.84	92	
77	1.0	0.929	93	2.0	2.03	102	
104	1.0	0.924	92	2.0	1.37	68	
105	1.0	0.998	100	2.0	1.96	98	
114	1.0	0.990	99	2.0	1.93	97	
118	1.0	1.03	103	2.0	1.91	95	
123	1.0	0.974	97	2.0	1.96	98	
126	1.0	0.955	96	2.0	2.04	102	
155	1.0	0.834	83	2.0	1.71	86	
156/157	2.0	2.04	102	4.0	3.96	99	
167	1.0	1.05	105	2.0	1.95	97	
169	1.0	0.943	94	2.0	1.96	98	
188	1.0	0.966	97	2.0	1.56	78	
189	1.0	0.971	97	2.0	1.95	97	
202	1.0	0.902	90	2.0	1.73	86	
205	1.0	0.942	94	2.0	1.83	91	
206	1.0	0.926	93	2.0	1.72	86	
208	1.0	0.911	91	2.0	1.75	88	
209	1.0	1.07	107	2.0	1.41	70	

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A

Spike Recovery Relative Percent Difference (RPD) Results

Client	Test America-Portland		
Spike 1 ID	LCS-24105	Spike 2 ID	LCSD-24106
Spike 1 Filename	P100226A_04	Spike 2 Filename	P100226A_05

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	94	86	8.9
4-MoCB	3	105	106	0.9
2,2'-DiCB	4	98	102	4.0
4,4'-DiCB	15	102	100	2.0
2,2',6-TrCB	19	88	86	2.3
3,4,4'-TrCB	37	99	100	1.0
2,2',6,6'-TeCB	54	88	96	8.7
3,3',4,4'-TeCB	77	92	93	1.1
3,4,4',5-TeCB	81	98	98	0.0
2,2',4,6,6'-PeCB	104	94	92	2.2
2,3,3',4,4'-PeCB	105	98	100	2.0
2,3,4,4',5-PeCB	114	100	99	1.0
2,3',4,4',5-PeCB	118	103	103	0.0
2,3',4,4',5'-PeCB	123	98	97	1.0
3,3',4,4',5-PeCB	126	93	96	3.2
2,2',4,4',6,6'-HxCB	155	88	83	5.8
(156/157)	156/157	98	102	4.0
2,3',4,4',5,5'-HxCB	167	103	105	1.9
3,3',4,4',5,5'-HxCB	169	96	94	2.1
2,2',3,4',5,6,6'-HpCB	188	92	97	5.3
2,3,3',4,4',5,5'-HpCB	189	98	97	1.0
2,2',3,3',5,5',6,6'-OcCB	202	89	90	1.1
2,3,3',4,4',5,5',6-OcCB	205	91	94	3.2
2,2',3,3',4,4',5,5',6-NoCB	206	89	93	4.4
2,2',3,3',4,5,5',6,6'-NoCB	208	92	91	1.1
Decachlorobiphenyl	209	105	107	1.9

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Event 4: April 26, 2010

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

Laboratory Data QA/QC Review
Upland Source Control Investigation
City Outfall Basin 19A

To: File

From: Renee Fowler, GSI Water Solutions, Inc.

Date: June 8, 2010

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated during source control investigation sampling and analyses conducted by the City of Portland (City) in April 2010. One stormwater sample (FO105475) was collected in Outfall Basin 19A on April 26, 2010 and submitted for analysis.

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

- BES WPCL
    - Total Metals – EPA 200.8
    - Total Mercury – WPCL SOP M-10.02
    - Total Suspended Solids (TSS) – SM 2540D
- Test America (TA)
    - Polycyclic Aromatic Hydrocarbons (PAHs) – EPA 8270M-SIM
    - Phthalates – EPA 8270M-SIM
- Columbia Analytical Services (CAS)
    - Organochlorine Pesticides – EPA 8081A
- Pace Analytical Services (Pace)
    - Polychlorinated Biphenyls (PCB) Congeners – EPA 1668A

The WPCL summary reports and the subcontracted laboratory's data reports are attached for all analyses associated with these source control program samples. The WPCL summary report

comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation supplied from each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

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

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

Chain-of-Custody

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

Analysis Holding Times

The samples were extracted and analyzed within the acceptable holding times for all analyses.

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analyses of PCBs, organochlorine pesticides, and PAHs and phthalates. The pesticide Endrin was detected above the method reporting limit (MRL) in the method blank processed during the analysis of organochlorine pesticides. Endrin was not detected in the field sample, so the data are not significantly affected and no corrective action was necessary. No analytes were detected in the method blanks processed during the analyses of PCBs or PAHs and phthalates.

Surrogate Recoveries

Surrogate recoveries were completed during the analyses of organochlorine pesticides, PAHs and phthalates. All surrogate recoveries processed were within control criteria.

Internal Standard Recoveries

Isotopically-labeled internal standards were processed during the laboratory analysis of PCB congeners. The internal standard recoveries were within method specified target ranges, with ten exceptions that are flagged "R" in the subcontracted laboratory report. Pace reports that the data were automatically corrected for variation in recovery and accurate values were obtained.

Matrix Spike/Matrix Spike Duplicates

MS/MSD samples were processed during the laboratory analysis of PAHs and phthalates. The MS and MSD had elevated recoveries for benzo(a)anthracene. Both the LCS and MS/MSD relative percent differences (RPDs) were satisfactory and no corrective action was necessary.

Laboratory Control Sample / Duplicate Laboratory Control Sample

LCS samples were processed during the analyses of organochlorine pesticides, PCBs, PAHs and phthalates. A DLCS was processed during the analysis for PCBs. LCS/DLCS recoveries and RPDs were within laboratory control limits for all analyses.

Other

During the analysis of PAHs and phthalates, reporting limits were raised for two analytes (acenaphthylene and benzo(a)anthracene) in the field sample due to matrix effects. The results are flagged in the subcontracted laboratory report. The LCS recovery and MS/MSD RPD for the analysis were within acceptance limits, and the data are not qualified in the WPCL laboratory report.

The following additional issues were observed during the analysis of organochlorine pesticides:

- The method detection limit (MDL) in the method blank for organochlorine pesticides analysis was elevated for three compounds due to the presence of non-target background components introduced as laboratory artifacts. CAS reports that the background contamination level was relatively low compared to the MDL. These three compounds were not detected in the field sample. The results for these compounds are flagged on the subcontracted laboratory report.
- Results from the primary and verification gas chromatography columns for endosulfan sulfate varied by more than 40 percent difference. CAS reports that the higher of the two values was reported because no evidence of matrix interference was observed. WPCL has flagged these results as estimates in their summary report.
- Laboratory reporting limits for the field sample were elevated for all compounds and were further elevated for several compounds due to matrix interference (presence of non-target background components). CAS reports that the sample required cleanup of the extract and dilution due to the presence of background components. The results are flagged in the CAS laboratory report to indicate matrix interference.
- During the Initial Calibration Verification (ICV), the primary evaluation criteria were not met for a few analytes for one column but were acceptable from the dual confirmation

column. The ICV results were reported from the acceptable column and data quality was not affected.

- A few results exceed the primary evaluation criterion during the Continuing Calibration Verification (CCV). Following CAS protocol, an alternative elevation was performed using the average percent recovery of all analytes in the verification standard, and all criteria were met. Methoxychlor results in the associated QC samples were reported using average percent recovery of all analytes in the verification standard. The data for the field sample are not affected.

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

City of Portland Chain-of-Custody

Bureau of Environmental Services

Date: 4/26/10
Page: 1 of 1
Collected By: MJS, PTB

Project Name: PORTLAND HARBOR STORMWATER SAMP
File Number: 1020.005 **Matrix:** STORMWTR

042710 Jen - Samples found in samp rec refrig.

FY 2009-10 Stormwater Grab Chain-of-custody

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	General: TSS	Organics: PCB Congeners (All 209)	Organics: PAH + Phthalates (TA)	Organics: Pesticides (CAS)	Metals: Total Metals (As, Cd, Cr, Cu, Pb, Ni, Ag, Zn)	Metals: Total Mercury	Field: Temperature (Deg C)	Field: Conductivity (umhos/cm)	Field: pH (pH units)
FO105475	SW-19A-AAP905-MMYY NW KITTRIDGE & FRONT	19A_SW1	4/26/10	1622	G	•	•	•	•	•	•	15.0	90	7.8
	FIELD DECON BLANK	FDB			G	•	•	•	•	•	•			
	DUPLICATE	DUP			G									

Relinquished By: 1.
Signature: Matt Sullivan Time: 2056
Printed Name: Matt Sullivan Date: 4/26/10

Received By: 1.
Signature: Jennifer Shackelford Time: 0640
Printed Name: Jennifer Shackelford Date: 4/27/10

Relinquished By: 2.
Signature: Time:
Printed Name: Date:

Received By: 2.
Signature: Time:
Printed Name: Date:

Relinquished By: 3.
Signature: Time:
Printed Name: Date:

Received By: 3.
Signature: Time:
Printed Name: Date:

Relinquished By: 4.
Signature: Time:
Printed Name: Date:

Received By: 4.
Signature: Time:
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: **FO105475** **Sample Collected:** 04/26/10 16:22 **Sample Received:** 04/26/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR STORMWATER SAMP
Address/Location: SW-19A-AAP905-0410
NW KITTRIDGE & FRONT
Sample Point Code: 19A_SW1
Sample Type: GRAB
Sample Matrix: STORMWTR

System ID: AO03928
EID File # : 1020.005
LocCode: PORTHASW
Collected By: MJS/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. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%.

Test Parameter	Result	Units	MRL	Method	Analysis Date
FIELD					
CONDUCTIVITY (FIELD)	90	µmhos/cm	1	SM 2510 B	04/26/10
pH (FIELD)	7.8	pH Units	0.1	SM 4500-H B	04/26/10
TEMPERATURE	15.0	Deg. C	0.1	SM 2550 B	04/26/10
GENERAL					
TOTAL SUSPENDED SOLIDS	123	mg/L	2	SM 2540 D	04/27/10
METALS					
MERCURY	0.093	µg/L	0.002	WPCLSOP M-10.02	04/30/10
METALS BY ICP-MS (TOTAL) - 8					
ARSENIC	2.04	µg/L	0.1	EPA 200.8	05/03/10
CADMIUM	0.46	µg/L	0.1	EPA 200.8	05/03/10
CHROMIUM	9.48	µg/L	0.4	EPA 200.8	05/03/10
COPPER	50.6	µg/L	0.2	EPA 200.8	05/03/10
LEAD	19.8	µg/L	0.1	EPA 200.8	05/03/10
NICKEL	7.38	µg/L	0.2	EPA 200.8	05/03/10
SILVER	<0.10	µg/L	0.1	EPA 200.8	05/03/10
ZINC	239	µg/L	0.5	EPA 200.8	05/03/10
OUTSIDE ANALYSIS					
PESTICIDES BY EPA 8081 - CAS					
4,4'-DDD	<11	ng/L	11	EPA 8081	04/29/10
4,4'-DDE	<11	ng/L	11	EPA 8081	04/29/10
4,4'-DDT	<30	ng/L	30	EPA 8081	04/29/10
Aldrin	<5.0	ng/L	5.00	EPA 8081	04/29/10
Alpha-BHC	<5.0	ng/L	5.00	EPA 8081	04/29/10
Alpha-Chlordane	<11	ng/L	11	EPA 8081	04/29/10
Beta-BHC	<5.0	ng/L	5.00	EPA 8081	04/29/10
Delta-BHC	<5.0	ng/L	5.00	EPA 8081	04/29/10
Dieldrin	<5.0	ng/L	5.00	EPA 8081	04/29/10
Endosulfan I	<5.5	ng/L	5.5	EPA 8081	04/29/10
Endosulfan II	<5.0	ng/L	5.00	EPA 8081	04/29/10
Endosulfan Sulfate	EST 140	ng/L	5.00	EPA 8081	04/29/10
Endrin	<5.0	ng/L	5.00	EPA 8081	04/29/10
Endrin Aldehyde	<11	ng/L	11	EPA 8081	04/29/10

Report Date: 06/08/10 **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: **FO105475** **Sample Collected:** 04/26/10 16:22 **Sample Received:** 04/26/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR STORMWATER SAMP	**Report Page:**	Page 2 of 3
Address/Location:	SW-19A-AAP905-0410		
	NW KITTRIDGE & FRONT	**System ID:**	AO03928
Sample Point Code:	19A_SW1	**EID File # :**	1020.005
Sample Type:	GRAB	**LocCode:**	PORTHASW
Sample Matrix:	STORMWTR	**Collected By:**	MJS/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. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%.

Test Parameter	Result	Units	MRL	Method	Analysis Date
Endrin Ketone	<5.0	ng/L	5.00	EPA 8081	04/29/10
Gamma-BHC(Lindane)	<5.0	ng/L	5.00	EPA 8081	04/29/10
Gamma-Chlordane	<5.0	ng/L	5.00	EPA 8081	04/29/10
Heptachlor	<5.0	ng/L	5.00	EPA 8081	04/29/10
Heptachlor Epoxide	<5.0	ng/L	5.00	EPA 8081	04/29/10
Methoxychlor	6.5	ng/L	5.00	EPA 8081	04/29/10
Toxaphene	<1400	ng/L	1400	EPA 8081	04/29/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/L		EPA 1668 MOD	05/17/10
POLYNUCLEAR AROMATICS & PHTHALATES - TA					
1-Methylnaphthalene	0.0217	µg/L	0.0200	EPA 8270M-SIM	04/29/10
2-Methylnaphthalene	0.0279	µg/L	0.0200	EPA 8270M-SIM	04/29/10
Acenaphthene	<0.0194	µg/L	0.0194	EPA 8270M-SIM	04/29/10
Acenaphthylene	<0.0291	µg/L	0.0291	EPA 8270M-SIM	04/29/10
Anthracene	<0.0194	µg/L	0.0194	EPA 8270M-SIM	04/29/10
Benzo(a)anthracene	0.0278	µg/L	0.00971	EPA 8270M-SIM	04/29/10
Benzo(a)pyrene	0.0267	µg/L	0.00971	EPA 8270M-SIM	04/29/10
Benzo(b)fluoranthene	0.0343	µg/L	0.00971	EPA 8270M-SIM	04/29/10
Benzo(ghi)perylene	0.0528	µg/L	0.0194	EPA 8270M-SIM	04/29/10
Benzo(k)fluoranthene	0.0236	µg/L	0.00971	EPA 8270M-SIM	04/29/10
Bis(2-ethylhexyl) phthalate	1.53	µg/L	0.971	EPA 8270M-SIM	04/29/10
Butyl benzyl phthalate	<0.971	µg/L	0.971	EPA 8270M-SIM	04/29/10
Chrysene	0.0727	µg/L	0.00971	EPA 8270M-SIM	04/29/10
Dibenzo(a,h)anthracene	<0.00971	µg/L	0.00971	EPA 8270M-SIM	04/29/10
Diethyl phthalate	<0.971	µg/L	0.971	EPA 8270M-SIM	04/29/10
Dimethyl phthalate	8.54	µg/L	0.971	EPA 8270M-SIM	04/29/10
Di-n-butyl phthalate	<0.971	µg/L	0.971	EPA 8270M-SIM	04/29/10
Di-n-octyl phthalate	<0.971	µg/L	0.971	EPA 8270M-SIM	04/29/10
Fluoranthene	0.143	µg/L	0.0194	EPA 8270M-SIM	04/29/10
Fluorene	<0.0388	µg/L	0.0388	EPA 8270M-SIM	04/29/10
Indeno(1,2,3-cd)pyrene	0.0251	µg/L	0.00971	EPA 8270M-SIM	04/29/10
Naphthalene	0.0611	µg/L	0.0194	EPA 8270M-SIM	04/29/10
Phenanthrene	0.136	µg/L	0.0194	EPA 8270M-SIM	04/29/10
Pyrene	0.205	µg/L	0.0194	EPA 8270M-SIM	04/29/10

Report Date: 06/08/10 **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: FO105475 **Sample Collected:** 04/26/10 16:22 **Sample Received:** 04/26/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR STORMWATER SAMP	**Report Page:**	Page 3 of 3
Address/Location:	SW-19A-AAP905-0410 NW KITTRIDGE & FRONT	**System ID:**	AO03928
Sample Point Code:	19A_SW1	**EID File # :**	1020.005
Sample Type:	GRAB	**LocCode:**	PORTHASW
Sample Matrix:	STORMWTR	**Collected By:**	MJS/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. For pesticide results flagged as estimates, results from the primary and verification columns varied by more than 40%.

Test Parameter	Result	Units	MRL	Method	Analysis Date

End of Report for Sample ID: FO105475

Report Date: 06/08/10 **Validated By:**

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services INC.
An Employee - Owned Company

May 20, 2010 Analytical Report for Service Request No: K1004169

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

RE: Portland Harbor Stormwater Samp

Dear Jennifer:

Enclosed are the results of the sample submitted to our laboratory on April 28, 2010. For your reference, these analyses have been assigned our service request number K1004169.

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

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

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/rh

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	city of Portland	**Service Request No.:**	K1004169
Project:	Portland Harbor Stormwater Samp.	**Date Received:**	04/28/10
Sample Matrix:	Water		

CASE NARRATIVE

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

Sample Receipt

One water sample was received for analysis at Columbia Analytical Services on 04/28/10. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Organochlorine Pesticides by EPA Method 8081A

Second Source Exceptions:
The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the Initial Calibration Verification (ICV) criteria are met for both columns, the higher of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for a few analytes in CAL 9465. The ICV results were reported from the acceptable column. The data quality was not affected. No further corrective action was necessary.

Calibration Verification Exceptions:
The primary evaluation criterion was exceeded for a few analytes in Continuing Calibration Verification (CCV) 0513F078. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the average percent recovery of all analytes in the verification standard. The standard met the alternative evaluation criteria.

Results for Methoxychlor in the associated QC samples were reported from a column using average percent recovery of all analytes in the verification standard.

Method Blank Exceptions:
The Method Blank KWG1004194-3 contained low levels of Endrin above the Method Reporting Limit (MRL). In accordance with CAS QA/QC policy, all sample results less than twenty times the level found in the Method Blank were flagged as estimated. This analyte was not detected in the associated field sample; therefore the data is not significantly affected. No further corrective action was necessary.

Sample Confirmation Notes:
The confirmation comparison criteria of 40% difference for Endosulfan Sulfate was exceeded in this sample. The higher of the two values was reported because no evidence of a matrix interference was observed

Approved by_____ **Date** 05/20/10

Elevated Detection Limits:
The MDL is elevated for a few compounds in sample Method Blank KWG1004194-3. The chromatogram indicated the presence of non-target background components, which were apparently introduced as laboratory artifacts. The contamination prevented adequate resolution of the target compounds at the MDL. Note the level of background was relatively low compared to the MDL, so the affect on the results was minimal. The results are flagged to indicate the problem.

The detection limit was elevated for all analytes in sample FO 105475. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. A semiquantitative screen was performed prior to final analysis. The results of the screening indicated the need to perform a dilution. The result was flagged to indicate the matrix interference.

The detection limit was further elevated for several analytes in sample FO 105475. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The result was flagged to indicate the matrix interference.

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

Approved by_____ **Date** 05/20/10

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K1004169
Project:	Portland Harbor Stormwater Samp	**Date Collected:**	04/26/2010
Sample Matrix:	Water	**Date Received:**	04/28/2010

Organochlorine Pesticides

Sample Name:	FO 105475	**Units:**	ng/L
Lab Code:	K1004169-001	**Basis:**	NA
Extraction Method:	EPA 3535A	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	Ui	5.0	3.2	10	04/29/10	05/15/10	KWG1004194	
beta-BHC	ND	U	5.0	4.1	10	04/29/10	05/15/10	KWG1004194	
gamma-BHC (Lindane)	ND	U	5.0	4.7	10	04/29/10	05/15/10	KWG1004194	
delta-BHC	ND	U	5.0	1.4	10	04/29/10	05/15/10	KWG1004194	
Heptachlor	ND	U	5.0	1.8	10	04/29/10	05/15/10	KWG1004194	
Aldrin	ND	Ui	5.0	5.0	10	04/29/10	05/15/10	KWG1004194	
Heptachlor Epoxide	ND	U	5.0	2.1	10	04/29/10	05/15/10	KWG1004194	
gamma-Chlordane†	ND	U	5.0	3.1	10	04/29/10	05/15/10	KWG1004194	
Endosulfan I	ND	Ui	5.5	5.5	10	04/29/10	05/15/10	KWG1004194	
alpha-Chlordane	ND	Ui	11	11	10	04/29/10	05/15/10	KWG1004194	
Dieldrin	ND	U	5.0	3.7	10	04/29/10	05/15/10	KWG1004194	
4,4'-DDE	ND	Ui	11	11	10	04/29/10	05/15/10	KWG1004194	
Endrin	ND	U	5.0	4.9	10	04/29/10	05/15/10	KWG1004194	
Endosulfan II	ND	U	5.0	3.5	10	04/29/10	05/15/10	KWG1004194	
4,4'-DDD	ND	Ui	11	11	10	04/29/10	05/15/10	KWG1004194	
Endrin Aldehyde	ND	Ui	11	11	10	04/29/10	05/15/10	KWG1004194	
Endosulfan Sulfate	**140**	PD	5.0	2.8	10	04/29/10	05/15/10	KWG1004194	
4,4'-DDT	ND	Ui	30	30	10	04/29/10	05/15/10	KWG1004194	
Endrin Ketone	ND	Ui	5.0	4.3	10	04/29/10	05/15/10	KWG1004194	
Methoxychlor	**6.5**	D	5.0	2.8	10	04/29/10	05/15/10	KWG1004194	
Toxaphene	ND	Ui	1400	1400	10	04/29/10	05/15/10	KWG1004194	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	46	20-102	05/15/10	Acceptable
Decachlorobiphenyl	62	35-128	05/15/10	Acceptable

† Analyte Comments

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Portland, City of	**Service Request:**	K1004169
Project:	Portland Harbor Stormwater Samp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Organochlorine Pesticides

Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KWG1004194-3	**Basis:**	NA
Extraction Method:	EPA 3535A	**Level:**	Low
Analysis Method:	8081A		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.50	0.21	1	04/29/10	05/15/10	KWG1004194	
beta-BHC	ND	U	0.50	0.41	1	04/29/10	05/15/10	KWG1004194	
gamma-BHC (Lindane)	ND	U	0.50	0.47	1	04/29/10	05/15/10	KWG1004194	
delta-BHC	ND	U	0.50	0.14	1	04/29/10	05/15/10	KWG1004194	
Heptachlor	ND	U	0.50	0.18	1	04/29/10	05/15/10	KWG1004194	
Aldrin	ND	U	0.50	0.11	1	04/29/10	05/15/10	KWG1004194	
Heptachlor Epoxide	ND	U	0.50	0.21	1	04/29/10	05/15/10	KWG1004194	
gamma-Chlordane†	ND	U	0.50	0.31	1	04/29/10	05/15/10	KWG1004194	
Endosulfan I	ND	Ui	0.50	0.30	1	04/29/10	05/15/10	KWG1004194	
alpha-Chlordane	ND	U	0.50	0.27	1	04/29/10	05/15/10	KWG1004194	
Dieldrin	ND	U	0.50	0.37	1	04/29/10	05/15/10	KWG1004194	
4,4'-DDE	ND	U	0.50	0.19	1	04/29/10	05/15/10	KWG1004194	
Endrin	**0.54**		0.50	0.49	1	04/29/10	05/15/10	KWG1004194	
Endosulfan II	ND	Ui	1.2	1.2	1	04/29/10	05/15/10	KWG1004194	
4,4'-DDD	ND	U	0.50	0.21	1	04/29/10	05/15/10	KWG1004194	
Endrin Aldehyde	ND	U	0.50	0.21	1	04/29/10	05/15/10	KWG1004194	
Endosulfan Sulfate	ND	U	0.50	0.28	1	04/29/10	05/15/10	KWG1004194	
4,4'-DDT	ND	U	0.50	0.17	1	04/29/10	05/15/10	KWG1004194	
Endrin Ketone	ND	U	0.50	0.32	1	04/29/10	05/15/10	KWG1004194	
Methoxychlor	ND	U	0.50	0.28	1	04/29/10	05/15/10	KWG1004194	
Toxaphene	ND	Ui	67	67	1	04/29/10	05/15/10	KWG1004194	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	59	20-102	05/15/10	Acceptable
Decachlorobiphenyl	66	35-128	05/15/10	Acceptable

† Analyte Comments

gamma-Chlordane	For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments:

Client: Portland, City of
Project: Portland Harbor Stormwater Samp
Sample Matrix: Water

Service Request: K1004169

Surrogate Recovery Summary
Organochlorine Pesticides

Extraction Method: EPA 3535A
Analysis Method: 8081A

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2
FO 105475	K1004169-001	46 D	62 D
Method Blank	KWG1004194-3	59	66
Lab Control Sample	KWG1004194-1	55	100
Duplicate Lab Control Sample	KWG1004194-2	61	87

Surrogate Recovery Control Limits (%)

Sur1 =	Tetrachloro-m-xylene	20-102
Sur2 =	Decachlorobiphenyl	35-128

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Portland, City of
Project: Portland Harbor Stormwater Samp
Sample Matrix: Water

Service Request: K1004169
Date Extracted: 04/29/2010
Date Analyzed: 05/15/2010

Lab Control Spike/Duplicate Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3535A
Analysis Method: 8081A

Units: ng/L
Basis: NA
Level: Low
Extraction Lot: KWG1004194

Analyte Name	Lab Control Sample KWG1004194-1 Lab Control Spike Result	Expected	%Rec	Duplicate Lab Control Sample KWG1004194-2 Duplicate Lab Control Spike Result	Expected	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	8.67	10.0	87	8.94	10.0	89	36-122	3	30
beta-BHC	9.55	10.0	95	9.27	10.0	93	42-125	3	30
gamma-BHC (Lindane)	9.22	10.0	92	9.39	10.0	94	44-117	2	30
delta-BHC	10.1	10.0	101	9.92	10.0	99	48-123	2	30
Heptachlor	8.35	10.0	84	8.71	10.0	87	40-115	4	30
Aldrin	6.79	10.0	68	7.92	10.0	79	10-102	15	30
Heptachlor Epoxide	7.74	10.0	77	7.44	10.0	74	49-109	4	30
gamma-Chlordane	8.72	10.0	87	9.30	10.0	93	47-113	6	30
Endosulfan I	9.14	10.0	91	9.41	10.0	94	35-115	3	30
alpha-Chlordane	8.53	10.0	85	9.14	10.0	91	45-115	7	30
Dieldrin	9.36	10.0	94	9.61	10.0	96	50-115	3	30
4,4'-DDE	10.2	10.0	102	10.9	10.0	109	41-116	6	30
Endrin	9.84	10.0	98	10.3	10.0	103	48-126	5	30
Endosulfan II	9.34	10.0	93	9.26	10.0	93	28-128	1	30
4,4'-DDD	8.60	10.0	86	9.07	10.0	91	33-132	5	30
Endrin Aldehyde	8.72	10.0	87	8.62	10.0	86	27-104	1	30
Endosulfan Sulfate	8.87	10.0	89	9.17	10.0	92	38-118	3	30
4,4'-DDT	11.9	10.0	119	11.8	10.0	118	42-143	1	30
Endrin Ketone	8.92	10.0	89	9.09	10.0	91	30-124	2	30
Methoxychlor	9.46	10.0	95	9.63	10.0	96	43-143	2	30

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

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

Columbia Analytical Services, Inc.
An Employee - Owned Company

CHAIN OF CUSTODY

SR#: KIDD41604

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE _____ OF _____ COC #_____

PROJECT NAME: Portland Harbor Stormwater Sump
PROJECT NUMBER:
PROJECT MANAGER: Jennifer Shackelford
COMPANY/ADDRESS: City of Portland - BPCL
CITY/STATE/ZIP:
E-MAIL ADDRESS:
PHONE #: FAX#:
SAMPLER'S SIGNATURE:

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐	Hydrocarbons (*see below) Gas ☐ 8021 ☐ BTEX ☐ Diesel ☐ Oil ☐	Fuel Fingerprint (FIQ) ☐ NW-HCID Screen ☐	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides 608 ☐ 8081A ☐ Herbicides 8151A ☐ 8141A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐	pH, Cond., Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle) NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	REMARKS
F0105475	4/26/10	1622		W	1							X							

11

REPORT REQUIREMENTS

- X I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- ___ III. Data Validation Report (includes all raw data)
- ___ IV. CLP Deliverable Report
- ___ V. EDD

INVOICE INFORMATION

P.O. # _____
Bill To: _____

TURNAROUND REQUIREMENTS

_____ 24 hr. _____ 48 hr.
_____ 5 Day
X Standard (10-15 working days)
_____ Provide FAX Results

_____
Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: [signature]	Signature: [signature]	Signature: [signature]
Date/Time: 4/28/10 0815	Date/Time: 4/28/10 815	Date/Time: 4-28-10 1:30	Date/Time: 4/28/10 1330
Printed Name: Renee Chauvin	Printed Name: [signature]	Printed Name: [signature]	Printed Name: [signature]
Firm: C.P	Firm: CAS	Firm: CAS	Firm: CAS

RCOC #1 06/03

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC PD

Client / Project: City of Portland Service Request K10 0416 9

Received: 4-28-10 Opened: 4-28-10 By: DW

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

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ORELAP#: OR100021

June 04, 2010

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

RE: Portland Harbor

Enclosed are the results of analyses for samples received by the laboratory on 04/27/10 12:25. The following list is a summary of the Work Orders contained in this report, generated on 06/04/10 16:38.

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

Work Order	Project	ProjectNumber
PTD0782	Portland Harbor	36238

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Teresa Morrison For Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	06/04/10 16:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO105475	PTD0782-01	Water	04/26/10 16:22	04/27/10 12:25

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6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	06/04/10 16:38

Analytical Case Narrative

TestAmerica - Portland, OR

PTD0782

PAH + Phthalates (EPA 8270 SIM): For sample FO105475 (PTD0782-01), the reporting limits for Acenaphthylene and Fluorene were raised due to matrix interferences. High recoveries were observed in the MS/MSD of PTD0783-03 for Benzo(a)anthracene; the LCS recovery and MS/MSD RPD were within acceptance limits, indicating that the failure is due to reproducible matrix effects.

PCB Congeners (EPA 1668A): This analysis was subcontracted to Pace Analytical; see attached report.

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	06/04/10 16:38

Polynuclear Aromatic Compounds per EPA 8270M-SIM

TestAmerica Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTD0782-01 (FO105475)			**Water**			**Sampled: 04/26/10 16:22**				
Bis(2-ethylhexyl)phthalate	EPA 8270m	**1.53**	*0.511*	0.971	ug/l	1x	10D0921	04/29/10 15:25	05/10/10 21:52	
Butyl benzyl phthalate	"	ND	*0.511*	0.971	"	"	"	"	"	
Di-n-butyl phthalate	"	ND	*0.511*	0.971	"	"	"	"	"	
Di-n-octyl phthalate	"	ND	*0.511*	0.971	"	"	"	"	"	
Diethyl phthalate	"	ND	*0.511*	0.971	"	"	"	"	"	
Dimethyl phthalate	"	**8.54**	*0.511*	0.971	"	"	"	"	"	
Acenaphthene	"	ND	*0.0194*	0.0194	"	"	"	"	05/11/10 16:35	
Acenaphthylene	"	ND	*0.0291*	0.0291	"	"	"	"	"	**RL1**
Anthracene	"	ND	*0.0194*	0.0194	"	"	"	"	"	
Benzo (a) anthracene	"	**0.0278**	*0.00971*	0.00971	"	"	"	"	"	
Benzo (a) pyrene	"	**0.0267**	*0.00971*	0.00971	"	"	"	"	"	
Benzo (b) fluoranthene	"	**0.0343**	*0.00971*	0.00971	"	"	"	"	"	
Benzo (ghi) perylene	"	**0.0528**	*0.0194*	0.0194	"	"	"	"	"	
Benzo (k) fluoranthene	"	**0.0236**	*0.00971*	0.00971	"	"	"	"	"	
Chrysene	"	**0.0727**	*0.00971*	0.00971	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	*0.00971*	0.00971	"	"	"	"	"	
Fluoranthene	"	**0.143**	*0.0194*	0.0194	"	"	"	"	"	
Fluorene	"	ND	*0.0388*	0.0388	"	"	"	"	"	**RL1**
Indeno (1,2,3-cd) pyrene	"	**0.0251**	*0.00971*	0.00971	"	"	"	"	"	
Naphthalene	"	**0.0611**	*0.0194*	0.0194	"	"	"	"	"	
Phenanthrene	"	**0.136**	*0.0194*	0.0194	"	"	"	"	"	
Pyrene	"	**0.205**	*0.0194*	0.0194	"	"	"	"	"	
2-Methylnaphthalene	"	**0.0279**	*0.0194*	0.0200	"	"	"	"	"	
1-Methylnaphthalene	"	**0.0217**	*0.0194*	0.0200	"	"	"	"	"	

Surrogate(s):	*Fluorene-d10*	*78.5%*	*25 - 125 %*	"		"
	Pyrene-d10	*71.1%*	*23 - 150 %*	"		"
	Benzo (a) pyrene-d12	*47.2%*	*10 - 125 %*	"		"

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Teresa Morrison For Howard Holmes, Project Manager

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	06/04/10 16:38

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

TestAmerica Portland

QC Batch: 10D0921 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (10D0921-BLK1)								**Extracted: 04/29/10 15:25**						
Bis(2-ethylhexyl)phthalate	EPA 8270m	ND	0.526	1.00	ug/l	1x	--	--	--	--	--	--	05/10/10 16:25	
Butyl benzyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Di-n-butyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Di-n-octyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Diethyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Dimethyl phthalate	"	ND	0.526	1.00	"	"	--	--	--	--	--	--	"	
Acenaphthene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	05/08/10 11:32	
Acenaphthylene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	0.0100	0.0100	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
2-Methylnaphthalene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
1-Methylnaphthalene	"	ND	0.0200	0.0200	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 103%*			*Limits: 25-125%*	"							*05/08/10 11:32*	
Pyrene-d10		*121%*			*23-150%*	"							"	
Benzo (a) pyrene-d12		*83.3%*			*10-125%*	"							"	
LCS (10D0921-BS1)								**Extracted: 04/29/10 15:25**						
Bis(2-ethylhexyl)phthalate	EPA 8270m	3.83	0.526	1.00	ug/l	1x	--	4.00	95.8%	(20-150)	--	--	05/10/10 16:57	
Butyl benzyl phthalate	"	4.06	0.526	1.00	"	"	--	"	101%	"	--	--	"	
Di-n-butyl phthalate	"	3.64	0.526	1.00	"	"	--	"	91.1%	"	--	--	"	
Di-n-octyl phthalate	"	4.18	0.526	1.00	"	"	--	"	104%	"	--	--	"	
Diethyl phthalate	"	3.30	0.526	1.00	"	"	--	"	82.6%	"	--	--	"	
Dimethyl phthalate	"	3.23	0.526	1.00	"	"	--	"	80.8%	"	--	--	"	
Acenaphthene	"	1.24	0.0200	0.0200	"	"	--	1.25	99.5%	(35-120)	--	--	05/11/10 14:55	
Acenaphthylene	"	1.35	0.0200	0.0200	"	"	--	"	108%	(34-116)	--	--	"	
Anthracene	"	1.36	0.0200	0.0200	"	"	--	"	109%	(24-119)	--	--	"	
Benzo (a) anthracene	"	1.55	0.0100	0.0100	"	"	--	"	124%	(36-128)	--	--	"	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	06/04/10 16:38

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

TestAmerica Portland

QC Batch: 10D0921 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (10D0921-BS1)								**Extracted: 04/29/10 15:25**						
Benzo (a) pyrene	EPA 8270m	1.26	0.0100	0.0100	ug/l	1x	--	1.25	101%	(17-128)	--	--	05/11/10 14:55	
Benzo (b) fluoranthene	"	1.17	0.0100	0.0100	"	"	--	"	93.4%	(37-131)	--	--	"	
Benzo (ghi) perylene	"	1.30	0.0200	0.0200	"	"	--	"	104%	(26-126)	--	--	"	
Benzo (k) fluoranthene	"	1.16	0.0100	0.0100	"	"	--	"	92.9%	(18-145)	--	--	"	
Chrysene	"	1.42	0.0100	0.0100	"	"	--	"	113%	(16-137)	--	--	"	
Dibenzo (a,h) anthracene	"	1.46	0.0100	0.0100	"	"	--	"	117%	(20-141)	--	--	"	
Fluoranthene	"	1.33	0.0200	0.0200	"	"	--	"	106%	(31-125)	--	--	"	
Fluorene	"	1.24	0.0200	0.0200	"	"	--	"	98.9%	(27-124)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	1.42	0.0100	0.0100	"	"	--	"	113%	(30-135)	--	--	"	
Naphthalene	"	1.27	0.0200	0.0200	"	"	--	"	102%	(30-113)	--	--	"	
Phenanthrene	"	1.27	0.0200	0.0200	"	"	--	"	102%	(34-126)	--	--	"	
Pyrene	"	1.75	0.0200	0.0200	"	"	--	"	140%	(21-141)	--	--	"	
Surrogate(s): Fluorene-d10		*Recovery: 95.2%*			*Limits: 25-125%*	"							*05/11/10 14:55*	
Pyrene-d10		*128%*			*23-150%*	"							"	
Benzo (a) pyrene-d12		*92.7%*			*10-125%*	"							"	
Matrix Spike (10D0921-MS1)					**QC Source: PTD0783-03**				**Extracted: 04/29/10 15:25**					
Bis(2-ethylhexyl)phthalate	EPA 8270m	4.34	1.02	1.94	ug/l	2x	0.613	3.88	96.0%	(10-150)	--	--	05/10/10 20:15	
Butyl benzyl phthalate	"	4.05	1.02	1.94	"	"	ND	"	104%	"	--	--	"	
Di-n-butyl phthalate	"	3.91	1.02	1.94	"	"	ND	"	101%	"	--	--	"	
Di-n-octyl phthalate	"	4.82	1.02	1.94	"	"	ND	"	124%	"	--	--	"	
Diethyl phthalate	"	4.57	1.02	1.94	"	"	ND	"	118%	"	--	--	"	
Dimethyl phthalate	"	3.26	1.02	1.94	"	"	ND	"	83.9%	"	--	--	"	
Acenaphthene	"	1.16	0.0388	0.0388	"	"	ND	1.21	95.3%	(35-120)	--	--	05/08/10 17:32	
Acenaphthylene	"	1.23	0.0388	0.0388	"	"	ND	"	101%	(34-116)	--	--	"	
Anthracene	"	1.35	0.0388	0.0388	"	"	ND	"	111%	(24-119)	--	--	"	
Benzo (a) anthracene	"	1.60	0.0194	0.0194	"	"	ND	"	132%	(22-129)	--	--	"	M7
Benzo (a) pyrene	"	1.18	0.0194	0.0194	"	"	ND	"	97.2%	(10-112)	--	--	"	
Benzo (b) fluoranthene	"	1.24	0.0194	0.0194	"	"	ND	"	102%	(10-136)	--	--	"	
Benzo (ghi) perylene	"	1.26	0.0388	0.0388	"	"	ND	"	104%	(10-126)	--	--	"	
Benzo (k) fluoranthene	"	1.18	0.0194	0.0194	"	"	ND	"	97.5%	(10-145)	--	--	"	
Chrysene	"	1.45	0.0194	0.0194	"	"	ND	"	119%	(10-137)	--	--	"	
Dibenzo (a,h) anthracene	"	1.40	0.0194	0.0194	"	"	ND	"	115%	(10-141)	--	--	"	
Fluoranthene	"	1.32	0.0388	0.0388	"	"	ND	"	109%	(30-125)	--	--	"	
Fluorene	"	1.27	0.0388	0.0388	"	"	ND	"	104%	(27-124)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	1.35	0.0194	0.0194	"	"	ND	"	112%	(10-135)	--	--	"	
Naphthalene	"	1.02	0.0388	0.0388	"	"	ND	"	84.1%	(30-126)	--	--	"	
Phenanthrene	"	1.35	0.0388	0.0388	"	"	ND	"	112%	(34-126)	--	--	"	
Pyrene	"	1.74	0.0388	0.0388	"	"	ND	"	144%	(14-168)	--	--	"	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	06/04/10 16:38

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

TestAmerica Portland

QC Batch: 10D0921 **Water Preparation Method: 3520B Liq-Liq**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (10D0921-MS1)					**QC Source: PTD0783-03**				**Extracted: 04/29/10 15:25**					
Surrogate(s): Fluorene-d10		*Recovery: 98.7%*			*Limits: 25-125%*	*2x*							*05/08/10 17:32*	
Pyrene-d10		*122%*			*23-150%*	*"*							*"*	
Benzo (a) pyrene-d12		*77.4%*			*10-125%*	*"*							*"*	
Matrix Spike Dup (10D0921-MSD1)					**QC Source: PTD0783-03**				**Extracted: 04/29/10 15:25**					
Acenaphthene	EPA 8270m	1.10	0.0388	0.0388	ug/l	2x	ND	1.21	91.0%	(35-120)	4.63%	(35)	05/08/10 18:01	
Acenaphthylene	"	1.17	0.0388	0.0388	"	"	ND	"	96.5%	(34-116)	5.00%	"	"	
Anthracene	"	1.29	0.0388	0.0388	"	"	ND	"	107%	(24-119)	4.29%	"	"	
Benzo (a) anthracene	"	1.60	0.0194	0.0194	"	"	ND	"	132%	(22-129)	0.0268%	"	"	M7
Benzo (a) pyrene	"	1.21	0.0194	0.0194	"	"	ND	"	99.7%	(10-112)	2.49%	"	"	
Benzo (b) fluoranthene	"	1.28	0.0194	0.0194	"	"	ND	"	106%	(10-136)	3.48%	"	"	
Benzo (ghi) perylene	"	1.33	0.0388	0.0388	"	"	ND	"	109%	(10-126)	4.80%	"	"	
Benzo (k) fluoranthene	"	1.20	0.0194	0.0194	"	"	ND	"	99.2%	(10-145)	1.70%	"	"	
Chrysene	"	1.45	0.0194	0.0194	"	"	ND	"	120%	(10-137)	0.343%	"	"	
Dibenzo (a,h) anthracene	"	1.47	0.0194	0.0194	"	"	ND	"	121%	(10-141)	4.98%	"	"	
Fluoranthene	"	1.28	0.0388	0.0388	"	"	ND	"	106%	(30-125)	3.07%	"	"	
Fluorene	"	1.18	0.0388	0.0388	"	"	ND	"	97.3%	(27-124)	6.87%	"	"	
Indeno (1,2,3-cd) pyrene	"	1.42	0.0194	0.0194	"	"	ND	"	117%	(10-135)	5.03%	"	"	
Naphthalene	"	1.07	0.0388	0.0388	"	"	ND	"	87.8%	(30-126)	4.30%	"	"	
Phenanthrene	"	1.29	0.0388	0.0388	"	"	ND	"	106%	(34-126)	4.69%	"	"	
Pyrene	"	1.69	0.0388	0.0388	"	"	ND	"	140%	(14-168)	2.97%	"	"	
Surrogate(s): Fluorene-d10		*Recovery: 89.2%*			*Limits: 25-125%*	*"*							*05/08/10 18:01*	
Pyrene-d10		*112%*			*23-150%*	*"*							*"*	
Benzo (a) pyrene-d12		*69.0%*			*10-125%*	*"*							*"*	

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City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor**	
6543 N. Burlington Ave.	Project Number:	36238	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	06/04/10 16:38

Notes and Definitions

Report Specific Notes:

M7	-	The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).
RL1	-	Reporting limit raised due to sample matrix effects.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
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

Teresa Morrison For Howard Holmes, Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: PTD0782

CLIENT: City of Portland

REPORT TO: Jennifer Shackelford

ADDRESS:

PHONE: FAX:

INVOICE TO: Charles Lytle

P.O. NUMBER: 36238

PROJECT NAME: Portland Harbor Stormwater Samp

PROJECT NUMBER:

SAMPLED BY:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [10 STD.] [7] [5] [4] [3] [2] [1] [<1]

Petroleum Hydrocarbon Analyses: [5 STD.] [4] [3] [2] [1] [<1]

[OTHER] Specify:

* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: PCB Congs. All 209 **	REQUESTED ANALYSES: PAH + Perm 42 **	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1 FD105475	4/26/10 1622		X	X	W	3		
2								
3								
4								
5								
6								
7								
8								
9								
10								

RELEASED BY:		DATE: 4/27/10	RECEIVED BY:		DATE: 4/27/10
PRINT NAME: Mackenzie Zirk	FIRM: City of Portland	TIME: 11:20	PRINT NAME: Bob F	FIRM: TAP	TIME: 11:20
RELEASED BY:		DATE: 4/27/10	RECEIVED BY:		DATE: 4/27/10
PRINT NAME: Bob F	FIRM: TAP	TIME: 12:25	PRINT NAME: Jessica Nye	FIRM: TAP	TIME: 1225

ADDITIONAL REMARKS:

* Please send to PACE ** Extended PAH list → methylnaphthalenes - 4

TEMP: 1.0

PAGE 2 OF 3

TAL-1000(0408)

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PTD0782 Date/Time Received: 4/27/10 1225

Client Name and Project: COP Portland

Time Zone:

☐EDT/EST ☐CDT/CST ☐MDT/MST ☑PDT/PST ☐AK ☐OTHER

Unpacking Checks:

Cooler #(s): 1 1 ____ ____ ____

Temperatures: 1.0 2.3 ____ ____ ____

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:____

Initials: JW

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 #: RTD0782

Login Checks:

Initials:

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:

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).

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Howard Holmes
Test America-Portland
9405 SW Nimbus Avenue
Beaverton OR 97008

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10127618
Sample Receipt Date: 04/29/2010
Client Project #: PTD0782
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:

May 27, 2010

Nate Habte, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
natnael.habte@pacelabs.com

Report Prepared Date:
May 25, 2010

Report of Laboratory Analysis

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on one sample submitted by a representative of Test America Portland. The sample was analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 0.25-0.75 parts-per-trillion and were adjusted for the amount of the sample extracted.

The recoveries of the isotopically-labeled PCB internal standards in the sample extract ranged from 8-131%. With ten exceptions, labeled "R" on the results tables, the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1668A. Since the quantification of the native congeners was based on isotope dilution and internal standard 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, demonstrating that the levels measured in the sample extract were not affected by laboratory background.

Laboratory spike samples were also prepared with the sample batch using clean water that had been fortified with native standards. The results show that the spiked native compounds were recovered at 91-121%, with relative percent differences of 0.0-5.5%. These results indicate high degrees of accuracy and precision for these determinations. Matrix spikes were not prepared with the sample batch.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN00064_2000
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		South Carolina	74003001
Indiana	C-MN-01	Tennesee	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

Appendix A

Sample Management

SUBCONTRACT ORDER
TestAmerica Portland

PTD0782 1131 10/27/18

SENDING LABORATORY:

TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Phone: (503) 906-9200
Fax: (503) 906-9210
Project Manager: Howard Holmes

RECEIVING LABORATORY:

Pace Analytical Services, Inc - Minneapolis
1700 Elm Street Suite 200
Minneapolis, MN 55414
Phone :(612) 607-1700
Fax: (612) 607-6444
Project Location: OR - OREGON
Receipt Temperature: _____ °C Icc: Y / N

5/25/10

Standard TAT is requested unless specific due date is requested. => Due Date: ~~4/20/10~~ **Initials:**

Analysis	Units	Expires	Comments
Sample ID: PTD0782-01 (FO105475 - Water)		Sampled: **04/26/10 16:22**	
1668 Coplanar PCBs - SUB	ug/l	10/23/10 16:22	***209 Congeners*** to Pace

Containers Supplied:
1L Amber - Unpres. (C)

Released By — Date/Time: 4/28/10
Received By — Date/Time: 4/29/10 0958
Released By — Date/Time:
Received By — Date/Time: T = 4.4°C

Sample Condition Upon Receipt

Pace Analytical

Client Name: Tiostamaica Portland **Project #** 10127618

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 417075253585

Optional
Proj. Due Date:
Proj. Name:

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 86344042 or 179425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4.4 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and initials of person examining contents: 5/12/10

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl Samp # recieved in extra container PTD0809-013
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Theresa Morrison Date/Time: 5/5/10@ 15:00

Comments/ Resolution: 1668-209, Stan TAT

Project Manager Review: MAH **Date:** 5/5/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

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

Appendix B

Sample Analysis Summary

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 - Test America-Portland

Client's Sample ID	PTD0782-01 (FO105475-Water)		
Lab Sample ID	10127618001		
Filename	P100519B_08		
Injected By	SMT		
Total Amount Extracted	1020 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	04/26/2010 16:22
ICAL ID	P100519B02	Received	04/29/2010 09:58
CCal Filename(s)	P100519B_01	Extracted	05/17/2010 14:00
Method Blank ID	BLANK-24961	Analyzed	05/19/2010 23:26

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	6.419	2.98	2.0	0.167	8	R
13C-4-MoCB	3	9.139	3.50	2.0	0.391	20	R
13C-2,2'-DiCB	4	9.462	1.60	2.0	0.608	30	
13C-4,4'-DiCB	15	17.058	1.61	2.0	1.12	56	
13C-2,2',6-TrCB	19	13.547	1.04	2.0	0.980	49	
13C-3,4,4'-TrCB	37	25.133	1.08	2.0	1.23	61	
13C-2,2',6,6'-TeCB	54	17.369	0.80	2.0	0.987	49	
13C-3,4,4',5-TeCB	81	32.310	0.79	2.0	1.29	65	
13C-3,3',4,4'-TeCB	77	32.897	0.79	2.0	1.36	68	
13C-2,2',4,6,6'-PeCB	104	23.775	1.61	2.0	1.45	73	
13C-2,3,3',4,4'-PeCB	105	36.469	1.60	2.0	1.21	60	
13C-2,3,4,4',5-PeCB	114	35.831	1.60	2.0	1.16	58	
13C-2,3',4,4',5-PeCB	118	35.312	1.63	2.0	1.21	61	
13C-2,3',4,4',5'-PeCB	123	34.976	1.59	2.0	1.22	61	
13C-3,3',4,4',5-PeCB	126	39.621	1.58	2.0	1.10	55	
13C-2,2',4,4',6,6'-HxCB	155	29.945	1.28	2.0	1.66	83	
13C-HxCB (156/157)	156/157	42.640	1.25	4.0	2.19	55	
13C-2,3',4,4',5,5'-HxCB	167	41.516	1.24	2.0	1.17	58	
13C-3,3',4,4',5,5'-HxCB	169	45.893	1.30	2.0	0.938	47	
13C-2,2',3,4',5,6,6'-HpCB	188	35.831	1.07	2.0	2.62	131	
13C-2,3,3',4,4',5,5'-HpCB	189	48.423	1.04	2.0	1.46	73	
13C-2,2',3,3',5,5',6,6'-OcCB	202	41.231	0.91	2.0	2.41	121	
13C-2,3,3',4,4',5,5',6-OcCB	205	51.009	0.91	2.0	1.42	71	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	52.755	0.79	2.0	1.64	82	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	47.905	0.80	2.0	1.76	88	
13C--DeCB	209	54.522	0.70	2.0	1.68	84	
Cleanup Standards							
13C-2,4,4'-TrCB	28	20.672	1.06	2.0	1.50	75	
13C-2,3,3',5,5'-PeCB	111	33.014	1.60	2.0	1.96	98	
13C-2,2',3,3',5,5',6-HpCB	178	38.934	1.07	2.0	2.13	106	
Recovery Standards							
13C-2,5-DiCB	9	12.134	1.60	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	22.768	0.79	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	30.197	1.57	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	38.464	1.25	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	50.535	0.90	2.0	NA	NA	

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

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 PTD0782-01 (FO105475-Water)
Lab Sample ID 10127618001
Filename P100519B_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	---	1.47
12	12/13	---	---	ND	---	0.489
13	12/13	---	---	ND	---	0.489
14		---	---	ND	---	0.244
15		---	---	ND	---	0.244
16		---	---	ND	---	0.244
17		---	---	ND	---	0.244
18	18/30	---	---	ND	---	0.489
19		---	---	ND	---	0.244
20	20/28	---	---	ND	---	0.489
21	21/33	---	---	ND	---	0.489
22		---	---	ND	---	0.244
23		---	---	ND	---	0.244
24		---	---	ND	---	0.244
25		---	---	ND	---	0.244
26	26/29	---	---	ND	---	0.489
27		---	---	ND	---	0.244
28	20/28	---	---	ND	---	0.489
29	26/29	---	---	ND	---	0.489
30	18/30	---	---	ND	---	0.489
31		20.354	1.01	0.369	---	0.244
32		---	---	ND	---	0.244
33	21/33	---	---	ND	---	0.489
34		---	---	ND	---	0.244
35		---	---	ND	---	0.244
36		---	---	ND	---	0.244
37		---	---	ND	---	0.244
38		---	---	ND	---	0.244
39		---	---	ND	---	0.244
40	40/41/71	---	---	ND	---	1.47
41	40/41/71	---	---	ND	---	1.47
42		---	---	ND	---	0.489
43	43/73	---	---	ND	---	0.977
44	44/47/65	---	---	ND	---	1.47
45	45/51	---	---	ND	---	0.977
46		---	---	ND	---	0.489
47	44/47/65	---	---	ND	---	1.47
48		---	---	ND	---	0.489

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

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 PTD0782-01 (FO105475-Water)
Lab Sample ID 10127618001
Filename P100519B_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	0.977
50	50/53	---	---	ND	---	0.977
51	45/51	---	---	ND	---	0.977
52		22.802	0.76	0.706	---	0.489
53	50/53	---	---	ND	---	0.977
54		---	---	ND	---	0.489
55		---	---	ND	---	0.489
56		---	---	ND	---	0.489
57		---	---	ND	---	0.489
58		---	---	ND	---	0.489
59	59/62/75	---	---	ND	---	1.47
60		---	---	ND	---	0.489
61	61/70/74/76	---	---	ND	---	1.95
62	59/62/75	---	---	ND	---	1.47
63		---	---	ND	---	0.489
64		---	---	ND	---	0.489
65	44/47/65	---	---	ND	---	1.47
66		---	---	ND	---	0.489
67		---	---	ND	---	0.489
68		---	---	ND	---	0.489
69	49/69	---	---	ND	---	0.977
70	61/70/74/76	---	---	ND	---	1.95
71	40/41/71	---	---	ND	---	1.47
72		---	---	ND	---	0.489
73	43/73	---	---	ND	---	0.977
74	61/70/74/76	---	---	ND	---	1.95
75	59/62/75	---	---	ND	---	1.47
76	61/70/74/76	---	---	ND	---	1.95
77		---	---	ND	---	0.489
78		---	---	ND	---	0.489
79		---	---	ND	---	0.489
80		---	---	ND	---	0.489
81		---	---	ND	---	0.489
82		---	---	ND	---	0.489
83		---	---	ND	---	0.489
84		---	---	ND	---	0.489
85	85/116/117	---	---	ND	---	1.47
86	86/87/97/108/119/125	---	---	ND	---	2.93
87	86/87/97/108/119/125	---	---	ND	---	2.93
88	88/91	---	---	ND	---	0.977
89		---	---	ND	---	0.489
90	90/101/113	---	---	ND	---	1.47
91	88/91	---	---	ND	---	0.977
92		---	---	ND	---	0.489
93	93/98/100/102	---	---	ND	---	1.95
94		---	---	ND	---	0.489
95		27.028	1.60	0.905	---	0.489
96		---	---	ND	---	0.489

Conc = Concentration
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A = Limit of Detection based on signal to noise
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NC = Not Calculated
* = See Discussion
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RT = Retention Time
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ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

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 PTD0782-01 (FO105475-Water)
Lab Sample ID 10127618001
Filename P100519B_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	2.93
98	93/98/100/102	---	---	ND	---	1.95
99		---	---	ND	---	0.489
100	93/98/100/102	---	---	ND	---	1.95
101	90/101/113	---	---	ND	---	1.47
102	93/98/100/102	---	---	ND	---	1.95
103		---	---	ND	---	0.489
104		---	---	ND	---	0.489
105		36.502	1.56	0.579	---	0.489
106		---	---	ND	---	0.489
107	107/124	---	---	ND	---	0.977
108	86/87/97/108/119/125	---	---	ND	---	2.93
109		---	---	ND	---	0.489
110	110/115	32.226	1.56	1.53	---	0.977
111		---	---	ND	---	0.489
112		---	---	ND	---	0.489
113	90/101/113	---	---	ND	---	1.47
114		---	---	ND	---	0.489
115	110/115	32.226	1.56	(1.53)	---	0.977
116	85/116/117	---	---	ND	---	1.47
117	85/116/117	---	---	ND	---	1.47
118		35.345	1.56	1.30	---	0.489
119	86/87/97/108/119/125	---	---	ND	---	2.93
120		---	---	ND	---	0.489
121		---	---	ND	---	0.489
122		---	---	ND	---	0.489
123		---	---	ND	---	0.489
124	107/124	---	---	ND	---	0.977
125	86/87/97/108/119/125	---	---	ND	---	2.93
126		---	---	ND	---	0.489
127		---	---	ND	---	0.489
128	128/166	---	---	ND	---	0.977
129	129/138/163	38.481	1.26	1.68	---	1.47
130		---	---	ND	---	0.489
131		---	---	ND	---	0.489
132		35.379	1.27	0.526	---	0.489
133		---	---	ND	---	0.489
134	134/143	---	---	ND	---	0.977
135	135/151	---	---	ND	---	0.977
136		---	---	ND	---	0.489
137		---	---	ND	---	0.489
138	129/138/163	38.481	1.26	(1.68)	---	1.47
139	139/140	---	---	ND	---	0.977
140	139/140	---	---	ND	---	0.977
141		---	---	ND	---	0.489
142		---	---	ND	---	0.489
143	134/143	---	---	ND	---	0.977
144		---	---	ND	---	0.489

Conc = Concentration
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REPORT OF LABORATORY ANALYSIS

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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 PTD0782-01 (FO105475-Water)
Lab Sample ID 10127618001
Filename P100519B_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.489
146		---	---	ND	---	0.489
147	147/149	34.138	1.23	1.02	---	0.977
148		---	---	ND	---	0.489
149	147/149	34.138	1.23	(1.02)	---	0.977
150		---	---	ND	---	0.489
151	135/151	---	---	ND	---	0.977
152		---	---	ND	---	0.489
153	153/168	37.257	1.25	1.04	---	0.977
154		---	---	ND	---	0.489
155		---	---	ND	---	0.489
156	156/157	---	---	ND	---	0.977
157	156/157	---	---	ND	---	0.977
158		---	---	ND	---	0.489
159		---	---	ND	---	0.489
160		---	---	ND	---	0.489
161		---	---	ND	---	0.489
162		---	---	ND	---	0.489
163	129/138/163	38.481	1.26	(1.68)	---	1.47
164		---	---	ND	---	0.489
165		---	---	ND	---	0.489
166	128/166	---	---	ND	---	0.977
167		---	---	ND	---	0.489
168	153/168	37.257	1.25	(1.04)	---	0.977
169		---	---	ND	---	0.489
170		---	---	ND	---	0.489
171	171/173	---	---	ND	---	0.977
172		---	---	ND	---	0.489
173	171/173	---	---	ND	---	0.977
174		---	---	ND	---	0.489
175		---	---	ND	---	0.489
176		---	---	ND	---	0.489
177		---	---	ND	---	0.489
178		---	---	ND	---	0.489
179		---	---	ND	---	0.489
180	180/193	---	---	ND	---	0.977
181		---	---	ND	---	0.489
182		---	---	ND	---	0.489
183	183/185	---	---	ND	---	0.977
184		---	---	ND	---	0.489
185	183/185	---	---	ND	---	0.977
186		---	---	ND	---	0.489
187		---	---	ND	---	0.489
188		---	---	ND	---	0.489
189		---	---	ND	---	0.489
190		---	---	ND	---	0.489
191		---	---	ND	---	0.489
192		---	---	ND	---	0.489

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTD0782-01 (FO105475-Water)
Lab Sample ID 10127618001
Filename P100519B_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	---	---	ND	---	0.977
194		---	---	ND	---	0.733
195		---	---	ND	---	0.733
196		---	---	ND	---	0.733
197	197/200	---	---	ND	---	1.47
198	198/199	---	---	ND	---	1.47
199	198/199	---	---	ND	---	1.47
200	197/200	---	---	ND	---	1.47
201		---	---	ND	---	0.733
202		---	---	ND	---	0.733
203		---	---	ND	---	0.733
204		---	---	ND	---	0.733
205		---	---	ND	---	0.733
206		---	---	ND	---	0.733
207		---	---	ND	---	0.733
208		---	---	ND	---	0.733
209		---	---	ND	---	0.733

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTD0782-01 (FO105475-Water)
Lab Sample ID 10127618001
Filename P100519B_08

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	ND
Total Trichloro Biphenyls	0.369
Total Tetrachloro Biphenyls	0.706
Total Pentachloro Biphenyls	4.31
Total Hexachloro Biphenyls	4.27
Total Heptachloro Biphenyls	ND
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
Decachloro Biphenyls	ND
Total PCBs	9.66

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-24961		
Filename	P100518B_07		
Injected By	SMT	Matrix	Water
Total Amount Extracted	976 mL	Extracted	05/17/2010 14:00
ICAL ID	P100518B03	Analyzed	05/18/2010 22:35
CCal Filename(s)	P100518B_02	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	6.419	2.68	2.0	0.179	9	R
13C-4-MoCB	3	9.163	3.39	2.0	0.363	18	R
13C-2,2'-DiCB	4	9.463	1.61	2.0	0.618	31	
13C-4,4'-DiCB	15	17.059	1.61	2.0	1.09	55	
13C-2,2',6-TrCB	19	13.560	1.04	2.0	0.989	49	
13C-3,4,4'-TrCB	37	25.104	1.08	2.0	1.27	63	
13C-2,2',6,6'-TeCB	54	17.358	0.78	2.0	0.988	49	
13C-3,4,4',5-TeCB	81	32.280	0.80	2.0	1.49	74	
13C-3,3',4,4'-TeCB	77	32.850	0.80	2.0	1.56	78	
13C-2,2',4,6,6'-PeCB	104	23.763	1.61	2.0	1.46	73	
13C-2,3,3',4,4'-PeCB	105	36.405	1.57	2.0	1.38	69	
13C-2,3,4,4',5-PeCB	114	35.768	1.55	2.0	1.31	66	
13C-2,3',4,4',5-PeCB	118	35.265	1.58	2.0	1.37	69	
13C-2,3',4,4',5'-PeCB	123	34.929	1.57	2.0	1.40	70	
13C-3,3',4,4',5-PeCB	126	39.540	1.56	2.0	1.35	67	
13C-2,2',4,4',6,6'-HxCB	155	29.916	1.30	2.0	1.67	84	
13C-HxCB (156/157)	156/157	42.541	1.29	4.0	2.67	67	
13C-2,3',4,4',5,5'-HxCB	167	41.435	1.28	2.0	1.39	70	
13C-3,3',4,4',5,5'-HxCB	169	45.777	1.25	2.0	1.25	62	
13C-2,2',3,4',5,6,6'-HpCB	188	35.784	1.07	2.0	2.29	115	
13C-2,3,3',4,4',5,5'-HpCB	189	48.294	1.04	2.0	1.69	85	
13C-2,2',3,3',5,5',6,6'-OcCB	202	41.167	0.91	2.0	2.24	112	
13C-2,3,3',4,4',5,5',6-OcCB	205	50.881	0.90	2.0	1.60	80	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	52.626	0.78	2.0	1.78	89	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	47.799	0.80	2.0	1.90	95	
13C--DeCB	209	54.372	0.72	2.0	1.72	86	
Cleanup Standards							
13C-2,4,4'-TrCB	28	20.661	1.07	2.0	1.41	71	
13C-2,3,3',5,5'-PeCB	111	32.968	1.60	2.0	1.85	93	
13C-2,2',3,3',5,5',6-HpCB	178	38.870	1.04	2.0	2.11	106	
Recovery Standards							
13C-2,5-DiCB	9	12.147	1.60	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	22.757	0.78	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	30.151	1.60	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	38.383	1.28	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	50.406	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
Blank Analysis Results

Lab Sample ID BLANK-24961
Filename P100518B_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.256
2		---	---	ND	---	0.256
3		---	---	ND	---	0.256
4		---	---	ND	---	0.256
5		---	---	ND	---	0.256
6		---	---	ND	---	0.256
7		---	---	ND	---	0.256
8		---	---	ND	---	0.256
9		---	---	ND	---	0.256
10		---	---	ND	---	0.256
11		---	---	ND	---	1.54
12	12/13	---	---	ND	---	0.512
13	12/13	---	---	ND	---	0.512
14		---	---	ND	---	0.256
15		---	---	ND	---	0.256
16		---	---	ND	---	0.256
17		---	---	ND	---	0.256
18	18/30	---	---	ND	---	0.512
19		---	---	ND	---	0.256
20	20/28	---	---	ND	---	0.512
21	21/33	---	---	ND	---	0.512
22		---	---	ND	---	0.256
23		---	---	ND	---	0.256
24		---	---	ND	---	0.256
25		---	---	ND	---	0.256
26	26/29	---	---	ND	---	0.512
27		---	---	ND	---	0.256
28	20/28	---	---	ND	---	0.512
29	26/29	---	---	ND	---	0.512
30	18/30	---	---	ND	---	0.512
31		---	---	ND	---	0.256
32		---	---	ND	---	0.256
33	21/33	---	---	ND	---	0.512
34		---	---	ND	---	0.256
35		---	---	ND	---	0.256
36		---	---	ND	---	0.256
37		---	---	ND	---	0.256
38		---	---	ND	---	0.256
39		---	---	ND	---	0.256
40	40/41/71	---	---	ND	---	1.54
41	40/41/71	---	---	ND	---	1.54
42		---	---	ND	---	0.512
43	43/73	---	---	ND	---	1.02
44	44/47/65	---	---	ND	---	1.54
45	45/51	---	---	ND	---	1.02

Conc = Concentration
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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24961
Filename P100518B_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46		---	---	ND	---	0.512
47	44/47/65	---	---	ND	---	1.54
48		---	---	ND	---	0.512
49	49/69	---	---	ND	---	1.02
50	50/53	---	---	ND	---	1.02
51	45/51	---	---	ND	---	1.02
52		---	---	ND	---	0.512
53	50/53	---	---	ND	---	1.02
54		---	---	ND	---	0.512
55		---	---	ND	---	0.512
56		---	---	ND	---	0.512
57		---	---	ND	---	0.512
58		---	---	ND	---	0.512
59	59/62/75	---	---	ND	---	1.54
60		---	---	ND	---	0.512
61	61/70/74/76	---	---	ND	---	2.05
62	59/62/75	---	---	ND	---	1.54
63		---	---	ND	---	0.512
64		---	---	ND	---	0.512
65	44/47/65	---	---	ND	---	1.54
66		---	---	ND	---	0.512
67		---	---	ND	---	0.512
68		---	---	ND	---	0.512
69	49/69	---	---	ND	---	1.02
70	61/70/74/76	---	---	ND	---	2.05
71	40/41/71	---	---	ND	---	1.54
72		---	---	ND	---	0.512
73	43/73	---	---	ND	---	1.02
74	61/70/74/76	---	---	ND	---	2.05
75	59/62/75	---	---	ND	---	1.54
76	61/70/74/76	---	---	ND	---	2.05
77		---	---	ND	---	0.512
78		---	---	ND	---	0.512
79		---	---	ND	---	0.512
80		---	---	ND	---	0.512
81		---	---	ND	---	0.512
82		---	---	ND	---	0.512
83		---	---	ND	---	0.512
84		---	---	ND	---	0.512
85	85/116/117	---	---	ND	---	1.54
86	86/87/97/108/119/125	---	---	ND	---	3.07
87	86/87/97/108/119/125	---	---	ND	---	3.07
88	88/91	---	---	ND	---	1.02
89		---	---	ND	---	0.512
90	90/101/113	---	---	ND	---	1.54

Conc = Concentration
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ng/L = Nanograms per liter

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NA = Not Applicable
NC = Not Calculated
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24961
Filename P100518B_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91	---	---	ND	---	1.02
92		---	---	ND	---	0.512
93	93/98/100/102	---	---	ND	---	2.05
94		---	---	ND	---	0.512
95		---	---	ND	---	0.512
96		---	---	ND	---	0.512
97	86/87/97/108/119/125	---	---	ND	---	3.07
98	93/98/100/102	---	---	ND	---	2.05
99		---	---	ND	---	0.512
100	93/98/100/102	---	---	ND	---	2.05
101	90/101/113	---	---	ND	---	1.54
102	93/98/100/102	---	---	ND	---	2.05
103		---	---	ND	---	0.512
104		---	---	ND	---	0.512
105		---	---	ND	---	0.512
106		---	---	ND	---	0.512
107	107/124	---	---	ND	---	1.02
108	86/87/97/108/119/125	---	---	ND	---	3.07
109		---	---	ND	---	0.512
110	110/115	---	---	ND	---	1.02
111		---	---	ND	---	0.512
112		---	---	ND	---	0.512
113	90/101/113	---	---	ND	---	1.54
114		---	---	ND	---	0.512
115	110/115	---	---	ND	---	1.02
116	85/116/117	---	---	ND	---	1.54
117	85/116/117	---	---	ND	---	1.54
118		---	---	ND	---	0.512
119	86/87/97/108/119/125	---	---	ND	---	3.07
120		---	---	ND	---	0.512
121		---	---	ND	---	0.512
122		---	---	ND	---	0.512
123		---	---	ND	---	0.512
124	107/124	---	---	ND	---	1.02
125	86/87/97/108/119/125	---	---	ND	---	3.07
126		---	---	ND	---	0.512
127		---	---	ND	---	0.512
128	128/166	---	---	ND	---	1.02
129	129/138/163	---	---	ND	---	1.54
130		---	---	ND	---	0.512
131		---	---	ND	---	0.512
132		---	---	ND	---	0.512
133		---	---	ND	---	0.512
134	134/143	---	---	ND	---	1.02
135	135/151	---	---	ND	---	1.02

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24961
Filename P100518B_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136		---	---	ND	---	0.512
137		---	---	ND	---	0.512
138	129/138/163	---	---	ND	---	1.54
139	139/140	---	---	ND	---	1.02
140	139/140	---	---	ND	---	1.02
141		---	---	ND	---	0.512
142		---	---	ND	---	0.512
143	134/143	---	---	ND	---	1.02
144		---	---	ND	---	0.512
145		---	---	ND	---	0.512
146		---	---	ND	---	0.512
147	147/149	---	---	ND	---	1.02
148		---	---	ND	---	0.512
149	147/149	---	---	ND	---	1.02
150		---	---	ND	---	0.512
151	135/151	---	---	ND	---	1.02
152		---	---	ND	---	0.512
153	153/168	---	---	ND	---	1.02
154		---	---	ND	---	0.512
155		---	---	ND	---	0.512
156	156/157	---	---	ND	---	1.02
157	156/157	---	---	ND	---	1.02
158		---	---	ND	---	0.512
159		---	---	ND	---	0.512
160		---	---	ND	---	0.512
161		---	---	ND	---	0.512
162		---	---	ND	---	0.512
163	129/138/163	---	---	ND	---	1.54
164		---	---	ND	---	0.512
165		---	---	ND	---	0.512
166	128/166	---	---	ND	---	1.02
167		---	---	ND	---	0.512
168	153/168	---	---	ND	---	1.02
169		---	---	ND	---	0.512
170		---	---	ND	---	0.512
171	171/173	---	---	ND	---	1.02
172		---	---	ND	---	0.512
173	171/173	---	---	ND	---	1.02
174		---	---	ND	---	0.512
175		---	---	ND	---	0.512
176		---	---	ND	---	0.512
177		---	---	ND	---	0.512
178		---	---	ND	---	0.512
179		---	---	ND	---	0.512
180	180/193	---	---	ND	---	1.02

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

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-24961
Filename P100518B_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181		---	---	ND	---	0.512
182		---	---	ND	---	0.512
183	183/185	---	---	ND	---	1.02
184		---	---	ND	---	0.512
185	183/185	---	---	ND	---	1.02
186		---	---	ND	---	0.512
187		---	---	ND	---	0.512
188		---	---	ND	---	0.512
189		---	---	ND	---	0.512
190		---	---	ND	---	0.512
191		---	---	ND	---	0.512
192		---	---	ND	---	0.512
193	180/193	---	---	ND	---	1.02
194		---	---	ND	---	0.769
195		---	---	ND	---	0.769
196		---	---	ND	---	0.769
197	197/200	---	---	ND	---	1.54
198	198/199	---	---	ND	---	1.54
199	198/199	---	---	ND	---	1.54
200	197/200	---	---	ND	---	1.54
201		---	---	ND	---	0.769
202		---	---	ND	---	0.769
203		---	---	ND	---	0.769
204		---	---	ND	---	0.769
205		---	---	ND	---	0.769
206		---	---	ND	---	0.769
207		---	---	ND	---	0.769
208		---	---	ND	---	0.769
209		---	---	ND	---	0.769

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Client Sample ID	DFBLKQE
Lab Sample ID	BLANK-24961
Filename	P100518B_07

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

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-24962		
Filename	P100518B_04	Matrix	Water
Total Amount Extracted	952 mL	Dilution	NA
ICAL ID	P100518B03	Extracted	05/17/2010 14:00
CCal Filename(s)	P100518B_02	Analyzed	05/18/2010 19:32
Method Blank ID	BLANK-24961	Injected By	SMT

	Native Analytes			Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	0.922	92	2.0	0.186	9	R
3	1.0	0.960	96	2.0	0.360	18	R
4	1.0	0.932	93	2.0	0.570	29	R
15	1.0	1.02	102	2.0	0.988	49	
19	1.0	0.949	95	2.0	0.864	43	
37	1.0	1.03	103	2.0	1.20	60	
54	1.0	0.948	95	2.0	0.836	42	
81	1.0	1.03	103	2.0	1.46	73	
77	1.0	1.02	102	2.0	1.55	77	
104	1.0	0.933	93	2.0	1.40	70	
105	1.0	1.06	106	2.0	1.44	72	
114	1.0	1.12	112	2.0	1.37	68	
118	1.0	1.13	113	2.0	1.41	70	
123	1.0	1.06	106	2.0	1.44	72	
126	1.0	1.01	101	2.0	1.45	73	
155	1.0	0.958	96	2.0	1.62	81	
156/157	2.0	2.41	121	4.0	2.77	69	
167	1.0	1.15	115	2.0	1.42	71	
169	1.0	1.13	113	2.0	1.35	68	
188	1.0	0.963	96	2.0	2.15	107	
189	1.0	1.02	102	2.0	1.73	86	
202	1.0	0.959	96	2.0	2.10	105	
205	1.0	0.986	99	2.0	1.60	80	
206	1.0	0.934	93	2.0	1.79	90	
208	1.0	0.979	98	2.0	1.84	92	
209	1.0	1.10	110	2.0	1.71	85	

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-24963		
Filename	P100518B_05	Matrix	Water
Total Amount Extracted	954 mL	Dilution	NA
ICAL ID	P100518B03	Extracted	05/17/2010 14:00
CCal Filename(s)	P100518B_02	Analyzed	05/18/2010 20:33
Method Blank ID	BLANK-24961	Injected By	SMT

	Native Analytes			Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	0.938	94	2.0	0.0525	3	R
3	1.0	0.920	92	2.0	0.183	9	R
4	1.0	0.928	93	2.0	0.332	17	R
15	1.0	1.04	104	2.0	0.824	41	
19	1.0	0.911	91	2.0	0.701	35	
37	1.0	1.02	102	2.0	1.12	56	
54	1.0	0.936	94	2.0	0.723	36	
81	1.0	1.05	105	2.0	1.44	72	
77	1.0	1.01	101	2.0	1.52	76	
104	1.0	0.945	94	2.0	1.31	65	
105	1.0	1.04	104	2.0	1.42	71	
114	1.0	1.06	106	2.0	1.36	68	
118	1.0	1.09	109	2.0	1.39	70	
123	1.0	1.03	103	2.0	1.42	71	
126	1.0	1.02	102	2.0	1.44	72	
155	1.0	0.952	95	2.0	1.59	79	
156/157	2.0	2.36	118	4.0	2.76	69	
167	1.0	1.20	120	2.0	1.41	70	
169	1.0	1.07	107	2.0	1.34	67	
188	1.0	0.972	97	2.0	2.13	107	
189	1.0	1.02	102	2.0	1.68	84	
202	1.0	0.958	96	2.0	2.11	105	
205	1.0	0.963	96	2.0	1.60	80	
206	1.0	0.943	94	2.0	1.74	87	
208	1.0	0.995	99	2.0	1.84	92	
209	1.0	1.08	108	2.0	1.69	84	

R = Recovery outside of method 1668A control limits
Nn = Result obtained from alternate analysis
ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
ng = Nanograms
I = Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A

Spike Recovery Relative Percent Difference (RPD) Results

Client	Test America-Portland		
Spike 1 ID	LCS-24962	Spike 2 ID	LCSD-24963
Spike 1 Filename	P100518B_04	Spike 2 Filename	P100518B_05

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	92	94	2.2
4-MoCB	3	96	92	4.3
2,2'-DiCB	4	93	93	0.0
4,4'-DiCB	15	102	104	1.9
2,2',6-TrCB	19	95	91	4.3
3,4,4'-TrCB	37	103	102	1.0
2,2',6,6'-TeCB	54	95	94	1.1
3,3',4,4'-TeCB	77	102	101	1.0
3,4,4',5-TeCB	81	103	105	1.9
2,2',4,6,6'-PeCB	104	93	94	1.1
2,3,3',4,4'-PeCB	105	106	104	1.9
2,3,4,4',5-PeCB	114	112	106	5.5
2,3',4,4',5-PeCB	118	113	109	3.6
2,3',4,4',5'-PeCB	123	106	103	2.9
3,3',4,4',5-PeCB	126	101	102	1.0
2,2',4,4',6,6'-HxCB	155	96	95	1.0
(156/157)	156/157	121	118	2.5
2,3',4,4',5,5'-HxCB	167	115	120	4.3
3,3',4,4',5,5'-HxCB	169	113	107	5.5
2,2',3,4',5,6,6'-HpCB	188	96	97	1.0
2,3,3',4,4',5,5'-HpCB	189	102	102	0.0
2,2',3,3',5,5',6,6'-OcCB	202	96	96	0.0
2,3,3',4,4',5,5',6-OcCB	205	99	96	3.1
2,2',3,3',4,4',5,5',6-NoCB	206	93	94	1.1
2,2',3,3',4,5,5',6,6'-NoCB	208	98	99	1.0
Decachlorobiphenyl	209	110	108	1.8

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Solids Sampling

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

Laboratory Data QA/QC Review
Inline Solids Investigation
City Outfall Basin 19A

To: File

From: Karen Demsey, GSI Water Solutions, Inc.

Date: March 10, 2011

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from source control investigation sampling and analyses conducted by the City of Portland (City) in September 2010. On surface solids sample (FO105900) was collected on September 14, 2010, and one additional surface solids sample (FO105901) and four inline solids samples (FO105902, FO105903, FO105904, and FO105905) were collected on September 16, 2010. The samples were submitted on September 16, 2010, for analyses.

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

- BES WPCL
    - Total Solids (TSS) – SM 2540G
    - Total Copper – EPA 6020
    - Polychlorinated Biphenyls (PCB) Aroclors – EPA 8082
- Test America (TA)
    - Total Organic Carbon – EPA 9060 MOD
- Pace Analytical Services (Pace)
    - Polychlorinated Biphenyls (PCBs) as Congeners – EPA 1668A

The WPCL summary report and the subcontracted laboratories' data reports are attached for all analyses associated with this source control program sample. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation provided by each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within accuracy control limits
- Internal standard recoveries within accuracy control limits
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within control limits
- Laboratory control and duplicate laboratory control (LC/DLC) sample recoveries within control limits

The results from the QA/QC review of the available information in the laboratory reports are presented below.

Chain-of-Custody

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

Analysis Holding Times

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

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analyses of TOC and PCB congeners. One of the two method blanks prepared and analyzed during PCB congeners analysis contained low levels of two PCB congeners. The congeners present in the blank were detected in the field samples at levels over ten times higher than in the blank. The Pace report notes that in general, levels less than ten times the background are not considered statistically different from the background. The results for the field samples are therefore not significantly affected; they are considered only slightly biased high. TOC was not detected in the method blank for TOC analysis.

Internal Standard Recoveries

Isotopically-labeled internal standard recoveries were processed during the laboratory analysis of PCB congeners. Internal standard recoveries were within control limits with fifteen exceptions, which are flagged “R” in the Pace laboratory report. Pace reports that 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 in the sample matrix impacted the determination of PCB congeners in the internal standard recoveries. The affected values for the internal standard recoveries are flagged "I" where incorrect isotope ratios were obtained. The reported sample results are not qualified.

Laboratory Control/Duplicate Laboratory Control Samples

LC samples were processed during the laboratory analysis of TOC and PCB congeners. A DLC sample was processed during the PCB congeners analysis. All labeled analyte and spiked native analyte recoveries and relative percent differences were within laboratory control limits. Pace reports that these results indicate high degrees of accuracy and precision for these determinations.

Other

Samples FO105901 and FO105906 were analyzed at a variety of dilutions and re-extracted due to matrix-related retention time shifts in the analyses. In both cases, the reported results are those from a secondary dilution; these results are flagged "N2" in the Pace laboratory report.

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: 9/16/10
Page: 1 of 1
Collected By: CJK, PTB, MJS

Project Name: PORTLAND HARBOR INLINE SAMP
File Number: 1020.001 **Matrix:** SEDIMENT

Basin 19A Inline

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	Organics: PCB Aroclors - LL	Organics: PCB Congeners (All 209)	Organics: TOC	General: Total Soldis	Metals: Total Copper	Field Comments
FO105900	IL-19A-CALBAG1-0910 CALBAG & NW FRONT #1	19A_1	9/14/10	1527	C	●	●	●	●	●	
FO105901	IL-19A-CALBAG2-0910 CALBAG & NW FRONT #2	19A_2	9/16/10	945	C	●	●	●	●	●	
FO105902	IL-19A-ANF294-0910 4927 SW FRONT AVE	19A_3	9/16/10	1011	C	●	●	●	●	●	
FO105903	IL-19A-APN377-0910 KITTEREDGE & FRONT	19A_4	9/16/10	1043	C	●	●	●	●	●	
FO105904	IL-19A-CBCOMP1-0910 COMP ANF302 & ANF304	19A_5	9/16/10	1131	C	●	●	●	●	●	
FO105905	IL-19A-CBCOMP2-0910 COMP ANF298 & ANF300	19A_6	9/16/10	1208	C	●	●	●	●	●	
FO105906	DUPLICATE	DUP	9/16/10		C	●	●	●	●	●	

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature: [signature] Time: 1550	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Peter Bryant Date: 9/16/10	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Received By: 1.	**Received By:** 2.	**Received By:** 3.	**Received By:** 4.
Signature: [signature] Time: 1550	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Rona Klneb Date: 9/16/10	Printed Name: Date:	Printed Name: 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: **FO105900** **Sample Collected:** 09/14/10 15:27 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR INLINE SAMP	**Report Page:**	Page 1 of 1
Address/Location:	IL-19A-CALBAG1-0910		
	CAL1 SWEEPINGS FR DRIVEWAY @ NW FRONT	**System ID:**	AO08231
Sample Point Code:	19A_1	**EID File # :**	1020.001
Sample Type:	COMPOSITE	**LocCode:**	PORTHARI
Sample Matrix:	SEDIMENT	**Collected By:**	PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	99.6	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	166	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/17/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1254	49	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1260	31	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	41700	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105900

Report Date: 11/12/10 **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: FO105901 **Sample Collected:** 09/16/10 09:45 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-CALBAG2-0910
CAL2 SOILS 0-2 IN BTW CALBAG &RAIL LINES
Sample Point Code: 19A_2
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08232
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	89.8	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	1170	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/17/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1254	173	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1260	241	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	26100	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105901

Report Date: 11/12/10 **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: FO105902 **Sample Collected:** 09/16/10 10:11 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-ANF294-0910
SOILS COMP FRM CB ANF294
Sample Point Code: 19A_3
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08233
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	72.9	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	166	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1254	73	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	53600	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105902

Report Date: 11/12/10 **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: FO105903 **Sample Collected:** 09/16/10 10:43 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-APN377-0910
SOILS COMP FRM CB S CORNER KITTR & FRONT
Sample Point Code: 19A_4
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08234
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	62.9	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	101	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1254	13	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	76600	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105903

Report Date: 11/12/10 **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: FO105904 **Sample Collected:** 09/16/10 11:31 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-CBCOMP1-0910
SOILS COMP FRM CBs ANF302 & ANF304
Sample Point Code: 19A_5
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08235
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	79.7	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	426	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1254	49	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1260	32	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	50000	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105904

Report Date: 11/12/10 **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: FO105905 **Sample Collected:** 09/16/10 12:08 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-CBCOMP2-0910
SOILS COMP FRM ANF298 & ANF300
Sample Point Code: 19A_6
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08236
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	79.3	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	211	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1254	23	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	40500	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105905

Report Date: 11/12/10 **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: FO105906 **Sample Collected:** 09/16/10 00:00 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

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

Report Page: Page 1 of 1

System ID: AO08237
Sample Point Code: DUP
EID File # : 1020.001
Sample Type: COMPOSITE
LocCode: PORTHARI
Sample Matrix: SEDIMENT
Collected By: PTB/MJS

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Inconsistent recoveries for PCB matrix QC indicate non-homogeneous sample matrix; results should be considered estimates. LAB: PCBs quantified as Aroclor 1260 may also include some Aroclor 1262.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	89.5	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	1090	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1221	<80	µg/Kg dry wt	80	EPA 8082	09/22/10
Aroclor 1232	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1248	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1254	165	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1260	250	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1262	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1268	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	25100	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	09/29/10

End of Report for Sample ID: FO105906

Report Date: 11/12/10 **Validated By:**

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

October 06, 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 09/17/10 13:20. The following list is a summary of the Work Orders contained in this report, generated on 10/06/10 15:15.

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

Work Order	Project	ProjectNumber
PTI0586	Portland Harbor Inline	30001516

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor Inline**	
6543 N. Burlington Ave.	Project Number:	30001516	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	10/06/10 15:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO105900	PTI0586-01	Soil	09/14/10 15:27	09/17/10 13:20
FO105901	PTI0586-02	Soil	09/16/10 09:45	09/17/10 13:20
FO105902	PTI0586-03	Soil	09/16/10 10:11	09/17/10 13:20
FO105903	PTI0586-04	Soil	09/16/10 10:43	09/17/10 13:20
FO105904	PTI0586-05	Soil	09/16/10 11:31	09/17/10 13:20
FO105905	PTI0586-06	Soil	09/16/10 12:08	09/17/10 13:20
FO105906	PTI0586-07	Soil	09/16/10 00:00	09/17/10 13:20

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor Inline**	
6543 N. Burlington Ave.	Project Number:	30001516	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	10/06/10 15:15

Organic Carbon, Total (TOC)

TestAmerica Connecticut

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTI0586-01 (FO105900)			**Soil**			**Sampled: 09/14/10 15:27**				
Total Organic Carbon - Duplicates	9060	**41700**	*30.0*	100	mg/Kg	1x	43025	09/22/10 16:18	09/22/10 16:18	
PTI0586-02 (FO105901)			**Soil**			**Sampled: 09/16/10 09:45**				
Total Organic Carbon - Duplicates	9060	**26100**	*30.0*	100	mg/Kg	1x	43025	09/22/10 16:31	09/22/10 16:31	
PTI0586-03 (FO105902)			**Soil**			**Sampled: 09/16/10 10:11**				
Total Organic Carbon - Duplicates	9060	**53600**	*30.0*	100	mg/Kg	1x	43025	09/22/10 16:45	09/22/10 16:45	
PTI0586-04 (FO105903)			**Soil**			**Sampled: 09/16/10 10:43**				
Total Organic Carbon - Duplicates	9060	**76600**	*30.0*	100	mg/Kg	1x	43025	09/22/10 17:12	09/22/10 17:12	
PTI0586-05 (FO105904)			**Soil**			**Sampled: 09/16/10 11:31**				
Total Organic Carbon - Duplicates	9060	**50000**	*30.0*	100	mg/Kg	1x	43025	09/22/10 17:48	09/22/10 17:48	
PTI0586-06 (FO105905)			**Soil**			**Sampled: 09/16/10 12:08**				
Total Organic Carbon - Duplicates	9060	**40500**	*30.0*	100	mg/Kg	1x	43025	09/22/10 18:02	09/22/10 18:02	
PTI0586-07 (FO105906)			**Soil**			**Sampled: 09/16/10 00:00**				
Total Organic Carbon - Duplicates	9060	**25100**	*30.0*	100	mg/Kg	1x	43025	09/22/10 18:15	09/22/10 18:15	

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor Inline**	
6543 N. Burlington Ave.	Project Number:	30001516	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	10/06/10 15:15

Organic Carbon, Total (TOC) - Laboratory Quality Control Results

TestAmerica Connecticut

QC Batch: 43025 **Soil Preparation Method: NA**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (220-43025-5)					**QC Source:**								**Extracted: 09/22/10 13:05**	
Total Organic Carbon - Duplicates	9060	5238	30.0	100	mg/Kg	1x	--	4110	127%	(28-172)	--	--	09/22/10 13:05	
Blank (220-43025-6)					**QC Source:**								**Extracted: 09/22/10 13:11**	
Total Organic Carbon - Duplicates	9060	ND	30.0	100	mg/Kg	1x	--	--	--	--	--	--	09/22/10 13:11	

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor Inline**	
6543 N. Burlington Ave.	Project Number:	30001516	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	10/06/10 15:15

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

CERTIFICATION SUMMARY

Subcontracted Laboratories

TestAmerica Connecticut

128 Long Hill Cross Road - Shelton, CT 06484

Method Performed: 9060

Samples: PTI0586-01, PTI0586-02, PTI0586-03, PTI0586-04, PTI0586-05, PTI0586-06, PTI0586-07

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210 [X]
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: PT105586

CLIENT: City of Portland

REPORT TO: Jennifer Shackelford

ADDRESS:

PHONE: FAX:

INVOICE TO: Charles Lytle

P.O. NUMBER: 36238

PROJECT NAME: Portland Harbor

PROJECT NUMBER: Inline Samp

SAMPLED BY:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [X] STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: TOC	REQUESTED ANALYSES: PCB Congeners All 209 (*)	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	F0105900	9/14/10 1527		X	X	S	2		
2	901	9/16/10 0945		X	X	S	2		
3	902	1011		X	X	S	2		
4	903	1043		X	X	S	2		
5	904	1131		X	X	S	2		
6	905	1208		X	X	S	2		
7	906	—		X	X	S	2		
8									
9									
10									

RELEASED BY: Rona Klinch — FIRM: City of Portland — DATE: 9/17/10 — TIME: 11:05 — RECEIVED BY: Bob F — FIRM: TAP — DATE: 9/17/10 — TIME: 11:05

RELEASED BY: Bob F — FIRM: TAP — DATE: 9/17/10 — TIME: 13:20 — RECEIVED BY: Jessica Nye — FIRM: TAP — DATE: 9/17/10 — TIME: 1320

ADDITIONAL REMARKS: (*) Send out to Pace Analytical for PCB Congeners - All 209. Thanks

TEMP: 5.4

PAGE 1 OF 1

TAL-1000(0408)

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PT105886 Date/Time Received: 9/17/10 1320

Client Name and Project: COFP

Time Zone:
☐EDT/EST ☐CDT/CST ☐MDT/MST ☑PDT/PST ☐AK ☐OTHER

Unpacking Checks:

Cooler #(s): 1

Temperatures: 3.4 ____ ____ ____ ____

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: ____

Initials: 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 #: PT105886

Login Checks:

Initials: JM

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?
JM ☑	☑	☐	29. Were subcontract COCs printed?
☑	☐	☐	30. Was HF dilution logged?

Labeling and Storage Checks:

Initials: JM

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).

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Darrell Auvil
Test America
9405 SW Nimbus Avenue
Beaverton OR 97008

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10138556
Sample Receipt Date: 09/21/2010
Client Project #: PTI0586
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 29, 2010

Nate Habte, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
natnael.habte@pacelabs.com

Report Prepared Date:
October 29, 2010

Report of Laboratory Analysis

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on seven samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 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 15-165%. With fifteen exceptions, flagged "R" on the 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. Sample PTI0586-02 (FO105901) and PTI0586-07 (FO105906) were analyzed at a variety of dilutions and re-extracted due to matrix related retention time shifts in the analyses. In both cases, the results for the di-chlorinated congeners were those from a secondary dilution and were flagged "N2".

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the one blank to be free of PCB congeners at the reporting limits while the other contained low levels of two PCB congeners. The congeners present in Blank-26614 were found in the sample extracts at levels over ten times higher than in the blank. In general, levels less than ten times the background are not considered statistically different from the background. 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 94-136% with relative percent differences of 0.0-10.8%. These results indicate high levels of accuracy and precision for these analyses. Matrix spikes were not prepared with the samples.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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	Tennesee	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

Appendix A

Sample Management

COC p. 1 (of 3)

SUBCONTRACT ORDER
TestAmerica Portland

1128 **PTI0586** 10138556

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:** JM

Analysis	Units	Expires	Comments
Sample ID: PTI0586-01 (FO105900 - Soil)		Sampled: 09/14/10 15:27	001
1668 PCB 209 Congeners - !	ug/l	03/13/11 15:27	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-02 (FO105901 - Soil)		Sampled: 09/16/10 09:45	002
1668 PCB 209 Congeners - !	ug/l	03/15/11 09:45	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-03 (FO105902 - Soil)		Sampled: 09/16/10 10:11	003
1668 PCB 209 Congeners - !	ug/l	03/15/11 10:11	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-04 (FO105903 - Soil)		Sampled: 09/16/10 10:43	004
1668 PCB 209 Congeners - !	ug/l	03/15/11 10:43	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-05 (FO105904 - Soil)		Sampled: 09/16/10 11:31	005
1668 PCB 209 Congeners - !	ug/l	03/15/11 11:31	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-06 (FO105905 - Soil)		Sampled: 09/16/10 12:08	006
1668 PCB 209 Congeners - !	ug/l	03/15/11 12:08	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			

Released By	Date/Time	Received By	Date/Time
Jessica Nyn	9/20/10	Alicia Klar/PaceMN	9/21/10 0952

T= 2.8°C

Page 1 of 2

SUBCONTRACT ORDER
TestAmerica Portland

PTI0586

(COC p. 2 of 3)

Analysis	Units	Expires	Comments
Sample ID: PTI0586-07 (FO105906 - Soil)		Sampled: 09/16/10 00:00	007
1668 PCB 209 Congeners - 1 ug/l		03/15/11 00:00	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			

COC p. 3 (of 3)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: PTI0942

CLIENT: City of Portland
REPORT TO: Jennifer Shackelford
ADDRESS:
PHONE: FAX:
PROJECT NAME: Portland Harbor
PROJECT NUMBER:
SAMPLED BY:

INVOICE TO: Charles Lytle
P.O. NUMBER: 36238

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (STD.) [checked] 7 5 4 3 2 1 <1
Petroleum Hydrocarbon Analyses: 5 (STD.) 4 3 2 1 <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE / REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	REQUESTED ANALYSES	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	FD105900	9/14/10 1527	Replacement for PTI0586-01 MAH 9/30/10	S	1		
2							
3							
4							
5							
6							
7							
8							
9							
10							

RELEASED BY: [signature]		DATE: 9/28/10	RECEIVED BY: [signature]		DATE: 9/28/10
PRINT NAME: Mackenzie [illegible]	FIRM: City of Portland	TIME: 1355	PRINT NAME: Bob F	FIRM: TAP	TIME: 13:55
RELEASED BY: [signature]		DATE: 9/28/10	RECEIVED BY: [signature]		DATE: 9/28/10
PRINT NAME: Bob F	FIRM: TAP	TIME: 18:20	PRINT NAME: Megan Henning	FIRM: TAP	TIME: 1820

ADDITIONAL REMARKS: * replacement jar for PCB Congeners (PACE)

TEMP: 0.5 PAGE 1 OF 1

TAL-1000(0408)

SCUR 1 (of 2)

Sample Condition Upon Receipt

Pace Analytical

Client Name: Test America **Project #** 10138556

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 4170 7526 2307

Optional: Proj. Due Date: Proj. Name:

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:** ~~Wet~~ Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.8 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 9/21/10 MSP

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12. Sample 201 Broken During Log In.
-includes date/time/ID/Analysis Matrix: SV		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	Samp #
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Darrell Anvil Date/Time: 9/21/10 @ 15:00

Comments/ Resolution:

— 1668-209 confirmed.

— 4 wk stan TAT is fine, despite note on COC.

Project Manager Review: NAH **Date:** 9/21/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

SCUR 2 (of 2)

Pace Analytical

Sample Condition Upon Receipt

Client Name: Test America **Project #** 10138556

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 4170-7526-2925

Custody 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 ✓ No _____

Thermometer Used ~~80944942~~ or 79425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 0.6 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and initials of person examining contents: 9.30.10

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: SL		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl Samp #
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed → Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): —		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: _____ **Date/Time:** _____

Comments/ Resolution: Resubmittal for 10138556001 (PTI0586-01). Bottle was dropped in S.R. upon arrival on 9/21/10.

Project Manager Review: NAH **Date:** 9/30/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

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

Appendix B

Sample Analysis Summary

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 - Test America

Client's Sample ID	PTI0586-01(FO105900)		
Lab Sample ID	10138556001		
Filename	P101016A_06		
Injected By	BAL		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	0.5	Dilution	5
Dry Weight Extracted	10.3 g	Collected	09/14/2010 15:27
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 09:47

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.246	3.82	2.0	0.623	36	I
13C-4-MoCB	3	11.565	2.59	2.0	1.05	55	I
13C-2,2'-DiCB	4	11.889	1.63	2.0	0.905	45	
13C-4,4'-DiCB	15	19.929	1.55	2.0	1.27	63	
13C-2,2',6-TrCB	19	16.250	1.05	2.0	1.07	54	
13C-3,4,4'-TrCB	37	28.210	1.08	2.0	1.42	71	
13C-2,2',6,6'-TeCB	54	20.243	0.81	2.0	1.34	67	
13C-3,4,4',5-TeCB	81	35.522	0.81	2.0	1.16	58	
13C-3,3',4,4'-TeCB	77	36.092	0.79	2.0	1.14	57	
13C-2,2',4,6,6'-PeCB	104	26.767	1.53	2.0	1.57	78	
13C-2,3,3',4,4'-PeCB	105	39.697	1.56	2.0	0.999	50	
13C-2,3,4,4',5-PeCB	114	39.026	1.63	2.0	1.06	53	
13C-2,3',4,4',5-PeCB	118	38.490	1.48	2.0	1.04	52	
13C-2,3',4,4',5'-PeCB	123	38.188	1.55	2.0	1.08	54	
13C-3,3',4,4',5-PeCB	126	42.901	1.75	2.0	0.940	47	
13C-2,2',4,4',6,6'-HxCB	155	33.006	1.30	2.0	2.09	104	
13C-HxCB (156/157)	156/157	45.903	1.26	4.0	2.45	61	
13C-2,3',4,4',5,5'-HxCB	167	44.762	1.25	2.0	1.32	66	
13C-3,3',4,4',5,5'-HxCB	169	49.307	1.26	2.0	1.20	60	
13C-2,2',3,4',5,6,6'-HpCB	188	38.959	1.09	2.0	2.21	110	
13C-2,3,3',4,4',5,5'-HpCB	189	51.822	1.05	2.0	1.44	72	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.443	0.90	2.0	1.76	88	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.603	0.91	2.0	1.52	76	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.759	0.76	2.0	1.64	82	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.240	0.78	2.0	1.43	71	
13C--DeCB	209	59.022	0.72	2.0	1.43	72	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.631	1.09	2.0	1.55	77	
13C-2,3,3',5,5'-PeCB	111	36.142	1.60	2.0	1.39	69	
13C-2,2',3,3',5,5',6-HpCB	178	42.096	1.01	2.0	1.56	78	
Recovery Standards							
13C-2,5-DiCB	9	14.753	1.57	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.744	0.79	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.274	1.56	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.659	1.26	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.043	0.91	2.0	NA	NA	

Conc = Concentration
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REPORT OF LABORATORY ANALYSIS

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 PTI0586-01(FO105900)
Lab Sample ID 10138556001
Filename P101016A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.3
2		---	---	ND	---	24.3
3		---	---	ND	---	24.3
4		11.913	1.52	68.5	---	24.3
5		---	---	ND	---	24.3
6		15.328	1.46	46.7	---	24.3
7		---	---	ND	---	24.3
8		15.927	1.50	191	---	24.3
9		---	---	ND	---	24.3
10		---	---	ND	---	24.3
11		19.186	1.55	877	---	146
12	12/13	---	---	ND	---	48.6
13	12/13	---	---	ND	---	48.6
14		---	---	ND	---	24.3
15		19.977	1.50	282	---	24.3
16		19.846	1.07	201	---	24.3
17		19.294	1.04	181	---	24.3
18	18/30	18.767	1.04	362	---	48.6
19		16.287	0.91	42.8	---	24.3
20	20/28	23.648	1.02	1140	---	48.6
21	21/33	23.916	1.01	721	---	48.6
22		24.369	1.02	501	---	24.3
23		---	---	ND	---	24.3
24		---	---	ND	---	24.3
25		22.927	1.00	78.0	---	24.3
26	26/29	22.642	0.99	179	---	48.6
27		19.570	0.94	39.9	---	24.3
28	20/28	23.648	1.02	(1140)	---	48.6
29	26/29	22.642	0.99	(179)	---	48.6
30	18/30	18.767	1.04	(362)	---	48.6
31		23.313	0.99	973	---	24.3
32		20.529	0.99	162	---	24.3
33	21/33	23.916	1.01	(721)	---	48.6
34		---	---	ND	---	24.3
35		27.790	0.99	66.4	---	24.3
36		---	---	ND	---	24.3
37		28.243	1.00	691	---	24.3
38		---	---	ND	---	24.3
39		---	---	ND	---	24.3
40	40/41/71	28.008	0.77	1060	---	146
41	40/41/71	28.008	0.77	(1060)	---	146
42		27.455	0.77	453	---	48.6
43	43/73	---	---	ND	---	97.2
44	44/47/65	26.868	0.79	1850	---	146
45	45/51	23.715	0.82	221	---	97.2
46		24.067	0.79	83.6	---	48.6
47	44/47/65	26.868	0.79	(1850)	---	146
48		26.616	0.72	283	---	48.6

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-01(FO105900)
Lab Sample ID 10138556001
Filename P101016A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.331	0.77	928	---	97.2
50	50/53	22.927	0.75	153	---	97.2
51	45/51	23.715	0.82	(221)	---	97.2
52		25.761	0.79	2890	---	48.6
53	50/53	22.927	0.75	(153)	---	97.2
54		---	---	ND	---	48.6
55		---	---	ND	---	48.6
56		32.151	0.74	1060	---	48.6
57		---	---	ND	---	48.6
58		---	---	ND	---	48.6
59	59/62/75	27.254	0.77	154	---	146
60		32.386	0.74	542	---	48.6
61	61/70/74/76	31.094	0.75	5000	---	194
62	59/62/75	27.254	0.77	(154)	---	146
63		30.742	0.73	83.1	---	48.6
64		28.277	0.79	962	---	48.6
65	44/47/65	26.868	0.79	(1850)	---	146
66		31.446	0.74	2070	---	48.6
67		30.440	0.72	70.6	---	48.6
68		---	---	ND	---	48.6
69	49/69	26.331	0.77	(928)	---	97.2
70	61/70/74/76	31.094	0.75	(5000)	---	194
71	40/41/71	28.008	0.77	(1060)	---	146
72		---	---	ND	---	48.6
73	43/73	---	---	ND	---	97.2
74	61/70/74/76	31.094	0.75	(5000)	---	194
75	59/62/75	27.254	0.77	(154)	---	146
76	61/70/74/76	31.094	0.75	(5000)	---	194
77		36.108	0.74	446	---	48.6
78		---	---	ND	---	48.6
79		34.448	0.73	53.7	---	48.6
80		---	---	ND	---	48.6
81		---	---	ND	---	48.6
82		35.689	1.52	1220	---	48.6
83		33.761	1.57	405	---	48.6
84		31.279	1.54	2120	---	48.6
85	85/116/117	35.169	1.55	1310	---	146
86	86/87/97/108/119/125	34.515	1.60	6490	---	292
87	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
88	88/91	31.061	1.57	906	---	97.2
89		31.782	1.68	76.5	---	48.6
90	90/101/113	33.308	1.56	7830	---	146
91	88/91	31.061	1.57	(906)	---	97.2
92		32.671	1.58	1340	---	48.6
93	93/98/100/102	30.491	1.69	205	---	194
94		---	---	ND	---	48.6
95		30.105	1.58	5370	---	48.6
96		---	---	ND	---	48.6

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

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Lab Sample ID 10138556001
Filename P101016A_06

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97	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
98	93/98/100/102	30.491	1.69	(205)	---	194
99		33.912	1.58	3320	---	48.6
100	93/98/100/102	30.491	1.69	(205)	---	194
101	90/101/113	33.308	1.56	(7830)	---	146
102	93/98/100/102	30.491	1.69	(205)	---	194
103		---	---	ND	---	48.6
104		---	---	ND	---	48.6
105		39.714	1.43	4200	---	48.6
106		---	---	ND	---	48.6
107	107/124	37.802	1.50	420	---	97.2
108	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
109		38.071	1.55	649	---	48.6
110	110/115	35.371	1.57	10600	---	97.2
111		---	---	ND	---	48.6
112		---	---	ND	---	48.6
113	90/101/113	33.308	1.56	(7830)	---	146
114		39.060	1.55	230	---	48.6
115	110/115	35.371	1.57	(10600)	---	97.2
116	85/116/117	35.169	1.55	(1310)	---	146
117	85/116/117	35.169	1.55	(1310)	---	146
118		38.523	1.60	9730	---	48.6
119	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
120		---	---	ND	---	48.6
121		---	---	ND	---	48.6
122		38.876	1.47	128	---	48.6
123		38.171	1.45	182	---	48.6
124	107/124	37.802	1.50	(420)	---	97.2
125	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
126		42.917	1.30 I	---	100	48.6
127		---	---	ND	---	48.6
128	128/166	42.968	1.24	2160	---	97.2
129	129/138/163	41.693	1.25	12600	---	146
130		41.039	1.17	892	---	48.6
131		38.104	1.20	197	---	48.6
132		38.574	1.25	4220	---	48.6
133		39.144	1.22	138	---	48.6
134	134/143	37.467	1.19	612	---	97.2
135	135/151	36.343	1.24	2470	---	97.2
136		33.761	1.25	1070	---	48.6
137		41.240	1.23	858	---	48.6
138	129/138/163	41.693	1.25	(12600)	---	146
139	139/140	37.903	1.20	231	---	97.2
140	139/140	37.903	1.20	(231)	---	97.2
141		40.603	1.38	1670	---	48.6
142		---	---	ND	---	48.6
143	134/143	37.467	1.19	(612)	---	97.2
144		36.897	1.27	443	---	48.6

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-01(FO105900)
Lab Sample ID 10138556001
Filename P101016A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	48.6
146		39.798	1.20	1340	---	48.6
147	147/149	37.282	1.24	6910	---	97.2
148		---	---	ND	---	48.6
149	147/149	37.282	1.24	(6910)	---	97.2
150		---	---	ND	---	48.6
151	135/151	36.343	1.24	(2470)	---	97.2
152		---	---	ND	---	48.6
153	153/168	40.418	1.19	7760	---	97.2
154		36.578	1.28	68.5	---	48.6
155		---	---	ND	---	48.6
156	156/157	45.936	1.22	2040	---	97.2
157	156/157	45.936	1.22	(2040)	---	97.2
158		42.096	1.26	1310	---	48.6
159		---	---	ND	---	48.6
160		---	---	ND	---	48.6
161		---	---	ND	---	48.6
162		44.326	1.19	61.2	---	48.6
163	129/138/163	41.693	1.25	(12600)	---	146
164		41.374	1.29	680	---	48.6
165		---	---	ND	---	48.6
166	128/166	42.968	1.24	(2160)	---	97.2
167		44.796	1.20	588	---	48.6
168	153/168	40.418	1.19	(7760)	---	97.2
169		---	---	ND	---	48.6
170		48.619	1.05	1550	---	48.6
171	171/173	44.997	1.05	516	---	97.2
172		46.674	1.06	282	---	48.6
173	171/173	44.997	1.05	(516)	---	97.2
174		43.907	1.02	1310	---	48.6
175		42.783	1.07	61.3	---	48.6
176		40.234	1.02	195	---	48.6
177		44.360	1.02	758	---	48.6
178		42.146	1.03	269	---	48.6
179		39.328	1.05	596	---	48.6
180	180/193	47.328	1.03	2990	---	97.2
181		---	---	ND	---	48.6
182		---	---	ND	---	48.6
183	183/185	43.689	1.02	1070	---	97.2
184		---	---	ND	---	48.6
185	183/185	43.689	1.02	(1070)	---	97.2
186		---	---	ND	---	48.6
187		43.051	1.05	1450	---	48.6
188		---	---	ND	---	48.6
189		51.844	1.06	88.7	---	48.6
190		49.156	1.03	282	---	48.6
191		47.714	1.11	61.2	---	48.6
192		---	---	ND	---	48.6

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

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Lab Sample ID 10138556001
Filename P101016A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.328	1.03	(2990)	---	97.2
194		54.064	0.87	674	---	72.9
195		51.564	0.90	231	---	72.9
196		49.978	0.97	422	---	72.9
197	197/200	---	---	ND	---	146
198	198/199	49.307	0.88	936	---	146
199	198/199	49.307	0.88	(936)	---	146
200	197/200	---	---	ND	---	146
201		45.399	0.91	145	---	72.9
202		44.477	0.91	219	---	72.9
203		50.179	0.89	561	---	72.9
204		---	---	ND	---	72.9
205		---	---	ND	---	72.9
206		56.802	0.79	731	---	72.9
207		52.189	0.83	94.7	---	72.9
208		51.262	0.76	220	---	72.9
209		59.066	0.68	293	---	72.9

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTI0586-01(FO105900)
Lab Sample ID	10138556001
Filename	P101016A_06

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	1470
Total Trichloro Biphenyls	5340
Total Tetrachloro Biphenyls	18400
Total Pentachloro Biphenyls	56700
Total Hexachloro Biphenyls	48300
Total Heptachloro Biphenyls	11500
Total Octachloro Biphenyls	3190
Total Nonachloro Biphenyls	1050
Decachloro Biphenyls	293
Total PCBs	146000

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0586-02(FO105901)		
Lab Sample ID	10138556002-R		
Filename	P101019A_09		
Injected By	SMT		
Total Amount Extracted	11.3 g	Matrix	Solid
% Moisture	10.4	Dilution	10
Dry Weight Extracted	10.1 g	Collected	09/16/2010 09:45
ICAL ID	P101019A01	Received	09/21/2010 09:52
CCal Filename(s)	P101019A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/19/2010 14:58

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.078	1.41	2.0	1.30	84	I
13C-4-MoCB	3	11.398	1.21	2.0	1.22	85	I
13C-2,2'-DiCB	4	11.517	1.64	2.0	1.07	53	N2
13C-4,4'-DiCB	15	19.651	1.47	2.0	1.24	62	N2
13C-2,2',6-TrCB	19	16.215	1.47	2.0	1.11	67	I
13C-3,4,4'-TrCB	37	28.236	1.14	2.0	1.81	91	
13C-2,2',6,6'-TeCB	54	20.304	0.72	2.0	1.25	63	
13C-3,4,4',5-TeCB	81	35.362	0.84	2.0	2.63	131	
13C-3,3',4,4'-TeCB	77	35.915	0.84	2.0	2.95	147	
13C-2,2',4,6,6'-PeCB	104	26.827	1.72	2.0	0.833	42	
13C-2,3,3',4,4'-PeCB	105	39.420	1.54	2.0	2.42	121	
13C-2,3,4,4',5-PeCB	114	38.782	1.46	2.0	2.57	129	
13C-2,3',4,4',5-PeCB	118	38.263	1.53	2.0	2.31	116	
13C-2,3',4,4',5'-PeCB	123	37.944	1.59	2.0	2.36	118	
13C-3,3',4,4',5-PeCB	126	42.521	1.58	2.0	3.31	165	R
13C-2,2',4,4',6,6'-HxCB	155	32.931	1.35	2.0	0.724	36	
13C-HxCB (156/157)	156/157	45.506	1.28	4.0	3.59	90	
13C-2,3',4,4',5,5'-HxCB	167	44.332	1.29	2.0	1.78	89	
13C-3,3',4,4',5,5'-HxCB	169	48.776	1.32	2.0	1.92	96	
13C-2,2',3,4',5,6,6'-HpCB	188	38.732	1.05	2.0	1.02	51	
13C-2,3,3',4,4',5,5'-HpCB	189	51.314	1.04	2.0	1.63	82	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.047	0.85	2.0	1.38	69	
13C-2,3,3',4,4',5,5',6-OcCB	205	53.987	0.95	2.0	1.60	80	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.099	0.77	2.0	1.62	81	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.754	0.77	2.0	1.40	70	
13C--DeCB	209	58.297	0.61	2.0	1.35	68	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.708	1.10	2.0	1.66	83	
13C-2,3,3',5,5'-PeCB	111	35.965	1.49	2.0	1.85	92	
13C-2,2',3,3',5,5',6-HpCB	178	41.750	1.04	2.0	1.50	75	
Recovery Standards							
13C-2,5-DiCB	9	14.753	1.57	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.871	0.77	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.216	1.52	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.348	1.29	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.470	0.91	2.0	NA	NA	

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REPORT OF LABORATORY ANALYSIS

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 PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg		EMPC ng/Kg	EML ng/Kg
1		8.066	10.67 I	---		26.3	24.8
2		---	---	ND		---	24.8
3		11.458	2.83	53.9		---	24.8
4		11.540	1.46	55.8	N2	---	24.8
5		---	---	ND		---	24.8
6		15.003	1.50	59.0	N2	---	24.8
7		---	---	ND		---	24.8
8		15.590	1.57	394	N2	---	24.8
9		---	---	ND		---	24.8
10		---	---	ND		---	24.8
11		18.885	1.57	656	N2	---	149
12	12/13	19.268	1.93 I	---		69.6	49.5
13	12/13	19.268	1.93 I	---		(69.6)	49.5
14		---	---	ND		---	24.8
15		19.663	1.41	1040	N2	---	24.8
16		---	---	ND		---	24.8
17		19.343	1.20	77.6		---	24.8
18	18/30	18.840	1.02	211		---	49.5
19		16.215	0.96	35.0		---	24.8
20	20/28	23.725	1.01	1080		---	49.5
21	21/33	23.976	1.05	408		---	49.5
22		24.429	1.01	369		---	24.8
23		---	---	ND		---	24.8
24		---	---	ND		---	24.8
25		22.987	0.95	68.7		---	24.8
26	26/29	22.735	1.02	132		---	49.5
27		---	---	ND		---	24.8
28	20/28	23.725	1.01	(1080)		---	49.5
29	26/29	22.735	1.02	(132)		---	49.5
30	18/30	18.840	1.02	(211)		---	49.5
31		23.406	1.11	867		---	24.8
32		20.572	1.12	166		---	24.8
33	21/33	23.976	1.05	(408)		---	49.5
34		---	---	ND		---	24.8
35		27.850	0.95	94.5		---	24.8
36		---	---	ND		---	24.8
37		28.286	1.05	1430		---	24.8
38		---	---	ND		---	24.8
39		---	---	ND		---	24.8
40	40/41/71	28.034	0.82	928		---	149
41	40/41/71	28.034	0.82	(928)		---	149
42		27.498	0.77	280		---	49.5
43	43/73	---	---	ND		---	99.1
44	44/47/65	26.928	0.79	1340		---	149
45	45/51	23.741	0.72	314		---	99.1
46		24.144	0.81	108		---	49.5
47	44/47/65	26.928	0.79	(1340)		---	149
48		26.726	0.91 I	---		173	49.5

Conc = Concentration
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REPORT OF LABORATORY ANALYSIS

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.441	0.82	739	---	99.1
50	50/53	23.037	0.78	277	---	99.1
51	45/51	23.741	0.72	(314)	---	99.1
52		25.871	0.80	3310	---	49.5
53	50/53	23.037	0.78	(277)	---	99.1
54		---	---	ND	---	49.5
55		---	---	ND	---	49.5
56		32.092	0.78	1060	---	49.5
57		---	---	ND	---	49.5
58		---	---	ND	---	49.5
59	59/62/75	27.313	0.86	201	---	149
60		32.310	0.77	396	---	49.5
61	61/70/74/76	31.086	0.79	3990	---	198
62	59/62/75	27.313	0.86	(201)	---	149
63		30.717	0.71	51.6	---	49.5
64		28.269	0.81	888	---	49.5
65	44/47/65	26.928	0.79	(1340)	---	149
66		31.422	0.79	1980	---	49.5
67		30.466	0.77	54.1	---	49.5
68		---	---	ND	---	49.5
69	49/69	26.441	0.82	(739)	---	99.1
70	61/70/74/76	31.086	0.79	(3990)	---	198
71	40/41/71	28.034	0.82	(928)	---	149
72		---	---	ND	---	49.5
73	43/73	---	---	ND	---	99.1
74	61/70/74/76	31.086	0.79	(3990)	---	198
75	59/62/75	27.313	0.86	(201)	---	149
76	61/70/74/76	31.086	0.79	(3990)	---	198
77		35.949	0.78	1480	---	49.5
78		---	---	ND	---	49.5
79		34.322	0.86	224	---	49.5
80		---	---	ND	---	49.5
81		35.379	0.67	60.7	---	49.5
82		---	---	ND	---	49.5
83		33.685	1.58	1440	---	49.5
84		31.220	1.57	3390	---	49.5
85	85/116/117	35.228	1.56	32700	---	149
86	86/87/97/108/119/125	34.406	1.60	10900	---	297
87	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
88	88/91	31.019	1.60	2270	---	99.1
89		31.723	1.59	161	---	49.5
90	90/101/113	33.232	1.58	15000	---	149
91	88/91	31.019	1.60	(2270)	---	99.1
92		32.595	1.61	2120	---	49.5
93	93/98/100/102	30.483	1.56	372	---	198
94		---	---	ND	---	49.5
95		30.114	1.57	12700	---	49.5
96		27.213	1.55	58.5	---	49.5

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
98	93/98/100/102	30.483	1.56	(372)	---	198
99		33.819	1.60	6900	---	49.5
100	93/98/100/102	30.483	1.56	(372)	---	198
101	90/101/113	33.232	1.58	(15000)	---	149
102	93/98/100/102	30.483	1.56	(372)	---	198
103		29.426	1.67	60.6	---	49.5
104		---	---	ND	---	49.5
105		39.436	1.56	8480	---	49.5
106		---	---	ND	---	49.5
107	107/124	37.592	1.57	1220	---	99.1
108	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
109		37.843	1.53	1710	---	49.5
110	110/115	35.529	1.60	1760	---	99.1
111		36.133	1.70	246	---	49.5
112		---	---	ND	---	49.5
113	90/101/113	33.232	1.58	(15000)	---	149
114		38.799	1.43	414	---	49.5
115	110/115	35.529	1.60	(1760)	---	99.1
116	85/116/117	35.228	1.56	(32700)	---	149
117	85/116/117	35.228	1.56	(32700)	---	149
118		38.279	1.56	22100	---	49.5
119	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
120		---	---	ND	---	49.5
121		---	---	ND	---	49.5
122		38.615	1.41	406	---	49.5
123		37.944	1.42	561	---	49.5
124	107/124	37.592	1.57	(1220)	---	99.1
125	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
126		42.521	1.47	249	---	49.5
127		40.945	1.54	119	---	49.5
128	128/166	42.605	1.25	8850	---	99.1
129	129/138/163	41.365	1.26	50100	---	149
130		40.727	1.25	3130	---	49.5
131		37.877	1.33	552	---	49.5
132		38.330	1.26	13600	---	49.5
133		38.883	1.28	569	---	49.5
134	134/143	37.240	1.25	2030	---	99.1
135	135/151	36.133	1.27	5740	---	99.1
136		33.668	1.24	2700	---	49.5
137		40.929	1.25	2310	---	49.5
138	129/138/163	41.365	1.26	(50100)	---	149
139	139/140	37.692	1.20	687	---	99.1
140	139/140	37.692	1.20	(687)	---	99.1
141		40.308	1.28	8160	---	49.5
142		---	---	ND	---	49.5
143	134/143	37.240	1.25	(2030)	---	99.1
144		---	---	ND	---	49.5

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.5
146		39.503	1.28	4200	---	49.5
147	147/149	37.089	1.25	24800	---	99.1
148		---	---	ND	---	49.5
149	147/149	37.089	1.25	(24800)	---	99.1
150		---	---	ND	---	49.5
151	135/151	36.133	1.27	(5740)	---	99.1
152		---	---	ND	---	49.5
153	153/168	40.141	1.26	38800	---	99.1
154		36.418	1.29	267	---	49.5
155		---	---	ND	---	49.5
156	156/157	45.506	1.27	5950	---	99.1
157	156/157	45.506	1.27	(5950)	---	99.1
158		41.767	1.26	5260	---	49.5
159		43.611	1.22	105	---	49.5
160		---	---	ND	---	49.5
161		---	---	ND	---	49.5
162		43.880	1.16	209	---	49.5
163	129/138/163	41.365	1.26	(50100)	---	149
164		41.063	1.30	3400	---	49.5
165		39.084	1.20	114	---	49.5
166	128/166	42.605	1.25	(8850)	---	99.1
167		44.383	1.26	2510	---	49.5
168	153/168	40.141	1.26	(38800)	---	99.1
169		48.809	1.39	84.1	---	49.5
170		48.138	1.05	15400	---	49.5
171	171/173	44.601	1.03	4800	---	99.1
172		46.227	1.04	3330	---	49.5
173	171/173	44.601	1.03	(4800)	---	99.1
174		43.528	1.04	18600	---	49.5
175		42.421	1.06	827	---	49.5
176		39.956	1.07	1810	---	49.5
177		43.980	1.06	9460	---	49.5
178		41.800	1.07	3710	---	49.5
179		39.067	1.06	6290	---	49.5
180	180/193	46.881	1.04	45600	---	99.1
181		44.366	0.99	120	---	49.5
182		---	---	ND	---	49.5
183	183/185	43.310	1.04	14500	---	99.1
184		---	---	ND	---	49.5
185	183/185	43.310	1.04	(14500)	---	99.1
186		---	---	ND	---	49.5
187		42.689	1.03	21000	---	49.5
188		38.732	1.11	110	---	49.5
189		51.336	1.04	606	---	49.5
190		48.675	1.05	3120	---	49.5
191		47.233	1.12	708	---	49.5
192		---	---	ND	---	49.5

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Sample Analysis Results

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Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	46.881	1.04	(45600)	---	99.1
194		53.491	0.90	18300	---	74.3
195		51.034	0.91	5020	---	74.3
196		49.497	0.92	9630	---	74.3
197	197/200	46.009	0.90	2740	---	149
198	198/199	48.843	0.88	24500	---	149
199	198/199	48.843	0.88	(24500)	---	149
200	197/200	46.009	0.90	(2740)	---	149
201		45.003	0.92	3060	---	74.3
202		44.081	0.89	5660	---	74.3
203		49.698	0.92	15900	---	74.3
204		---	---	ND	---	74.3
205		54.030	0.92	767	---	74.3
206		56.120	0.78	24300	---	74.3
207		51.724	0.79	2760	---	74.3
208		50.776	0.77	6990	---	74.3
209		58.319	0.68	8100	---	74.3

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Sample Analysis Results

Client Sample ID	PTI0586-02(FO105901)
Lab Sample ID	10138556002-R
Filename	P101019A_09

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	53.9
Total Dichloro Biphenyls	2200
Total Trichloro Biphenyls	4940
Total Tetrachloro Biphenyls	17700
Total Pentachloro Biphenyls	125000
Total Hexachloro Biphenyls	184000
Total Heptachloro Biphenyls	150000
Total Octachloro Biphenyls	85600
Total Nonachloro Biphenyls	34000
Decachloro Biphenyls	8100
Total PCBs	612000

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0586-03(FO105902)		
Lab Sample ID	10138556003		
Filename	P101016A_07		
Injected By	BAL		
Total Amount Extracted	15.0 g	Matrix	Solid
% Moisture	32.5	Dilution	5
Dry Weight Extracted	10.1 g	Collected	09/16/2010 10:11
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 10:51

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.258	3.21	2.0	0.784	39
13C-4-MoCB	3	11.577	2.66	2.0	1.04	52
13C-2,2'-DiCB	4	11.901	1.61	2.0	0.859	43
13C-4,4'-DiCB	15	19.978	1.61	2.0	1.13	57
13C-2,2',6-TrCB	19	16.287	1.08	2.0	1.02	51
13C-3,4,4'-TrCB	37	28.260	1.04	2.0	1.38	69
13C-2,2',6,6'-TeCB	54	20.260	0.78	2.0	1.28	64
13C-3,4,4',5-TeCB	81	35.523	0.80	2.0	1.07	54
13C-3,3',4,4'-TeCB	77	36.127	0.80	2.0	1.06	53
13C-2,2',4,6,6'-PeCB	104	26.801	1.62	2.0	1.54	77
13C-2,3,3',4,4'-PeCB	105	39.716	1.65	2.0	1.000	50
13C-2,3,4,4',5-PeCB	114	39.062	1.65	2.0	1.03	52
13C-2,3',4,4',5-PeCB	118	38.525	1.52	2.0	1.01	50
13C-2,3',4,4',5'-PeCB	123	38.189	1.46	2.0	1.01	50
13C-3,3',4,4',5-PeCB	126	42.936	1.57	2.0	0.911	46
13C-2,2',4,4',6,6'-HxCB	155	33.024	1.32	2.0	1.93	96
13C-HxCB (156/157)	156/157	45.955	1.26	4.0	2.34	58
13C-2,3',4,4',5,5'-HxCB	167	44.781	1.30	2.0	1.21	60
13C-3,3',4,4',5,5'-HxCB	169	49.293	1.24	2.0	1.08	54
13C-2,2',3,4',5,6,6'-HpCB	188	38.978	1.04	2.0	2.13	107
13C-2,3,3',4,4',5,5'-HpCB	189	51.829	1.02	2.0	1.40	70
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.445	0.94	2.0	1.77	89
13C-2,3,3',4,4',5,5',6-OcCB	205	54.589	0.95	2.0	1.36	68
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.788	0.78	2.0	1.53	77
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.226	0.83	2.0	1.36	68
13C--DeCB	209	59.051	0.67	2.0	1.20	60
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.665	1.10	2.0	1.58	79
13C-2,3,3',5,5'-PeCB	111	36.160	1.54	2.0	1.41	71
13C-2,2',3,3',5,5',6-HpCB	178	42.131	1.09	2.0	1.54	77
Recovery Standards						
13C-2,5-DiCB	9	14.777	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.778	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.292	1.62	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.695	1.30	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.007	0.87	2.0	NA	NA

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.7
2		---	---	ND	---	24.7
3		---	---	ND	---	24.7
4		11.949	1.57	140	---	24.7
5		---	---	ND	---	24.7
6		15.364	1.43	56.4	---	24.7
7		---	---	ND	---	24.7
8		15.939	1.47	229	---	24.7
9		---	---	ND	---	24.7
10		---	---	ND	---	24.7
11		19.211	1.51	476	---	148
12	12/13	---	---	ND	---	49.4
13	12/13	---	---	ND	---	49.4
14		---	---	ND	---	24.7
15		20.001	1.49	447	---	24.7
16		19.870	1.00	216	---	24.7
17		19.318	1.05	212	---	24.7
18	18/30	18.803	1.06	460	---	49.4
19		16.311	1.09	134	---	24.7
20	20/28	23.682	1.03	989	---	49.4
21	21/33	23.950	1.06	435	---	49.4
22		24.403	0.98	337	---	24.7
23		---	---	ND	---	24.7
24		---	---	ND	---	24.7
25		22.961	1.06	66.3	---	24.7
26	26/29	22.659	0.95	146	---	49.4
27		19.594	1.05	77.4	---	24.7
28	20/28	23.682	1.03	(989)	---	49.4
29	26/29	22.659	0.95	(146)	---	49.4
30	18/30	18.803	1.06	(460)	---	49.4
31		23.346	1.03	750	---	24.7
32		20.562	0.99	269	---	24.7
33	21/33	23.950	1.06	(435)	---	49.4
34		---	---	ND	---	24.7
35		27.841	1.06	39.9	---	24.7
36		---	---	ND	---	24.7
37		28.277	0.99	530	---	24.7
38		---	---	ND	---	24.7
39		---	---	ND	---	24.7
40	40/41/71	28.042	0.77	1150	---	148
41	40/41/71	28.042	0.77	(1150)	---	148
42		27.489	0.80	477	---	49.4
43	43/73	---	---	ND	---	98.8
44	44/47/65	26.902	0.78	2160	---	148
45	45/51	23.749	0.81	440	---	98.8
46		24.101	0.83	159	---	49.4
47	44/47/65	26.902	0.78	(2160)	---	148
48		26.667	0.80	231	---	49.4

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REPORT OF LABORATORY ANALYSIS

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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 PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.365	0.77	1070	---	98.8
50	50/53	22.961	0.80	345	---	98.8
51	45/51	23.749	0.81	(440)	---	98.8
52		25.812	0.79	4790	---	49.4
53	50/53	22.961	0.80	(345)	---	98.8
54		---	---	ND	---	49.4
55		---	---	ND	---	49.4
56		32.168	0.78	874	---	49.4
57		---	---	ND	---	49.4
58		---	---	ND	---	49.4
59	59/62/75	27.271	0.76	227	---	148
60		32.420	0.73	341	---	49.4
61	61/70/74/76	31.128	0.73	3460	---	198
62	59/62/75	27.271	0.76	(227)	---	148
63		30.776	0.75	65.7	---	49.4
64		28.311	0.78	1180	---	49.4
65	44/47/65	26.902	0.78	(2160)	---	148
66		31.481	0.73	1580	---	49.4
67		30.474	0.75	50.8	---	49.4
68		---	---	ND	---	49.4
69	49/69	26.365	0.77	(1070)	---	98.8
70	61/70/74/76	31.128	0.73	(3460)	---	198
71	40/41/71	28.042	0.77	(1150)	---	148
72		---	---	ND	---	49.4
73	43/73	---	---	ND	---	98.8
74	61/70/74/76	31.128	0.73	(3460)	---	198
75	59/62/75	27.271	0.76	(227)	---	148
76	61/70/74/76	31.128	0.73	(3460)	---	198
77		36.160	0.75	373	---	49.4
78		---	---	ND	---	49.4
79		34.449	0.65	57.7	---	49.4
80		---	---	ND	---	49.4
81		---	---	ND	---	49.4
82		35.707	1.57	1550	---	49.4
83		33.778	1.77	471	---	49.4
84		31.296	1.57	3240	---	49.4
85	85/116/117	35.221	1.55	1560	---	148
86	86/87/97/108/119/125	34.550	1.57	7810	---	296
87	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
88	88/91	31.078	1.58	1400	---	98.8
89		31.799	1.50	108	---	49.4
90	90/101/113	33.326	1.62	10600	---	148
91	88/91	31.078	1.58	(1400)	---	98.8
92		32.705	1.61	1970	---	49.4
93	93/98/100/102	30.525	1.61	296	---	198
94		---	---	ND	---	49.4
95		30.139	1.57	9080	---	49.4
96		27.221	1.63	60.3	---	49.4

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
98	93/98/100/102	30.525	1.61	(296)	---	198
99		33.946	1.57	4270	---	49.4
100	93/98/100/102	30.525	1.61	(296)	---	198
101	90/101/113	33.326	1.62	(10600)	---	148
102	93/98/100/102	30.525	1.61	(296)	---	198
103		---	---	ND	---	49.4
104		---	---	ND	---	49.4
105		39.749	1.44	4370	---	49.4
106		---	---	ND	---	49.4
107	107/124	37.854	1.53	466	---	98.8
108	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
109		38.106	1.53	705	---	49.4
110	110/115	35.389	1.57	14300	---	98.8
111		---	---	ND	---	49.4
112		---	---	ND	---	49.4
113	90/101/113	33.326	1.62	(10600)	---	148
114		39.078	1.50	216	---	49.4
115	110/115	35.389	1.57	(14300)	---	98.8
116	85/116/117	35.221	1.55	(1560)	---	148
117	85/116/117	35.221	1.55	(1560)	---	148
118		38.542	1.57	10100	---	49.4
119	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
120		---	---	ND	---	49.4
121		---	---	ND	---	49.4
122		38.877	1.53	140	---	49.4
123		38.206	1.65	200	---	49.4
124	107/124	37.854	1.53	(466)	---	98.8
125	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
126		42.936	1.79 I	---	82.1	49.4
127		---	---	ND	---	49.4
128	128/166	42.986	1.22	2610	---	98.8
129	129/138/163	41.712	1.21	14300	---	148
130		41.057	1.16	1020	---	49.4
131		38.139	1.16	260	---	49.4
132		38.609	1.26	5330	---	49.4
133		39.145	1.14	173	---	49.4
134	134/143	37.519	1.22	735	---	98.8
135	135/151	36.361	1.25	3160	---	98.8
136		33.795	1.27	1530	---	49.4
137		41.275	1.22	955	---	49.4
138	129/138/163	41.712	1.21	(14300)	---	148
139	139/140	37.921	1.26	279	---	98.8
140	139/140	37.921	1.26	(279)	---	98.8
141		40.638	1.21	2230	---	49.4
142		---	---	ND	---	49.4
143	134/143	37.519	1.22	(735)	---	98.8
144		36.948	1.25	556	---	49.4

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.4
146		39.816	1.21	1660	---	49.4
147	147/149	37.317	1.20	8740	---	98.8
148		---	---	ND	---	49.4
149	147/149	37.317	1.20	(8740)	---	98.8
150		---	---	ND	---	49.4
151	135/151	36.361	1.25	(3160)	---	98.8
152		---	---	ND	---	49.4
153	153/168	40.437	1.22	8880	---	98.8
154		36.630	1.22	83.8	---	49.4
155		---	---	ND	---	49.4
156	156/157	45.938	1.24	2180	---	98.8
157	156/157	45.938	1.24	(2180)	---	98.8
158		42.114	1.19	1510	---	49.4
159		---	---	ND	---	49.4
160		---	---	ND	---	49.4
161		---	---	ND	---	49.4
162		---	---	ND	---	49.4
163	129/138/163	41.712	1.21	(14300)	---	148
164		41.376	1.20	817	---	49.4
165		---	---	ND	---	49.4
166	128/166	42.986	1.22	(2610)	---	98.8
167		44.781	1.27	658	---	49.4
168	153/168	40.437	1.22	(8880)	---	98.8
169		---	---	ND	---	49.4
170		48.622	1.04	1710	---	49.4
171	171/173	45.016	1.06	561	---	98.8
172		46.676	1.05	291	---	49.4
173	171/173	45.016	1.06	(561)	---	98.8
174		43.925	1.09	1550	---	49.4
175		42.785	1.10	84.6	---	49.4
176		40.252	1.07	234	---	49.4
177		44.362	1.05	881	---	49.4
178		42.148	1.11	328	---	49.4
179		39.364	1.02	717	---	49.4
180	180/193	47.347	1.05	3250	---	98.8
181		---	---	ND	---	49.4
182		---	---	ND	---	49.4
183	183/185	43.691	1.01	1220	---	98.8
184		---	---	ND	---	49.4
185	183/185	43.691	1.01	(1220)	---	98.8
186		---	---	ND	---	49.4
187		43.070	1.05	1670	---	49.4
188		---	---	ND	---	49.4
189		51.851	1.11	89.5	---	49.4
190		49.158	1.06	309	---	49.4
191		47.716	1.16	68.7	---	49.4
192		---	---	ND	---	49.4

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Sample Analysis Results

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Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.347	1.05	(3250)	---	98.8
194		54.071	0.91	719	---	74.1
195		51.528	0.94	242	---	74.1
196		49.997	0.93	406	---	74.1
197	197/200	---	---	ND	---	148
198	198/199	49.309	0.91	985	---	148
199	198/199	49.309	0.91	(985)	---	148
200	197/200	---	---	ND	---	148
201		45.401	0.89	147	---	74.1
202		44.462	0.92	217	---	74.1
203		50.181	0.91	581	---	74.1
204		---	---	ND	---	74.1
205		---	---	ND	---	74.1
206		56.788	0.81	749	---	74.1
207		52.196	0.79	85.8	---	74.1
208		51.269	0.81	223	---	74.1
209		59.094	0.70	364	---	74.1

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTI0586-03(FO105902)
Lab Sample ID	10138556003
Filename	P101016A_07

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	1350
Total Trichloro Biphenyls	4660
Total Tetrachloro Biphenyls	19000
Total Pentachloro Biphenyls	72900
Total Hexachloro Biphenyls	57700
Total Heptachloro Biphenyls	13000
Total Octachloro Biphenyls	3300
Total Nonachloro Biphenyls	1060
Decachloro Biphenyls	364
Total PCBs	173000

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0586-04(FO105903)		
Lab Sample ID	10138556004		
Filename	P101016A_08		
Injected By	BAL		
Total Amount Extracted	18.4 g	Matrix	Solid
% Moisture	44.7	Dilution	5
Dry Weight Extracted	10.1 g	Collected	09/16/2010 10:43
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 11:56

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.282	2.82	2.0	0.651	33
13C-4-MoCB	3	11.601	3.43	2.0	0.888	44
13C-2,2'-DiCB	4	11.937	1.58	2.0	0.783	39
13C-4,4'-DiCB	15	20.001	1.61	2.0	0.918	46
13C-2,2',6-TrCB	19	16.299	1.16	2.0	0.938	47
13C-3,4,4'-TrCB	37	28.277	1.14	2.0	1.25	63
13C-2,2',6,6'-TeCB	54	20.327	0.79	2.0	1.09	55
13C-3,4,4',5-TeCB	81	35.539	0.81	2.0	0.982	49
13C-3,3',4,4'-TeCB	77	36.159	0.80	2.0	0.990	50
13C-2,2',4,6,6'-PeCB	104	26.834	1.60	2.0	1.32	66
13C-2,3,3',4,4'-PeCB	105	39.732	1.62	2.0	0.952	48
13C-2,3,4,4',5-PeCB	114	39.077	1.64	2.0	0.981	49
13C-2,3',4,4',5-PeCB	118	38.541	1.69	2.0	0.964	48
13C-2,3',4,4',5'-PeCB	123	38.189	1.66	2.0	0.962	48
13C-3,3',4,4',5-PeCB	126	42.935	1.63	2.0	0.876	44
13C-2,2',4,4',6,6'-HxCB	155	33.040	1.28	2.0	1.77	88
13C-HxCB (156/157)	156/157	45.954	1.25	4.0	2.22	56
13C-2,3',4,4',5,5'-HxCB	167	44.796	1.26	2.0	1.15	57
13C-3,3',4,4',5,5'-HxCB	169	49.308	1.19	2.0	0.978	49
13C-2,2',3,4',5,6,6'-HpCB	188	38.994	1.07	2.0	2.11	105
13C-2,3,3',4,4',5,5'-HpCB	189	51.844	1.06	2.0	1.31	66
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.461	0.89	2.0	1.72	86
13C-2,3,3',4,4',5,5',6-OcCB	205	54.647	0.90	2.0	1.30	65
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.802	0.76	2.0	1.42	71
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.241	0.81	2.0	1.22	61
13C--DeCB	209	59.087	0.73	2.0	1.11	56
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.681	1.08	2.0	1.34	67
13C-2,3,3',5,5'-PeCB	111	36.193	1.64	2.0	1.19	60
13C-2,2',3,3',5,5',6-HpCB	178	42.130	1.05	2.0	1.36	68
Recovery Standards						
13C-2,5-DiCB	9	14.801	1.61	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.811	0.82	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.325	1.58	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.694	1.23	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.065	0.97	2.0	NA	NA

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Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		8.282	3.19	30.7	---	24.6
2		---	---	ND	---	24.6
3		11.625	3.28	37.3	---	24.6
4		11.961	1.47	59.2	---	24.6
5		---	---	ND	---	24.6
6		15.388	1.58	37.1	---	24.6
7		---	---	ND	---	24.6
8		15.963	1.45	148	---	24.6
9		---	---	ND	---	24.6
10		---	---	ND	---	24.6
11		19.258	1.54	546	---	148
12	12/13	---	---	ND	---	49.3
13	12/13	---	---	ND	---	49.3
14		---	---	ND	---	24.6
15		20.049	1.53	335	---	24.6
16		19.905	1.04	122	---	24.6
17		19.366	1.04	126	---	24.6
18	18/30	18.839	1.04	257	---	49.3
19		16.335	1.11	61.9	---	24.6
20	20/28	23.715	1.03	733	---	49.3
21	21/33	23.983	1.00	299	---	49.3
22		24.436	0.97	237	---	24.6
23		---	---	ND	---	24.6
24		---	---	ND	---	24.6
25		22.960	1.07	49.8	---	24.6
26	26/29	22.709	1.05	111	---	49.3
27		19.618	1.08	43.4	---	24.6
28	20/28	23.715	1.03	(733)	---	49.3
29	26/29	22.709	1.05	(111)	---	49.3
30	18/30	18.839	1.04	(257)	---	49.3
31		23.363	1.00	525	---	24.6
32		20.595	0.95	142	---	24.6
33	21/33	23.983	1.00	(299)	---	49.3
34		---	---	ND	---	24.6
35		27.874	1.16	34.0	---	24.6
36		---	---	ND	---	24.6
37		28.310	0.96	436	---	24.6
38		---	---	ND	---	24.6
39		---	---	ND	---	24.6
40	40/41/71	28.075	0.77	784	---	148
41	40/41/71	28.075	0.77	(784)	---	148
42		27.539	0.81	316	---	49.3
43	43/73	---	---	ND	---	98.5
44	44/47/65	26.935	0.79	1330	---	148
45	45/51	23.782	0.82	284	---	98.5
46		24.117	0.82	111	---	49.3
47	44/47/65	26.935	0.79	(1330)	---	148
48		26.700	0.73	179	---	49.3

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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.381	0.79	673	---	98.5
50	50/53	22.977	0.78	211	---	98.5
51	45/51	23.782	0.82	(284)	---	98.5
52		25.845	0.79	2360	---	49.3
53	50/53	22.977	0.78	(211)	---	98.5
54		---	---	ND	---	49.3
55		---	---	ND	---	49.3
56		32.218	0.74	609	---	49.3
57		---	---	ND	---	49.3
58		---	---	ND	---	49.3
59	59/62/75	---	---	ND	---	148
60		32.453	0.74	278	---	49.3
61	61/70/74/76	31.161	0.73	2220	---	197
62	59/62/75	---	---	ND	---	148
63		---	---	ND	---	49.3
64		28.327	0.79	719	---	49.3
65	44/47/65	26.935	0.79	(1330)	---	148
66		31.497	0.73	1150	---	49.3
67		---	---	ND	---	49.3
68		---	---	ND	---	49.3
69	49/69	26.381	0.79	(673)	---	98.5
70	61/70/74/76	31.161	0.73	(2220)	---	197
71	40/41/71	28.075	0.77	(784)	---	148
72		---	---	ND	---	49.3
73	43/73	---	---	ND	---	98.5
74	61/70/74/76	31.161	0.73	(2220)	---	197
75	59/62/75	---	---	ND	---	148
76	61/70/74/76	31.161	0.73	(2220)	---	197
77		36.176	0.77	225	---	49.3
78		---	---	ND	---	49.3
79		---	---	ND	---	49.3
80		---	---	ND	---	49.3
81		---	---	ND	---	49.3
82		35.723	1.55	629	---	49.3
83		33.828	1.43	377	---	49.3
84		31.329	1.59	1430	---	49.3
85	85/116/117	35.220	1.60	663	---	148
86	86/87/97/108/119/125	34.465	1.58	1480	---	296
87	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
88	88/91	31.111	1.59	650	---	98.5
89		31.832	1.65	55.5	---	49.3
90	90/101/113	33.358	1.57	4620	---	148
91	88/91	31.111	1.59	(650)	---	98.5
92		32.738	1.56	840	---	49.3
93	93/98/100/102	---	---	ND	---	197
94		---	---	ND	---	49.3
95		30.189	1.59	4020	---	49.3
96		---	---	ND	---	49.3

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
98	93/98/100/102	---	---	ND	---	197
99		33.962	1.56	1750	---	49.3
100	93/98/100/102	---	---	ND	---	197
101	90/101/113	33.358	1.57	(4620)	---	148
102	93/98/100/102	---	---	ND	---	197
103		---	---	ND	---	49.3
104		---	---	ND	---	49.3
105		39.765	1.45	1860	---	49.3
106		---	---	ND	---	49.3
107	107/124	37.853	1.48	203	---	98.5
108	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
109		38.088	1.46	279	---	49.3
110	110/115	35.421	1.57	5940	---	98.5
111		---	---	ND	---	49.3
112		---	---	ND	---	49.3
113	90/101/113	33.358	1.57	(4620)	---	148
114		39.094	1.65	102	---	49.3
115	110/115	35.421	1.57	(5940)	---	98.5
116	85/116/117	35.220	1.60	(663)	---	148
117	85/116/117	35.220	1.60	(663)	---	148
118		38.558	1.47	4310	---	49.3
119	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
120		---	---	ND	---	49.3
121		---	---	ND	---	49.3
122		38.876	1.43	63.5	---	49.3
123		38.205	1.43	107	---	49.3
124	107/124	37.853	1.48	(203)	---	98.5
125	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
126		---	---	ND	---	49.3
127		---	---	ND	---	49.3
128	128/166	43.002	1.25	1100	---	98.5
129	129/138/163	41.727	1.25	6740	---	148
130		41.073	1.23	452	---	49.3
131		38.138	1.18	114	---	49.3
132		38.625	1.25	2510	---	49.3
133		39.161	1.27	91.1	---	49.3
134	134/143	37.518	1.21	318	---	98.5
135	135/151	36.360	1.25	2390	---	98.5
136		33.828	1.24	888	---	49.3
137		41.274	1.26	423	---	49.3
138	129/138/163	41.727	1.25	(6740)	---	148
139	139/140	37.954	1.33	130	---	98.5
140	139/140	37.954	1.33	(130)	---	98.5
141		40.637	1.25	1210	---	49.3
142		---	---	ND	---	49.3
143	134/143	37.518	1.21	(318)	---	98.5
144		36.964	1.32	365	---	49.3

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.3
146		39.832	1.23	871	---	49.3
147	147/149	37.333	1.24	5460	---	98.5
148		---	---	ND	---	49.3
149	147/149	37.333	1.24	(5460)	---	98.5
150		---	---	ND	---	49.3
151	135/151	36.360	1.25	(2390)	---	98.5
152		---	---	ND	---	49.3
153	153/168	40.470	1.24	5420	---	98.5
154		---	---	ND	---	49.3
155		---	---	ND	---	49.3
156	156/157	45.954	1.22	891	---	98.5
157	156/157	45.954	1.22	(891)	---	98.5
158		42.130	1.26	693	---	49.3
159		---	---	ND	---	49.3
160		---	---	ND	---	49.3
161		---	---	ND	---	49.3
162		---	---	ND	---	49.3
163	129/138/163	41.727	1.25	(6740)	---	148
164		41.392	1.22	366	---	49.3
165		---	---	ND	---	49.3
166	128/166	43.002	1.25	(1100)	---	98.5
167		44.830	1.20	288	---	49.3
168	153/168	40.470	1.24	(5420)	---	98.5
169		---	---	ND	---	49.3
170		48.620	1.06	923	---	49.3
171	171/173	45.014	1.01	390	---	98.5
172		46.691	1.03	199	---	49.3
173	171/173	45.014	1.01	(390)	---	98.5
174		43.924	1.07	1340	---	49.3
175		42.801	0.99	71.9	---	49.3
176		40.268	1.04	328	---	49.3
177		44.377	1.03	701	---	49.3
178		42.163	1.02	404	---	49.3
179		39.363	1.04	1500	---	49.3
180	180/193	47.345	1.05	2340	---	98.5
181		---	---	ND	---	49.3
182		---	---	ND	---	49.3
183	183/185	43.706	0.98	1370	---	98.5
184		---	---	ND	---	49.3
185	183/185	43.706	0.98	(1370)	---	98.5
186		---	---	ND	---	49.3
187		43.086	1.05	2290	---	49.3
188		---	---	ND	---	49.3
189		---	---	ND	---	49.3
190		49.190	1.06	190	---	49.3
191		---	---	ND	---	49.3
192		---	---	ND	---	49.3

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.345	1.05	(2340)	---	98.5
194		54.065	0.95	504	---	73.9
195		51.564	0.90	187	---	73.9
196		49.995	0.98	358	---	73.9
197	197/200	46.423	0.90	214	---	148
198	198/199	49.324	0.91	908	---	148
199	198/199	49.324	0.91	(908)	---	148
200	197/200	46.423	0.90	(214)	---	148
201		45.417	0.89	269	---	73.9
202		44.495	0.91	497	---	73.9
203		50.213	0.90	518	---	73.9
204		---	---	ND	---	73.9
205		---	---	ND	---	73.9
206		56.845	0.81	518	---	73.9
207		52.211	0.82	78.0	---	73.9
208		51.262	0.77	205	---	73.9
209		59.130	0.70	285	---	73.9

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTI0586-04(FO105903)
Lab Sample ID	10138556004
Filename	P101016A_08

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	68.0
Total Dichloro Biphenyls	1130
Total Trichloro Biphenyls	3180
Total Tetrachloro Biphenyls	11400
Total Pentachloro Biphenyls	29400
Total Hexachloro Biphenyls	30700
Total Heptachloro Biphenyls	12000
Total Octachloro Biphenyls	3460
Total Nonachloro Biphenyls	801
Decachloro Biphenyls	285
Total PCBs	92500

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	PTI0586-05(FO105904)		
Lab Sample ID	10138556005		
Filename	P101016A_09		
Injected By	BAL		
Total Amount Extracted	13.3 g	Matrix	Solid
% Moisture	23.2	Dilution	5
Dry Weight Extracted	10.2 g	Collected	09/16/2010 11:31
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 13:01

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.282	3.31	2.0	0.536	27
13C-4-MoCB	3	11.613	2.94	2.0	0.901	45
13C-2,2'-DiCB	4	11.937	1.65	2.0	0.779	39
13C-4,4'-DiCB	15	20.013	1.63	2.0	1.08	54
13C-2,2',6-TrCB	19	16.310	1.12	2.0	0.982	49
13C-3,4,4'-TrCB	37	28.294	1.14	2.0	1.40	70
13C-2,2',6,6'-TeCB	54	20.310	0.79	2.0	1.28	64
13C-3,4,4',5-TeCB	81	35.573	0.78	2.0	1.12	56
13C-3,3',4,4'-TeCB	77	36.160	0.83	2.0	1.10	55
13C-2,2',4,6,6'-PeCB	104	26.835	1.69	2.0	1.43	71
13C-2,3,3',4,4'-PeCB	105	39.732	1.52	2.0	1.07	54
13C-2,3,4,4',5-PeCB	114	39.078	1.62	2.0	1.04	52
13C-2,3',4,4',5-PeCB	118	38.525	1.64	2.0	1.04	52
13C-2,3',4,4',5'-PeCB	123	38.206	1.72	2.0	1.06	53
13C-3,3',4,4',5-PeCB	126	42.936	1.52	2.0	0.923	46
13C-2,2',4,4',6,6'-HxCB	155	33.057	1.28	2.0	2.03	101
13C-HxCB (156/157)	156/157	45.971	1.27	4.0	2.35	59
13C-2,3',4,4',5,5'-HxCB	167	44.797	1.28	2.0	1.23	61
13C-3,3',4,4',5,5'-HxCB	169	49.309	1.24	2.0	1.05	53
13C-2,2',3,4',5,6,6'-HpCB	188	38.994	1.07	2.0	2.52	126
13C-2,3,3',4,4',5,5'-HpCB	189	51.851	1.09	2.0	1.50	75
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.462	0.90	2.0	2.02	101
13C-2,3,3',4,4',5,5',6-OcCB	205	54.610	0.90	2.0	1.38	69
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.766	0.73	2.0	1.53	76
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.247	0.75	2.0	1.41	71
13C--DeCB	209	59.116	0.72	2.0	1.13	57
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.682	1.11	2.0	1.47	73
13C-2,3,3',5,5'-PeCB	111	36.193	1.56	2.0	1.29	65
13C-2,2',3,3',5,5',6-HpCB	178	42.147	1.13	2.0	1.48	74
Recovery Standards						
13C-2,5-DiCB	9	14.813	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.811	0.83	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.325	1.60	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.728	1.26	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.093	0.91	2.0	NA	NA

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		8.318	2.88	28.9	---	24.5
2		11.362	2.93	44.0	---	24.5
3		11.625	2.99	36.3	---	24.5
4		11.949	1.51	109	---	24.5
5		---	---	ND	---	24.5
6		15.400	1.43	46.9	---	24.5
7		---	---	ND	---	24.5
8		15.975	1.48	174	---	24.5
9		---	---	ND	---	24.5
10		---	---	ND	---	24.5
11		19.246	1.56	1330	---	147
12	12/13	19.618	1.57	63.2	---	49.0
13	12/13	19.618	1.57	(63.2)	---	49.0
14		---	---	ND	---	24.5
15		20.025	1.52	383	---	24.5
16		19.905	1.07	212	---	24.5
17		19.342	1.11	199	---	24.5
18	18/30	18.827	1.05	438	---	49.0
19		16.334	1.08	92.4	---	24.5
20	20/28	23.715	0.99	919	---	49.0
21	21/33	23.967	1.00	435	---	49.0
22		24.436	1.00	347	---	24.5
23		---	---	ND	---	24.5
24		---	---	ND	---	24.5
25		22.977	1.05	63.3	---	24.5
26	26/29	22.692	1.03	146	---	49.0
27		19.630	0.99	59.0	---	24.5
28	20/28	23.715	0.99	(919)	---	49.0
29	26/29	22.692	1.03	(146)	---	49.0
30	18/30	18.827	1.05	(438)	---	49.0
31		23.363	1.00	752	---	24.5
32		20.579	1.02	194	---	24.5
33	21/33	23.967	1.00	(435)	---	49.0
34		---	---	ND	---	24.5
35		27.841	0.97	118	---	24.5
36		---	---	ND	---	24.5
37		28.310	1.01	582	---	24.5
38		---	---	ND	---	24.5
39		---	---	ND	---	24.5
40	40/41/71	28.076	0.78	1060	---	147
41	40/41/71	28.076	0.78	(1060)	---	147
42		27.522	0.78	454	---	49.0
43	43/73	---	---	ND	---	97.9
44	44/47/65	26.935	0.77	1840	---	147
45	45/51	23.765	0.78	316	---	97.9
46		24.134	0.81	116	---	49.0
47	44/47/65	26.935	0.77	(1840)	---	147
48		26.667	0.80	274	---	49.0

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REPORT OF LABORATORY ANALYSIS

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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 PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.382	0.76	949	---	97.9
50	50/53	22.994	0.80	231	---	97.9
51	45/51	23.765	0.78	(316)	---	97.9
52		25.828	0.77	2990	---	49.0
53	50/53	22.994	0.80	(231)	---	97.9
54		---	---	ND	---	49.0
55		---	---	ND	---	49.0
56		32.218	0.75	848	---	49.0
57		---	---	ND	---	49.0
58		---	---	ND	---	49.0
59	59/62/75	27.304	0.81	166	---	147
60		32.453	0.76	419	---	49.0
61	61/70/74/76	31.162	0.75	3420	---	196
62	59/62/75	27.304	0.81	(166)	---	147
63		30.776	0.78	64.9	---	49.0
64		28.327	0.80	892	---	49.0
65	44/47/65	26.935	0.77	(1840)	---	147
66		31.514	0.77	1650	---	49.0
67		---	---	ND	---	49.0
68		---	---	ND	---	49.0
69	49/69	26.382	0.76	(949)	---	97.9
70	61/70/74/76	31.162	0.75	(3420)	---	196
71	40/41/71	28.076	0.78	(1060)	---	147
72		---	---	ND	---	49.0
73	43/73	---	---	ND	---	97.9
74	61/70/74/76	31.162	0.75	(3420)	---	196
75	59/62/75	27.304	0.81	(166)	---	147
76	61/70/74/76	31.162	0.75	(3420)	---	196
77		36.176	0.75	348	---	49.0
78		---	---	ND	---	49.0
79		---	---	ND	---	49.0
80		---	---	ND	---	49.0
81		---	---	ND	---	49.0
82		35.740	1.54	938	---	49.0
83		33.829	1.51	446	---	49.0
84		31.329	1.61	1790	---	49.0
85	85/116/117	35.237	1.60	989	---	147
86	86/87/97/108/119/125	34.583	1.57	4830	---	294
87	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
88	88/91	31.095	1.57	776	---	97.9
89		31.833	1.64	69.3	---	49.0
90	90/101/113	33.359	1.57	6240	---	147
91	88/91	31.095	1.57	(776)	---	97.9
92		32.721	1.58	1140	---	49.0
93	93/98/100/102	---	---	ND	---	196
94		---	---	ND	---	49.0
95		30.172	1.57	4960	---	49.0
96		---	---	ND	---	49.0

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Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
98	93/98/100/102	---	---	ND	---	196
99		33.963	1.56	2430	---	49.0
100	93/98/100/102	---	---	ND	---	196
101	90/101/113	33.359	1.57	(6240)	---	147
102	93/98/100/102	---	---	ND	---	196
103		---	---	ND	---	49.0
104		---	---	ND	---	49.0
105		39.766	1.52	2990	---	49.0
106		---	---	ND	---	49.0
107	107/124	37.871	1.47	303	---	97.9
108	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
109		38.105	1.46	415	---	49.0
110	110/115	35.422	1.59	8220	---	97.9
111		---	---	ND	---	49.0
112		---	---	ND	---	49.0
113	90/101/113	33.359	1.57	(6240)	---	147
114		39.095	1.43	167	---	49.0
115	110/115	35.422	1.59	(8220)	---	97.9
116	85/116/117	35.237	1.60	(989)	---	147
117	85/116/117	35.237	1.60	(989)	---	147
118		38.592	1.40	6680	---	49.0
119	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
120		---	---	ND	---	49.0
121		---	---	ND	---	49.0
122		38.910	1.39	103	---	49.0
123		38.206	1.41	169	---	49.0
124	107/124	37.871	1.47	(303)	---	97.9
125	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
126		42.952	1.50	58.7	---	49.0
127		---	---	ND	---	49.0
128	128/166	43.003	1.22	1770	---	97.9
129	129/138/163	41.745	1.23	10300	---	147
130		41.091	1.21	722	---	49.0
131		38.156	1.21	166	---	49.0
132		38.625	1.24	3700	---	49.0
133		39.196	1.27	120	---	49.0
134	134/143	37.501	1.25	654	---	97.9
135	135/151	36.378	1.25	2490	---	97.9
136		33.812	1.29	1050	---	49.0
137		41.292	1.15	653	---	49.0
138	129/138/163	41.745	1.23	(10300)	---	147
139	139/140	37.938	1.24	187	---	97.9
140	139/140	37.938	1.24	(187)	---	97.9
141		40.655	1.08	1720	---	49.0
142		---	---	ND	---	49.0
143	134/143	37.501	1.25	(654)	---	97.9
144		36.965	1.29	414	---	49.0

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.0
146		39.833	1.22	1300	---	49.0
147	147/149	37.334	1.22	6620	---	97.9
148		---	---	ND	---	49.0
149	147/149	37.334	1.22	(6620)	---	97.9
150		---	---	ND	---	49.0
151	135/151	36.378	1.25	(2490)	---	97.9
152		---	---	ND	---	49.0
153	153/168	40.470	1.26	7330	---	97.9
154		36.646	1.28	64.2	---	49.0
155		---	---	ND	---	49.0
156	156/157	45.971	1.21	1530	---	97.9
157	156/157	45.971	1.21	(1530)	---	97.9
158		42.147	1.20	1060	---	49.0
159		---	---	ND	---	49.0
160		---	---	ND	---	49.0
161		---	---	ND	---	49.0
162		44.361	1.22	63.7	---	49.0
163	129/138/163	41.745	1.23	(10300)	---	147
164		41.409	1.14	523	---	49.0
165		---	---	ND	---	49.0
166	128/166	43.003	1.22	(1770)	---	97.9
167		44.814	1.20	460	---	49.0
168	153/168	40.470	1.26	(7330)	---	97.9
169		---	---	ND	---	49.0
170		48.638	1.06	1540	---	49.0
171	171/173	45.032	1.05	537	---	97.9
172		46.709	1.09	310	---	49.0
173	171/173	45.032	1.05	(537)	---	97.9
174		43.942	1.07	1740	---	49.0
175		42.818	0.98	92.1	---	49.0
176		40.286	1.07	265	---	49.0
177		44.395	1.05	949	---	49.0
178		42.164	1.09	390	---	49.0
179		39.363	1.05	887	---	49.0
180	180/193	47.363	1.06	3870	---	97.9
181		---	---	ND	---	49.0
182		---	---	ND	---	49.0
183	183/185	43.724	1.04	1500	---	97.9
184		---	---	ND	---	49.0
185	183/185	43.724	1.04	(1500)	---	97.9
186		---	---	ND	---	49.0
187		43.087	1.06	2260	---	49.0
188		---	---	ND	---	49.0
189		51.872	0.99	88.9	---	49.0
190		49.208	1.06	343	---	49.0
191		47.732	1.08	66.4	---	49.0
192		---	---	ND	---	49.0

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.363	1.06	(3870)	---	97.9
194		54.071	0.90	1350	---	73.5
195		51.549	0.91	410	---	73.5
196		49.997	0.93	761	---	73.5
197	197/200	46.441	0.91	290	---	147
198	198/199	49.342	0.90	1990	---	147
199	198/199	49.342	0.90	(1990)	---	147
200	197/200	46.441	0.91	(290)	---	147
201		45.418	0.87	304	---	73.5
202		44.495	0.89	438	---	73.5
203		50.215	0.91	1240	---	73.5
204		---	---	ND	---	73.5
205		---	---	ND	---	73.5
206		56.830	0.78	2240	---	73.5
207		52.239	0.75	243	---	73.5
208		51.290	0.77	626	---	73.5
209		59.094	0.69	918	---	73.5

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTI0586-05(FO105904)
Lab Sample ID	10138556005
Filename	P101016A_09

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	109
Total Dichloro Biphenyls	2110
Total Trichloro Biphenyls	4560
Total Tetrachloro Biphenyls	16000
Total Pentachloro Biphenyls	43700
Total Hexachloro Biphenyls	42900
Total Heptachloro Biphenyls	14800
Total Octachloro Biphenyls	6780
Total Nonachloro Biphenyls	3110
Decachloro Biphenyls	918
Total PCBs	135000

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0586-06(FO105905)		
Lab Sample ID	10138556006		
Filename	P101016A_10		
Injected By	BAL		
Total Amount Extracted	13.7 g	Matrix	Solid
% Moisture	26.7	Dilution	5
Dry Weight Extracted	10.1 g	Collected	09/16/2010 12:08
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 14:05

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.282	2.97	2.0	0.303	15	R
13C-4-MoCB	3	11.601	2.85	2.0	0.817	41	
13C-2,2'-DiCB	4	11.937	1.63	2.0	0.591	30	
13C-4,4'-DiCB	15	20.001	1.54	2.0	1.05	53	
13C-2,2',6-TrCB	19	16.311	1.07	2.0	0.844	42	
13C-3,4,4'-TrCB	37	28.294	1.13	2.0	1.41	71	
13C-2,2',6,6'-TeCB	54	20.311	0.82	2.0	1.22	61	
13C-3,4,4',5-TeCB	81	35.555	0.75	2.0	1.08	54	
13C-3,3',4,4'-TeCB	77	36.159	0.78	2.0	1.09	54	
13C-2,2',4,6,6'-PeCB	104	26.835	1.60	2.0	1.48	74	
13C-2,3,3',4,4'-PeCB	105	39.748	1.58	2.0	1.07	54	
13C-2,3,4,4',5-PeCB	114	39.094	1.65	2.0	1.06	53	
13C-2,3',4,4',5-PeCB	118	38.557	1.58	2.0	1.07	53	
13C-2,3',4,4',5'-PeCB	123	38.222	1.63	2.0	1.08	54	
13C-3,3',4,4',5-PeCB	126	42.951	1.54	2.0	0.937	47	
13C-2,2',4,4',6,6'-HxCB	155	33.057	1.27	2.0	2.05	102	
13C-HxCB (156/157)	156/157	45.970	1.32	4.0	2.39	60	
13C-2,3',4,4',5,5'-HxCB	167	44.796	1.36	2.0	1.26	63	
13C-3,3',4,4',5,5'-HxCB	169	49.341	1.21	2.0	1.04	52	
13C-2,2',3,4',5,6,6'-HpCB	188	39.010	1.08	2.0	2.45	123	
13C-2,3,3',4,4',5,5'-HpCB	189	51.871	1.02	2.0	1.51	76	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.461	0.89	2.0	1.91	96	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.652	0.90	2.0	1.46	73	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.807	0.81	2.0	1.54	77	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.267	0.82	2.0	1.36	68	
13C--DeCB	209	59.092	0.71	2.0	1.12	56	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.682	1.05	2.0	1.40	70	
13C-2,3,3',5,5'-PeCB	111	36.176	1.63	2.0	1.33	66	
13C-2,2',3,3',5,5',6-HpCB	178	42.146	1.09	2.0	1.46	73	
Recovery Standards							
13C-2,5-DiCB	9	14.813	1.56	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.812	0.82	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.325	1.53	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.710	1.26	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.048	0.86	2.0	NA	NA	

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		8.306	2.79	30.7	---	24.8
2		11.350	2.74	42.8	---	24.8
3		11.625	2.86	29.0	---	24.8
4		11.949	1.58	64.9	---	24.8
5		---	---	ND	---	24.8
6		15.400	1.45	39.6	---	24.8
7		---	---	ND	---	24.8
8		15.963	1.61	151	---	24.8
9		---	---	ND	---	24.8
10		---	---	ND	---	24.8
11		19.247	1.56	1010	---	149
12	12/13	19.618	1.63	53.0	---	49.7
13	12/13	19.618	1.63	(53.0)	---	49.7
14		---	---	ND	---	24.8
15		20.037	1.53	385	---	24.8
16		19.918	1.09	126	---	24.8
17		19.366	1.09	135	---	24.8
18	18/30	18.815	1.07	278	---	49.7
19		16.335	1.16	58.8	---	24.8
20	20/28	23.715	1.01	831	---	49.7
21	21/33	23.967	1.00	378	---	49.7
22		24.436	1.02	330	---	24.8
23		---	---	ND	---	24.8
24		---	---	ND	---	24.8
25		22.977	0.99	56.4	---	24.8
26	26/29	22.692	1.01	120	---	49.7
27		19.642	0.99	41.6	---	24.8
28	20/28	23.715	1.01	(831)	---	49.7
29	26/29	22.692	1.01	(120)	---	49.7
30	18/30	18.815	1.07	(278)	---	49.7
31		23.380	1.01	632	---	24.8
32		20.596	0.98	151	---	24.8
33	21/33	23.967	1.00	(378)	---	49.7
34		---	---	ND	---	24.8
35		27.858	0.93	59.5	---	24.8
36		---	---	ND	---	24.8
37		28.310	0.98	582	---	24.8
38		---	---	ND	---	24.8
39		---	---	ND	---	24.8
40	40/41/71	28.076	0.80	983	---	149
41	40/41/71	28.076	0.80	(983)	---	149
42		27.522	0.79	412	---	49.7
43	43/73	---	---	ND	---	99.3
44	44/47/65	26.935	0.79	1680	---	149
45	45/51	23.765	0.78	267	---	99.3
46		24.134	0.78	98.5	---	49.7
47	44/47/65	26.935	0.79	(1680)	---	149
48		26.684	0.78	234	---	49.7

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

REPORT OF LABORATORY ANALYSIS

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 PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.382	0.79	840	---	99.3
50	50/53	22.994	0.79	196	---	99.3
51	45/51	23.765	0.78	(267)	---	99.3
52		25.828	0.76	2700	---	49.7
53	50/53	22.994	0.79	(196)	---	99.3
54		---	---	ND	---	49.7
55		---	---	ND	---	49.7
56		32.218	0.77	822	---	49.7
57		---	---	ND	---	49.7
58		---	---	ND	---	49.7
59	59/62/75	27.321	0.82	156	---	149
60		32.453	0.77	406	---	49.7
61	61/70/74/76	31.161	0.74	3180	---	199
62	59/62/75	27.321	0.82	(156)	---	149
63		30.809	0.80	62.3	---	49.7
64		28.327	0.79	845	---	49.7
65	44/47/65	26.935	0.79	(1680)	---	149
66		31.497	0.74	1570	---	49.7
67		---	---	ND	---	49.7
68		---	---	ND	---	49.7
69	49/69	26.382	0.79	(840)	---	99.3
70	61/70/74/76	31.161	0.74	(3180)	---	199
71	40/41/71	28.076	0.80	(983)	---	149
72		---	---	ND	---	49.7
73	43/73	---	---	ND	---	99.3
74	61/70/74/76	31.161	0.74	(3180)	---	199
75	59/62/75	27.321	0.82	(156)	---	149
76	61/70/74/76	31.161	0.74	(3180)	---	199
77		36.176	0.75	381	---	49.7
78		---	---	ND	---	49.7
79		---	---	ND	---	49.7
80		---	---	ND	---	49.7
81		---	---	ND	---	49.7
82		35.740	1.58	896	---	49.7
83		33.828	1.63	360	---	49.7
84		31.329	1.57	1620	---	49.7
85	85/116/117	35.220	1.37	888	---	149
86	86/87/97/108/119/125	34.583	1.58	4460	---	298
87	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
88	88/91	31.111	1.58	710	---	99.3
89		31.832	1.48	62.6	---	49.7
90	90/101/113	33.358	1.60	5680	---	149
91	88/91	31.111	1.58	(710)	---	99.3
92		32.738	1.61	1040	---	49.7
93	93/98/100/102	---	---	ND	---	199
94		---	---	ND	---	49.7
95		30.172	1.55	4370	---	49.7
96		---	---	ND	---	49.7

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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
98	93/98/100/102	---	---	ND	---	199
99		33.962	1.61	2310	---	49.7
100	93/98/100/102	---	---	ND	---	199
101	90/101/113	33.358	1.60	(5680)	---	149
102	93/98/100/102	---	---	ND	---	199
103		---	---	ND	---	49.7
104		---	---	ND	---	49.7
105		39.782	1.60	2770	---	49.7
106		---	---	ND	---	49.7
107	107/124	37.870	1.49	272	---	99.3
108	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
109		38.138	1.41	403	---	49.7
110	110/115	35.421	1.59	7890	---	99.3
111		---	---	ND	---	49.7
112		---	---	ND	---	49.7
113	90/101/113	33.358	1.60	(5680)	---	149
114		39.128	1.56	160	---	49.7
115	110/115	35.421	1.59	(7890)	---	99.3
116	85/116/117	35.220	1.37	(888)	---	149
117	85/116/117	35.220	1.37	(888)	---	149
118		38.591	1.61	6190	---	49.7
119	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
120		---	---	ND	---	49.7
121		---	---	ND	---	49.7
122		38.910	1.64	85.6	---	49.7
123		38.222	1.48	141	---	49.7
124	107/124	37.870	1.49	(272)	---	99.3
125	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
126		42.985	1.55	107	---	49.7
127		---	---	ND	---	49.7
128	128/166	43.019	1.24	1580	---	99.3
129	129/138/163	41.744	1.25	9600	---	149
130		41.073	1.22	661	---	49.7
131		38.172	1.21	153	---	49.7
132		38.624	1.24	3250	---	49.7
133		39.195	1.24	112	---	49.7
134	134/143	37.534	1.31	451	---	99.3
135	135/151	36.377	1.29	2350	---	99.3
136		33.828	1.24	945	---	49.7
137		41.291	1.20	509	---	49.7
138	129/138/163	41.744	1.25	(9600)	---	149
139	139/140	37.937	1.24	158	---	99.3
140	139/140	37.937	1.24	(158)	---	99.3
141		40.671	1.11	1540	---	49.7
142		---	---	ND	---	49.7
143	134/143	37.534	1.31	(451)	---	99.3
144		36.964	1.29	387	---	49.7

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.7
146		39.849	1.21	1200	---	49.7
147	147/149	37.333	1.24	6210	---	99.3
148		---	---	ND	---	49.7
149	147/149	37.333	1.24	(6210)	---	99.3
150		---	---	ND	---	49.7
151	135/151	36.377	1.29	(2350)	---	99.3
152		---	---	ND	---	49.7
153	153/168	40.469	1.28	7060	---	99.3
154		36.645	1.14	57.9	---	49.7
155		---	---	ND	---	49.7
156	156/157	45.970	1.28	1390	---	99.3
157	156/157	45.970	1.28	(1390)	---	99.3
158		42.146	1.24	985	---	49.7
159		---	---	ND	---	49.7
160		---	---	ND	---	49.7
161		---	---	ND	---	49.7
162		44.411	1.18	61.6	---	49.7
163	129/138/163	41.744	1.25	(9600)	---	149
164		41.425	1.22	568	---	49.7
165		---	---	ND	---	49.7
166	128/166	43.019	1.24	(1580)	---	99.3
167		44.847	1.23	436	---	49.7
168	153/168	40.469	1.28	(7060)	---	99.3
169		---	---	ND	---	49.7
170		48.637	1.07	1520	---	49.7
171	171/173	45.031	1.08	551	---	99.3
172		46.708	1.05	319	---	49.7
173	171/173	45.031	1.08	(551)	---	99.3
174		43.958	1.06	1810	---	49.7
175		42.834	1.09	95.2	---	49.7
176		40.268	1.05	287	---	49.7
177		44.394	1.02	955	---	49.7
178		42.180	1.06	420	---	49.7
179		39.379	1.04	935	---	49.7
180	180/193	47.379	1.05	3980	---	99.3
181		---	---	ND	---	49.7
182		---	---	ND	---	49.7
183	183/185	43.723	1.04	1580	---	99.3
184		---	---	ND	---	49.7
185	183/185	43.723	1.04	(1580)	---	99.3
186		---	---	ND	---	49.7
187		43.102	1.07	2400	---	49.7
188		---	---	ND	---	49.7
189		51.871	1.05	81.2	---	49.7
190		49.190	1.04	340	---	49.7
191		47.714	0.99	73.5	---	49.7
192		---	---	ND	---	49.7

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.379	1.05	(3980)	---	99.3
194		54.091	0.89	1350	---	74.5
195		51.569	0.92	414	---	74.5
196		50.012	0.90	777	---	74.5
197	197/200	46.440	0.90	312	---	149
198	198/199	49.341	0.90	2030	---	149
199	198/199	49.341	0.90	(2030)	---	149
200	197/200	46.440	0.90	(312)	---	149
201		45.434	0.89	326	---	74.5
202		44.494	0.92	490	---	74.5
203		50.213	0.89	1290	---	74.5
204		---	---	ND	---	74.5
205		---	---	ND	---	74.5
206		56.829	0.78	2030	---	74.5
207		52.259	0.80	230	---	74.5
208		51.289	0.79	597	---	74.5
209		59.114	0.69	708	---	74.5

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTI0586-06(FO105905)
Lab Sample ID	10138556006
Filename	P101016A_10

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	102
Total Dichloro Biphenyls	1700
Total Trichloro Biphenyls	3780
Total Tetrachloro Biphenyls	14800
Total Pentachloro Biphenyls	40400
Total Hexachloro Biphenyls	39700
Total Heptachloro Biphenyls	15300
Total Octachloro Biphenyls	6990
Total Nonachloro Biphenyls	2860
Decachloro Biphenyls	708
Total PCBs	126000

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	PTI0586-07(FO105906)		
Lab Sample ID	10138556007		
Filename	P101019A_12		
Injected By	SMT		
Total Amount Extracted	11.5 g	Matrix	Solid
% Moisture	11.4	Dilution	20
Dry Weight Extracted	10.2 g	Collected	09/16/2010
ICAL ID	P101019A01	Received	09/21/2010 09:52
CCal Filename(s)	P101019A_02	Extracted	09/29/2010 14:40
Method Blank ID	BLANK-26482	Analyzed	10/19/2010 18:12

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	7.982	1.73	2.0	1.14	68	I
13C-4-MoCB	3	11.277	2.25	2.0	1.32	72	I
13C-2,2'-DiCB	4	11.637	1.65	2.0	1.01	51	N2
13C-4,4'-DiCB	15	19.761	1.60	2.0	1.38	69	N2
13C-2,2',6-TrCB	19	16.093	1.19	2.0	1.08	54	
13C-3,4,4'-TrCB	37	27.948	1.15	2.0	1.67	83	
13C-2,2',6,6'-TeCB	54	20.033	0.84	2.0	1.16	58	
13C-3,4,4',5-TeCB	81	35.159	0.77	2.0	1.94	97	
13C-3,3',4,4'-TeCB	77	35.746	0.84	2.0	2.05	102	
13C-2,2',4,6,6'-PeCB	104	26.556	1.59	2.0	0.991	50	
13C-2,3,3',4,4'-PeCB	105	39.301	1.58	2.0	1.79	90	
13C-2,3,4,4',5-PeCB	114	38.647	1.57	2.0	1.85	93	
13C-2,3',4,4',5-PeCB	118	38.093	1.53	2.0	1.71	85	
13C-2,3',4,4',5'-PeCB	123	37.758	1.54	2.0	1.80	90	
13C-3,3',4,4',5-PeCB	126	42.420	1.51	2.0	1.89	95	
13C-2,2',4,4',6,6'-HxCB	155	32.693	1.22	2.0	1.01	51	
13C-HxCB (156/157)	156/157	45.422	1.28	4.0	2.79	70	
13C-2,3',4,4',5,5'-HxCB	167	44.265	1.28	2.0	1.49	75	
13C-3,3',4,4',5,5'-HxCB	169	48.726	1.34	2.0	1.56	78	
13C-2,2',3,4',5,6,6'-HpCB	188	38.597	1.14	2.0	1.34	67	
13C-2,3,3',4,4',5,5'-HpCB	189	51.250	1.12	2.0	1.39	70	
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.963	0.87	2.0	1.29	65	
13C-2,3,3',4,4',5,5',6-OcCB	205	53.945	0.96	2.0	1.41	71	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.036	0.81	2.0	1.42	71	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.711	0.89	2.0	1.26	63	
13C--DeCB	209	58.191	0.79	2.0	1.19	60	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.387	1.17	2.0	1.75	87	
13C-2,3,3',5,5'-PeCB	111	35.762	1.65	2.0	1.67	84	
13C-2,2',3,3',5,5',6-HpCB	178	41.699	1.11	2.0	1.47	73	
Recovery Standards							
13C-2,5-DiCB	9	14.512	1.69	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.550	0.77	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	32.979	1.46	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.213	1.24	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.384	0.86	2.0	NA	NA	

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg		EMPC ng/Kg	EML ng/Kg
1		8.006	3.51	46.8		---	24.6
2		---	---	ND		---	24.6
3		11.301	3.24	58.1		---	24.6
4		11.661	1.67	57.7	N2	---	24.6
5		---	---	ND		---	24.6
6		15.112	1.35	40.6	N2	---	24.6
7		---	---	ND		---	24.6
8		15.687	1.46	228	N2	---	24.6
9		---	---	ND		---	24.6
10		---	---	ND		---	24.6
11		18.982	1.33	351	N2	---	147
12	12/13	---	---	ND		---	49.1
13	12/13	---	---	ND		---	49.1
14		---	---	ND		---	24.6
15		19.773	1.59	703	N2	---	24.6
16		19.628	1.21 I	---		62.4	24.6
17		19.124	1.27 I	---		101	24.6
18	18/30	18.573	1.10	227		---	49.1
19		16.057	1.49 I	---		49.7	24.6
20	20/28	23.437	1.05	820		---	49.1
21	21/33	23.705	1.07	389		---	49.1
22		24.141	1.13	292		---	24.6
23		---	---	ND		---	24.6
24		---	---	ND		---	24.6
25		22.733	0.92	59.6		---	24.6
26	26/29	22.414	0.97	104		---	49.1
27		---	---	ND		---	24.6
28	20/28	23.437	1.05	(820)		---	49.1
29	26/29	22.414	0.97	(104)		---	49.1
30	18/30	18.573	1.10	(227)		---	49.1
31		23.085	1.02	622		---	24.6
32		20.318	0.97	113		---	24.6
33	21/33	23.705	1.07	(389)		---	49.1
34		---	---	ND		---	24.6
35		27.545	0.96	66.7		---	24.6
36		---	---	ND		---	24.6
37		27.981	1.03	922		---	24.6
38		---	---	ND		---	24.6
39		---	---	ND		---	24.6
40	40/41/71	27.780	0.81	722		---	147
41	40/41/71	27.780	0.81	(722)		---	147
42		27.227	0.73	265		---	49.1
43	43/73	---	---	ND		---	98.3
44	44/47/65	26.657	0.79	1300		---	147
45	45/51	23.487	0.80	260		---	98.3
46		23.823	0.72	113		---	49.1
47	44/47/65	26.657	0.79	(1300)		---	147
48		26.422	0.82	113		---	49.1

Conc = Concentration
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ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

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 PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.120	0.79	656	---	98.3
50	50/53	22.749	0.78	238	---	98.3
51	45/51	23.487	0.80	(260)	---	98.3
52		25.600	0.79	2820	---	49.1
53	50/53	22.749	0.78	(238)	---	98.3
54		---	---	ND	---	49.1
55		---	---	ND	---	49.1
56		31.838	0.80	819	---	49.1
57		---	---	ND	---	49.1
58		---	---	ND	---	49.1
59	59/62/75	27.009	0.84	161	---	147
60		32.090	0.79	321	---	49.1
61	61/70/74/76	30.815	0.79	3030	---	197
62	59/62/75	27.009	0.84	(161)	---	147
63		---	---	ND	---	49.1
64		28.032	0.80	818	---	49.1
65	44/47/65	26.657	0.79	(1300)	---	147
66		31.151	0.75	1560	---	49.1
67		---	---	ND	---	49.1
68		---	---	ND	---	49.1
69	49/69	26.120	0.79	(656)	---	98.3
70	61/70/74/76	30.815	0.79	(3030)	---	197
71	40/41/71	27.780	0.81	(722)	---	147
72		---	---	ND	---	49.1
73	43/73	---	---	ND	---	98.3
74	61/70/74/76	30.815	0.79	(3030)	---	197
75	59/62/75	27.009	0.84	(161)	---	147
76	61/70/74/76	30.815	0.79	(3030)	---	197
77		35.762	0.78	848	---	49.1
78		---	---	ND	---	49.1
79		34.102	0.72	124	---	49.1
80		---	---	ND	---	49.1
81		---	---	ND	---	49.1
82		35.326	1.56	2490	---	49.1
83		33.465	1.65	1000	---	49.1
84		30.983	1.63	3640	---	49.1
85	85/116/117	34.857	1.57	3080	---	147
86	86/87/97/108/119/125	34.203	1.59	9590	---	295
87	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
88	88/91	30.782	1.56	2100	---	98.3
89		31.503	1.45	158	---	49.1
90	90/101/113	32.995	1.59	13600	---	147
91	88/91	30.782	1.56	(2100)	---	98.3
92		32.358	1.58	1870	---	49.1
93	93/98/100/102	30.262	1.47	400	---	197
94		29.373	1.38	57.8	---	49.1
95		29.859	1.60	13300	---	49.1
96		26.942	1.39	59.4	---	49.1

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REPORT OF LABORATORY ANALYSIS

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
98	93/98/100/102	30.262	1.47	(400)	---	197
99		33.616	1.59	6650	---	49.1
100	93/98/100/102	30.262	1.47	(400)	---	197
101	90/101/113	32.995	1.59	(13600)	---	147
102	93/98/100/102	30.262	1.47	(400)	---	197
103		29.155	1.71	50.6	---	49.1
104		---	---	ND	---	49.1
105		39.301	1.54	6200	---	49.1
106		---	---	ND	---	49.1
107	107/124	37.439	1.51	909	---	98.3
108	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
109		37.674	1.63	1230	---	49.1
110	110/115	35.024	1.57	25600	---	98.3
111		---	---	ND	---	49.1
112		---	---	ND	---	49.1
113	90/101/113	32.995	1.59	(13600)	---	147
114		38.647	1.60	288	---	49.1
115	110/115	35.024	1.57	(25600)	---	98.3
116	85/116/117	34.857	1.57	(3080)	---	147
117	85/116/117	34.857	1.57	(3080)	---	147
118		38.127	1.56	15900	---	49.1
119	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
120		36.265	1.49	53.0	---	49.1
121		---	---	ND	---	49.1
122		38.462	1.42	336	---	49.1
123		37.775	1.60	441	---	49.1
124	107/124	37.439	1.51	(909)	---	98.3
125	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
126		42.420	1.50	211	---	49.1
127		40.844	1.50	83.5	---	49.1
128	128/166	42.504	1.26	7240	---	98.3
129	129/138/163	41.263	1.26	43200	---	147
130		40.609	1.26	2870	---	49.1
131		37.724	1.24	591	---	49.1
132		38.194	1.26	13700	---	49.1
133		38.731	1.26	502	---	49.1
134	134/143	37.104	1.26	1890	---	98.3
135	135/151	35.964	1.25	7330	---	98.3
136		33.465	1.30	3410	---	49.1
137		40.810	1.30	1830	---	49.1
138	129/138/163	41.263	1.26	(43200)	---	147
139	139/140	37.540	1.24	695	---	98.3
140	139/140	37.540	1.24	(695)	---	98.3
141		40.190	1.14	7440	---	49.1
142		---	---	ND	---	49.1
143	134/143	37.104	1.26	(1890)	---	98.3
144		36.534	1.27	1200	---	49.1

Conc = Concentration
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.1
146		39.385	1.24	4660	---	49.1
147	147/149	36.919	1.26	27100	---	98.3
148		---	---	ND	---	49.1
149	147/149	36.919	1.26	(27100)	---	98.3
150		---	---	ND	---	49.1
151	135/151	35.964	1.25	(7330)	---	98.3
152		---	---	ND	---	49.1
153	153/168	40.005	1.28	33400	---	98.3
154		36.265	1.37	286	---	49.1
155		---	---	ND	---	49.1
156	156/157	45.422	1.24	4800	---	98.3
157	156/157	45.422	1.24	(4800)	---	98.3
158		41.649	1.25	4350	---	49.1
159		---	---	ND	---	49.1
160		---	---	ND	---	49.1
161		---	---	ND	---	49.1
162		43.879	1.19	463	---	49.1
163	129/138/163	41.263	1.26	(43200)	---	147
164		40.944	1.31	3020	---	49.1
165		---	---	ND	---	49.1
166	128/166	42.504	1.26	(7240)	---	98.3
167		44.298	1.26	1870	---	49.1
168	153/168	40.005	1.28	(33400)	---	98.3
169		---	---	ND	---	49.1
170		48.072	1.03	10200	---	49.1
171	171/173	44.516	1.08	3270	---	98.3
172		46.160	1.03	2250	---	49.1
173	171/173	44.516	1.08	(3270)	---	98.3
174		43.443	1.04	13200	---	49.1
175		42.336	1.07	598	---	49.1
176		39.838	1.07	1540	---	49.1
177		43.896	1.05	6520	---	49.1
178		41.699	1.05	2800	---	49.1
179		38.932	1.09	5480	---	49.1
180	180/193	46.830	1.06	29900	---	98.3
181		44.282	1.04	95.9	---	49.1
182		---	---	ND	---	49.1
183	183/185	43.225	1.04	9950	---	98.3
184		---	---	ND	---	49.1
185	183/185	43.225	1.04	(9950)	---	98.3
186		---	---	ND	---	49.1
187		42.605	1.03	16600	---	49.1
188		38.597	0.94	69.9	---	49.1
189		51.272	0.98	475	---	49.1
190		48.625	1.01	2150	---	49.1
191		47.183	0.98	463	---	49.1
192		---	---	ND	---	49.1

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	46.830	1.06	(29900)	---	98.3
194		53.449	0.88	13500	---	73.7
195		50.992	0.93	3740	---	73.7
196		49.447	0.89	7050	---	73.7
197	197/200	45.925	0.91	2280	---	147
198	198/199	48.793	0.91	18700	---	147
199	198/199	48.793	0.91	(18700)	---	147
200	197/200	45.925	0.91	(2280)	---	147
201		44.919	0.92	2270	---	73.7
202		43.997	0.89	4230	---	73.7
203		49.648	0.88	11800	---	73.7
204		---	---	ND	---	73.7
205		53.945	0.89	598	---	73.7
206		56.057	0.77	18900	---	73.7
207		51.681	0.80	2130	---	73.7
208		50.733	0.77	5220	---	73.7
209		58.256	0.72	6670	---	73.7

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	105
Total Dichloro Biphenyls	1380
Total Trichloro Biphenyls	3620
Total Tetrachloro Biphenyls	14200
Total Pentachloro Biphenyls	109000
Total Hexachloro Biphenyls	172000
Total Heptachloro Biphenyls	106000
Total Octachloro Biphenyls	64200
Total Nonachloro Biphenyls	26200
Decachloro Biphenyls	6670
Total PCBs	503000

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	5

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'-OcCB	202	45.641	0.91	2.0	1.58	79	
13C-2,3,3',4,4',5,5',6-OcCB	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'-OcCB	194	55.224	0.91	2.0	NA	NA	

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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
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ng/L = Nanograms per liter

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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
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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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
I = Interference

Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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
X = Outside QC Limits
RT = Retention Time
I = Interference

Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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

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NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
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Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-26614		
Filename	P101016A_05		
Injected By	BAL	Matrix	Solid
Total Amount Extracted	10.1 g	Extracted	10/11/2010 15:00
ICAL ID	P101016A01	Analyzed	10/16/2010 08:42
CCal Filename(s)	P101016A_02	Dilution	5

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.258	2.87	2.0	0.484	24	R
13C-4-MoCB	3	11.566	2.79	2.0	0.790	40	
13C-2,2'-DiCB	4	11.901	1.55	2.0	0.696	35	
13C-4,4'-DiCB	15	19.954	1.58	2.0	1.08	54	
13C-2,2',6-TrCB	19	16.263	0.98	2.0	0.870	43	
13C-3,4,4'-TrCB	37	28.227	1.05	2.0	1.28	64	
13C-2,2',6,6'-TeCB	54	20.244	0.79	2.0	1.10	55	
13C-3,4,4',5-TeCB	81	35.657	0.80	2.0	0.534	27	
13C-3,3',4,4'-TeCB	77	36.211	0.82	2.0	0.584	29	
13C-2,2',4,6,6'-PeCB	104	26.785	1.64	2.0	2.99	149	
13C-2,3,3',4,4'-PeCB	105	39.816	1.54	2.0	1.34	67	
13C-2,3,4,4',5-PeCB	114	39.179	1.48	2.0	1.28	64	
13C-2,3',4,4',5-PeCB	118	38.626	1.48	2.0	1.29	64	
13C-2,3',4,4',5'-PeCB	123	38.257	1.53	2.0	1.30	65	
13C-3,3',4,4',5-PeCB	126	42.952	1.46	2.0	1.83	91	
13C-2,2',4,4',6,6'-HxCB	155	33.091	1.29	2.0	1.28	64	
13C-HxCB (156/157)	156/157	45.904	1.29	4.0	4.50	112	
13C-2,3',4,4',5,5'-HxCB	167	44.764	1.28	2.0	2.08	104	
13C-3,3',4,4',5,5'-HxCB	169	49.175	1.33	2.0	2.47	124	
13C-2,2',3,4',5,6,6'-HpCB	188	39.095	1.07	2.0	0.885	44	
13C-2,3,3',4,4',5,5'-HpCB	189	51.678	1.02	2.0	1.75	87	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.445	0.90	2.0	1.62	81	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.394	0.91	2.0	1.75	88	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.528	0.79	2.0	1.81	91	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.117	0.81	2.0	1.77	88	
13C--DeCB	209	58.792	0.69	2.0	1.55	78	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.598	1.07	2.0	1.39	70	
13C-2,3,3',5,5'-PeCB	111	36.261	1.53	2.0	1.31	66	
13C-2,2',3,3',5,5',6-HpCB	178	42.164	1.04	2.0	1.64	82	
Recovery Standards							
13C-2,5-DiCB	9	14.765	1.56	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.745	0.78	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.376	1.60	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.745	1.29	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.855	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
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R = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

Results reported on a dry weight basis

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.8
2		---	---	ND	---	24.8
3		---	---	ND	---	24.8
4		---	---	ND	---	24.8
5		---	---	ND	---	24.8
6		---	---	ND	---	24.8
7		---	---	ND	---	24.8
8		---	---	ND	---	24.8
9		---	---	ND	---	24.8
10		---	---	ND	---	24.8
11		---	---	ND	---	149
12	12/13	---	---	ND	---	49.6
13	12/13	---	---	ND	---	49.6
14		---	---	ND	---	24.8
15		---	---	ND	---	24.8
16		---	---	ND	---	24.8
17		---	---	ND	---	24.8
18	18/30	---	---	ND	---	49.6
19		---	---	ND	---	24.8
20	20/28	---	---	ND	---	49.6
21	21/33	---	---	ND	---	49.6
22		---	---	ND	---	24.8
23		---	---	ND	---	24.8
24		---	---	ND	---	24.8
25		---	---	ND	---	24.8
26	26/29	---	---	ND	---	49.6
27		---	---	ND	---	24.8
28	20/28	---	---	ND	---	49.6
29	26/29	---	---	ND	---	49.6
30	18/30	---	---	ND	---	49.6
31		23.296	1.08	32.7	---	24.8
32		---	---	ND	---	24.8
33	21/33	---	---	ND	---	49.6
34		---	---	ND	---	24.8
35		---	---	ND	---	24.8
36		---	---	ND	---	24.8
37		---	---	ND	---	24.8
38		---	---	ND	---	24.8
39		---	---	ND	---	24.8
40	40/41/71	---	---	ND	---	149
41	40/41/71	---	---	ND	---	149
42		---	---	ND	---	49.6
43	43/73	---	---	ND	---	99.2
44	44/47/65	---	---	ND	---	149
45	45/51	---	---	ND	---	99.2

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
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R = Recovery outside of Method 1668A control limits
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RT = Retention Time
I = Interference

Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46		---	---	ND	---	49.6
47	44/47/65	---	---	ND	---	149
48		---	---	ND	---	49.6
49	49/69	---	---	ND	---	99.2
50	50/53	---	---	ND	---	99.2
51	45/51	---	---	ND	---	99.2
52		25.762	0.74	56.4	---	49.6
53	50/53	---	---	ND	---	99.2
54		---	---	ND	---	49.6
55		---	---	ND	---	49.6
56		---	---	ND	---	49.6
57		---	---	ND	---	49.6
58		---	---	ND	---	49.6
59	59/62/75	---	---	ND	---	149
60		---	---	ND	---	49.6
61	61/70/74/76	---	---	ND	---	198
62	59/62/75	---	---	ND	---	149
63		---	---	ND	---	49.6
64		---	---	ND	---	49.6
65	44/47/65	---	---	ND	---	149
66		---	---	ND	---	49.6
67		---	---	ND	---	49.6
68		---	---	ND	---	49.6
69	49/69	---	---	ND	---	99.2
70	61/70/74/76	---	---	ND	---	198
71	40/41/71	---	---	ND	---	149
72		---	---	ND	---	49.6
73	43/73	---	---	ND	---	99.2
74	61/70/74/76	---	---	ND	---	198
75	59/62/75	---	---	ND	---	149
76	61/70/74/76	---	---	ND	---	198
77		---	---	ND	---	49.6
78		---	---	ND	---	49.6
79		---	---	ND	---	49.6
80		---	---	ND	---	49.6
81		---	---	ND	---	49.6
82		---	---	ND	---	49.6
83		---	---	ND	---	49.6
84		---	---	ND	---	49.6
85	85/116/117	---	---	ND	---	149
86	86/87/97/108/119/125	---	---	ND	---	298
87	86/87/97/108/119/125	---	---	ND	---	298
88	88/91	---	---	ND	---	99.2
89		---	---	ND	---	49.6
90	90/101/113	---	---	ND	---	149

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
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R = Recovery outside of Method 1668A control limits
ng/L = Nanograms per liter

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
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X = Outside QC Limits
RT = Retention Time
I = Interference

Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
91	88/91	---	---	ND	---	99.2
92		---	---	ND	---	49.6
93	93/98/100/102	---	---	ND	---	198
94		---	---	ND	---	49.6
95		---	---	ND	---	49.6
96		---	---	ND	---	49.6
97	86/87/97/108/119/125	---	---	ND	---	298
98	93/98/100/102	---	---	ND	---	198
99		---	---	ND	---	49.6
100	93/98/100/102	---	---	ND	---	198
101	90/101/113	---	---	ND	---	149
102	93/98/100/102	---	---	ND	---	198
103		---	---	ND	---	49.6
104		---	---	ND	---	49.6
105		---	---	ND	---	49.6
106		---	---	ND	---	49.6
107	107/124	---	---	ND	---	99.2
108	86/87/97/108/119/125	---	---	ND	---	298
109		---	---	ND	---	49.6
110	110/115	---	---	ND	---	99.2
111		---	---	ND	---	49.6
112		---	---	ND	---	49.6
113	90/101/113	---	---	ND	---	149
114		---	---	ND	---	49.6
115	110/115	---	---	ND	---	99.2
116	85/116/117	---	---	ND	---	149
117	85/116/117	---	---	ND	---	149
118		---	---	ND	---	49.6
119	86/87/97/108/119/125	---	---	ND	---	298
120		---	---	ND	---	49.6
121		---	---	ND	---	49.6
122		---	---	ND	---	49.6
123		---	---	ND	---	49.6
124	107/124	---	---	ND	---	99.2
125	86/87/97/108/119/125	---	---	ND	---	298
126		---	---	ND	---	49.6
127		---	---	ND	---	49.6
128	128/166	---	---	ND	---	99.2
129	129/138/163	---	---	ND	---	149
130		---	---	ND	---	49.6
131		---	---	ND	---	49.6
132		---	---	ND	---	49.6
133		---	---	ND	---	49.6
134	134/143	---	---	ND	---	99.2
135	135/151	---	---	ND	---	99.2

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
136		---	---	ND	---	49.6
137		---	---	ND	---	49.6
138	129/138/163	---	---	ND	---	149
139	139/140	---	---	ND	---	99.2
140	139/140	---	---	ND	---	99.2
141		---	---	ND	---	49.6
142		---	---	ND	---	49.6
143	134/143	---	---	ND	---	99.2
144		---	---	ND	---	49.6
145		---	---	ND	---	49.6
146		---	---	ND	---	49.6
147	147/149	---	---	ND	---	99.2
148		---	---	ND	---	49.6
149	147/149	---	---	ND	---	99.2
150		---	---	ND	---	49.6
151	135/151	---	---	ND	---	99.2
152		---	---	ND	---	49.6
153	153/168	---	---	ND	---	99.2
154		---	---	ND	---	49.6
155		---	---	ND	---	49.6
156	156/157	---	---	ND	---	99.2
157	156/157	---	---	ND	---	99.2
158		---	---	ND	---	49.6
159		---	---	ND	---	49.6
160		---	---	ND	---	49.6
161		---	---	ND	---	49.6
162		---	---	ND	---	49.6
163	129/138/163	---	---	ND	---	149
164		---	---	ND	---	49.6
165		---	---	ND	---	49.6
166	128/166	---	---	ND	---	99.2
167		---	---	ND	---	49.6
168	153/168	---	---	ND	---	99.2
169		---	---	ND	---	49.6
170		---	---	ND	---	49.6
171	171/173	---	---	ND	---	99.2
172		---	---	ND	---	49.6
173	171/173	---	---	ND	---	99.2
174		---	---	ND	---	49.6
175		---	---	ND	---	49.6
176		---	---	ND	---	49.6
177		---	---	ND	---	49.6
178		---	---	ND	---	49.6
179		---	---	ND	---	49.6
180	180/193	---	---	ND	---	99.2

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
181		---	---	ND	---	49.6
182		---	---	ND	---	49.6
183	183/185	---	---	ND	---	99.2
184		---	---	ND	---	49.6
185	183/185	---	---	ND	---	99.2
186		---	---	ND	---	49.6
187		---	---	ND	---	49.6
188		---	---	ND	---	49.6
189		---	---	ND	---	49.6
190		---	---	ND	---	49.6
191		---	---	ND	---	49.6
192		---	---	ND	---	49.6
193	180/193	---	---	ND	---	99.2
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

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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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Client Sample ID	DFBLKOV
Lab Sample ID	BLANK-26614
Filename	P101016A_05

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	ND
Total Trichloro Biphenyls	32.7
Total Tetrachloro Biphenyls	56.4
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	89.1

ND = Not Detected
Results reported on a dry weight basis

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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-26483		
Filename	P100930B_10	Matrix	Solid
Total Amount Extracted	10.2 g	Dilution	NA
ICAL ID	P100930B02	Extracted	09/29/2010 14:40
CCal Filename(s)	P100930B_01	Analyzed	10/01/2010 00:01
Method Blank ID	BLANK-26482	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	**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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Minneapolis, MN 55414

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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-26615		
Filename	P101015B_13	Matrix	Solid
Total Amount Extracted	10.1 g	Dilution	5
ICAL ID	P101015B04	Extracted	10/11/2010 15:00
CCal Filename(s)	P101015B_03	Analyzed	10/16/2010 02:15
Method Blank ID	BLANK-26614	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	1.24	124	2.0	0.0685	4	IR
3	1.0	1.10	110	2.0	0.580	29	R
4	1.0	1.16	116	2.0	0.421	21	R
15	1.0	1.15	115	2.0	0.958	48	
19	1.0	1.03	103	2.0	0.776	39	
37	1.0	1.21	121	2.0	1.11	55	
54	1.0	0.991	99	2.0	1.06	53	
81	1.0	0.968	97	2.0	0.523	26	R
77	1.0	1.01	101	2.0	0.544	27	R
104	1.0	1.04	104	2.0	2.66	133	
105	1.0	1.12	112	2.0	1.20	60	
114	1.0	1.03	103	2.0	1.19	60	
118	1.0	1.26	126	2.0	1.15	58	
123	1.0	1.04	104	2.0	1.21	60	
126	1.0	0.939	94	2.0	1.70	85	
155	1.0	1.00	100	2.0	1.19	59	
156/157	2.0	2.07	103	4.0	4.37	109	
167	1.0	1.07	107	2.0	2.06	103	
169	1.0	1.01	101	2.0	2.50	125	
188	1.0	1.01	101	2.0	0.720	36	
189	1.0	1.01	101	2.0	1.52	76	
202	1.0	1.02	102	2.0	1.31	65	
205	1.0	0.999	100	2.0	1.65	83	
206	1.0	1.02	102	2.0	1.66	83	
208	1.0	1.01	101	2.0	1.59	80	
209	1.0	1.31	131	2.0	1.48	74	

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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Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-26484		
Filename	P100930B_11	Matrix	Solid
Total Amount Extracted	10.4 g	Dilution	NA
ICAL ID	P100930B02	Extracted	09/29/2010 14:40
CCal Filename(s)	P100930B_01	Analyzed	10/01/2010 01:06
Method Blank ID	BLANK-26482	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	**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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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-26616		
Filename	P101016A_03	Matrix	Solid
Total Amount Extracted	10.2 g	Dilution	5
ICAL ID	P101016A01	Extracted	10/11/2010 15:00
CCal Filename(s)	P101016A_02	Analyzed	10/16/2010 06:33
Method Blank ID	BLANK-26614	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.15	115	2.0	0.591	34	I
3	1.0	0.992	99	2.0	0.958	48	
4	1.0	1.07	107	2.0	0.864	43	
15	1.0	1.11	111	2.0	1.09	55	
19	1.0	1.08	108	2.0	0.959	48	
37	1.0	1.23	123	2.0	1.15	58	
54	1.0	0.966	97	2.0	1.22	61	
81	1.0	1.00	100	2.0	0.545	27	R
77	1.0	1.06	106	2.0	0.541	27	R
104	1.0	1.03	103	2.0	2.87	143	R
105	1.0	1.12	112	2.0	1.29	65	
114	1.0	1.04	104	2.0	1.24	62	
118	1.0	1.27	127	2.0	1.23	62	
123	1.0	1.09	109	2.0	1.23	61	
126	1.0	0.949	95	2.0	1.88	94	
155	1.0	1.02	102	2.0	1.20	60	
156/157	2.0	2.06	103	4.0	4.71	118	
167	1.0	1.07	107	2.0	2.11	105	
169	1.0	0.979	98	2.0	2.85	142	R
188	1.0	1.02	102	2.0	0.646	32	
189	1.0	0.999	100	2.0	1.55	78	
202	1.0	1.04	104	2.0	1.21	61	
205	1.0	0.992	99	2.0	1.69	84	
206	1.0	1.02	102	2.0	1.70	85	
208	1.0	1.02	102	2.0	1.56	78	
209	1.0	1.28	128	2.0	1.45	72	

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

Spike Recovery Relative Percent Difference (RPD) Results

Client	Test America		
Spike 1 ID	LCS-26483	Spike 2 ID	LCSD-26484
Spike 1 Filename	P100930B_10	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-26615	Spike 2 ID	LCSD-26616
Spike 1 Filename	P101015B_13	Spike 2 Filename	P101016A_03

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	124	115	7.5
4-MoCB	3	110	99	10.5
2,2'-DiCB	4	116	107	8.1
4,4'-DiCB	15	115	111	3.5
2,2',6-TrCB	19	103	108	4.7
3,4,4'-TrCB	37	121	123	1.6
2,2',6,6'-TeCB	54	99	97	2.0
3,3',4,4'-TeCB	77	101	106	4.8
3,4,4',5-TeCB	81	97	100	3.0
2,2',4,6,6'-PeCB	104	104	103	1.0
2,3,3',4,4'-PeCB	105	112	112	0.0
2,3,4,4',5-PeCB	114	103	104	1.0
2,3',4,4',5-PeCB	118	126	127	0.8
2,3',4,4',5'-PeCB	123	104	109	4.7
3,3',4,4',5-PeCB	126	94	95	1.1
2,2',4,4',6,6'-HxCB	155	100	102	2.0
(156/157)	156/157	103	103	0.0
2,3',4,4',5,5'-HxCB	167	107	107	0.0
3,3',4,4',5,5'-HxCB	169	101	98	3.0
2,2',3,4',5,6,6'-HpCB	188	101	102	1.0
2,3,3',4,4',5,5'-HpCB	189	101	100	1.0
2,2',3,3',5,5',6,6'-OcCB	202	102	104	1.9
2,3,3',4,4',5,5',6-OcCB	205	100	99	1.0
2,2',3,3',4,4',5,5',6-NoCB	206	102	102	0.0
2,2',3,3',4,5,5',6,6'-NoCB	208	101	102	1.0
Decachlorobiphenyl	209	131	128	2.3

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Solids Samples

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

Laboratory Data QA/QC Review
Inline Solids Investigation
City Outfall Basin 19A

To: File

From: Karen Demsey, GSI Water Solutions, Inc.

Date: March 10, 2011

This memorandum presents a quality assurance/quality control (QA/QC) review of the laboratory data generated from source control investigation sampling and analyses conducted by the City of Portland (City) in September 2010. On surface solids sample (FO105900) was collected on September 14, 2010, and one additional surface solids sample (FO105901) and four inline solids samples (FO105902, FO105903, FO105904, and FO105905) were collected on September 16, 2010. The samples were submitted on September 16, 2010, for analyses.

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

- BES WPCL
    - Total Solids (TSS) – SM 2540G
    - Total Copper – EPA 6020
    - Polychlorinated Biphenyls (PCB) Aroclors – EPA 8082
- Test America (TA)
    - Total Organic Carbon – EPA 9060 MOD
- Pace Analytical Services (Pace)
    - Polychlorinated Biphenyls (PCBs) as Congeners – EPA 1668A

The WPCL summary report and the subcontracted laboratories' data reports are attached for all analyses associated with this source control program sample. The WPCL summary report comments that unless otherwise noted, all analytical QA/QC criteria were met for these samples including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

The following QA/QC review of the analytical data is based on the available documentation provided by each subcontracted laboratory and on exceptions noted in the WPCL summary report. The QA/QC review of the analytical data consisted of reviewing the following elements for each laboratory report, if applicable and/or available:

- Chain-of-custody for completeness and continuous custody
- Analysis conducted within holding times
- Chemicals of interest detected in method blanks
- Surrogate recoveries within accuracy control limits
- Internal standard recoveries within accuracy control limits
- Matrix spike and matrix spike duplicate (MS/MSD) sample results within control limits
- Laboratory control and duplicate laboratory control (LC/DLC) sample recoveries within control limits

The results from the QA/QC review of the available information in the laboratory reports are presented below.

Chain-of-Custody

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

Analysis Holding Times

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

Method Blanks

Method blanks were analyzed during the subcontracted laboratory analyses of TOC and PCB congeners. One of the two method blanks prepared and analyzed during PCB congeners analysis contained low levels of two PCB congeners. The congeners present in the blank were detected in the field samples at levels over ten times higher than in the blank. The Pace report notes that in general, levels less than ten times the background are not considered statistically different from the background. The results for the field samples are therefore not significantly affected; they are considered only slightly biased high. TOC was not detected in the method blank for TOC analysis.

Internal Standard Recoveries

Isotopically-labeled internal standard recoveries were processed during the laboratory analysis of PCB congeners. Internal standard recoveries were within control limits with fifteen exceptions, which are flagged “R” in the Pace laboratory report. Pace reports that 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 in the sample matrix impacted the determination of PCB congeners in the internal standard recoveries. The affected values for the internal standard recoveries are flagged "I" where incorrect isotope ratios were obtained. The reported sample results are not qualified.

Laboratory Control/Duplicate Laboratory Control Samples

LC samples were processed during the laboratory analysis of TOC and PCB congeners. A DLC sample was processed during the PCB congeners analysis. All labeled analyte and spiked native analyte recoveries and relative percent differences were within laboratory control limits. Pace reports that these results indicate high degrees of accuracy and precision for these determinations.

Other

Samples FO105901 and FO105906 were analyzed at a variety of dilutions and re-extracted due to matrix-related retention time shifts in the analyses. In both cases, the reported results are those from a secondary dilution; these results are flagged "N2" in the Pace laboratory report.

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: 9/16/10
Page: 1 of 1
Collected By: CJK, PTB, MJS

Project Name: PORTLAND HARBOR INLINE SAMP
File Number: 1020.001 **Matrix:** SEDIMENT

Basin 19A Inline

Requested Analyses

WPCL Sample I.D.	Location	Point Code	Sample Date	Sample Time	Sample Type	Organics: PCB Aroclors - LL	Organics: PCB Congeners (All 209)	Organics: TOC	General: Total Soldis	Metals: Total Copper	Field Comments
FO105900	IL-19A-CALBAG1-0910 CALBAG & NW FRONT #1	19A_1	9/14/10	1527	C	●	●	●	●	●	
FO105901	IL-19A-CALBAG2-0910 CALBAG & NW FRONT #2	19A_2	9/16/10	945	C	●	●	●	●	●	
FO105902	IL-19A-ANF294-0910 4927 SW FRONT AVE	19A_3	9/16/10	1011	C	●	●	●	●	●	
FO105903	IL-19A-APN377-0910 KITTEREDGE & FRONT	19A_4	9/16/10	1043	C	●	●	●	●	●	
FO105904	IL-19A-CBCOMP1-0910 COMP ANF302 & ANF304	19A_5	9/16/10	1131	C	●	●	●	●	●	
FO105905	IL-19A-CBCOMP2-0910 COMP ANF298 & ANF300	19A_6	9/16/10	1208	C	●	●	●	●	●	
FO105906	DUPLICATE	DUP	9/16/10		C	●	●	●	●	●	

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.	Relinquished By: 4.
Signature: [signature] Time: 1550	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Peter Bryant Date: 9/16/10	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Received By: 1.	**Received By:** 2.	**Received By:** 3.	**Received By:** 4.
Signature: [signature] Time: 1550	Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Rona Klneb Date: 9/16/10	Printed Name: Date:	Printed Name: 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: **FO105900** **Sample Collected:** 09/14/10 15:27 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name:	PORTLAND HARBOR INLINE SAMP	**Report Page:**	Page 1 of 1
Address/Location:	IL-19A-CALBAG1-0910		
	CAL1 SWEEPINGS FR DRIVEWAY @ NW FRONT	**System ID:**	AO08231
Sample Point Code:	19A_1	**EID File # :**	1020.001
Sample Type:	COMPOSITE	**LocCode:**	PORTHARI
Sample Matrix:	SEDIMENT	**Collected By:**	PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	99.6	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	166	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/17/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1254	49	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1260	31	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	41700	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105900

Report Date: 11/12/10 **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: FO105901 **Sample Collected:** 09/16/10 09:45 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-CALBAG2-0910
CAL2 SOILS 0-2 IN BTW CALBAG &RAIL LINES
Sample Point Code: 19A_2
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08232
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	89.8	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	1170	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/17/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1254	173	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1260	241	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/17/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	26100	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105901

Report Date: 11/12/10 **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: FO105902 **Sample Collected:** 09/16/10 10:11 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-ANF294-0910
SOILS COMP FRM CB ANF294
Sample Point Code: 19A_3
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08233
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	72.9	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	166	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1254	73	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	53600	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105902

Report Date: 11/12/10 **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: FO105903 **Sample Collected:** 09/16/10 10:43 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-APN377-0910
SOILS COMP FRM CB S CORNER KITTR & FRONT
Sample Point Code: 19A_4
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08234
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	62.9	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	101	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1254	13	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	76600	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105903

Report Date: 11/12/10 **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: FO105904 **Sample Collected:** 09/16/10 11:31 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-CBCOMP1-0910
SOILS COMP FRM CBs ANF302 & ANF304
Sample Point Code: 19A_5
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08235
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	79.7	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	426	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1254	49	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1260	32	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	50000	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105904

Report Date: 11/12/10 **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: FO105905 **Sample Collected:** 09/16/10 12:08 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

Proj./Company Name: PORTLAND HARBOR INLINE SAMP
Address/Location: IL-19A-CBCOMP2-0910
SOILS COMP FRM ANF298 & ANF300
Sample Point Code: 19A_6
Sample Type: COMPOSITE
Sample Matrix: SEDIMENT

Report Page: Page 1 of 1
System ID: AO08236
EID File # : 1020.001
LocCode: PORTHARI
Collected By: PTB/MJS

Comments:
QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	79.3	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	211	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1221	<20	µg/Kg dry wt	20	EPA 8082	09/22/10
Aroclor 1232	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1248	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1254	23	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1260	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1262	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
Aroclor 1268	<10	µg/Kg dry wt	10	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	40500	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	10/11/10

End of Report for Sample ID: FO105905

Report Date: 11/12/10 **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: FO105906 **Sample Collected:** 09/16/10 00:00 **Sample Received:** 09/16/10 **Sample Status:** COMPLETE AND VALIDATED

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

Report Page: Page 1 of 1

System ID: AO08237
Sample Point Code: DUP
EID File # : 1020.001
Sample Type: COMPOSITE
LocCode: PORTHARI
Sample Matrix: SEDIMENT
Collected By: PTB/MJS

Comments:
QA/QC: Except as follows, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable. Inconsistent recoveries for PCB matrix QC indicate non-homogeneous sample matrix; results should be considered estimates. LAB: PCBs quantified as Aroclor 1260 may also include some Aroclor 1262.

Test Parameter	Result	Units	MRL	Method	Analysis Date
GENERAL					
TOTAL SOLIDS	89.5	% W/W	0.01	SM 2540 G	09/17/10
METALS					
COPPER	1090	mg/Kg dry wt	0.25	EPA 6020	09/17/10
GC ANALYSIS					
POLYCHLORINATED BIPHENYLS (PCB)					
Aroclor 1016/1242	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1221	<80	µg/Kg dry wt	80	EPA 8082	09/22/10
Aroclor 1232	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1248	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1254	165	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1260	250	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1262	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
Aroclor 1268	<40	µg/Kg dry wt	40	EPA 8082	09/22/10
OUTSIDE ANALYSIS					
TOTAL ORGANIC CARBON	25100	mg/Kg dry wt	100	EPA 9060 MOD	09/22/10
POLYCHLORINATED BIPHENYL CONGENERS -PACE					
Refer to Contract Report	Completed	ng/Kg dry wt		EPA 1668 MOD	09/29/10

End of Report for Sample ID: FO105906

Report Date: 11/12/10 **Validated By:**

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

ORELAP#: OR100021

October 06, 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 09/17/10 13:20. The following list is a summary of the Work Orders contained in this report, generated on 10/06/10 15:15.

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

Work Order	Project	ProjectNumber
PTI0586	Portland Harbor Inline	30001516

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor Inline**	
6543 N. Burlington Ave.	Project Number:	30001516	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	10/06/10 15:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FO105900	PTI0586-01	Soil	09/14/10 15:27	09/17/10 13:20
FO105901	PTI0586-02	Soil	09/16/10 09:45	09/17/10 13:20
FO105902	PTI0586-03	Soil	09/16/10 10:11	09/17/10 13:20
FO105903	PTI0586-04	Soil	09/16/10 10:43	09/17/10 13:20
FO105904	PTI0586-05	Soil	09/16/10 11:31	09/17/10 13:20
FO105905	PTI0586-06	Soil	09/16/10 12:08	09/17/10 13:20
FO105906	PTI0586-07	Soil	09/16/10 00:00	09/17/10 13:20

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor Inline**	
6543 N. Burlington Ave.	Project Number:	30001516	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	10/06/10 15:15

Organic Carbon, Total (TOC)

TestAmerica Connecticut

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PTI0586-01 (FO105900)			**Soil**			**Sampled: 09/14/10 15:27**				
Total Organic Carbon - Duplicates	9060	**41700**	*30.0*	100	mg/Kg	1x	43025	09/22/10 16:18	09/22/10 16:18	
PTI0586-02 (FO105901)			**Soil**			**Sampled: 09/16/10 09:45**				
Total Organic Carbon - Duplicates	9060	**26100**	*30.0*	100	mg/Kg	1x	43025	09/22/10 16:31	09/22/10 16:31	
PTI0586-03 (FO105902)			**Soil**			**Sampled: 09/16/10 10:11**				
Total Organic Carbon - Duplicates	9060	**53600**	*30.0*	100	mg/Kg	1x	43025	09/22/10 16:45	09/22/10 16:45	
PTI0586-04 (FO105903)			**Soil**			**Sampled: 09/16/10 10:43**				
Total Organic Carbon - Duplicates	9060	**76600**	*30.0*	100	mg/Kg	1x	43025	09/22/10 17:12	09/22/10 17:12	
PTI0586-05 (FO105904)			**Soil**			**Sampled: 09/16/10 11:31**				
Total Organic Carbon - Duplicates	9060	**50000**	*30.0*	100	mg/Kg	1x	43025	09/22/10 17:48	09/22/10 17:48	
PTI0586-06 (FO105905)			**Soil**			**Sampled: 09/16/10 12:08**				
Total Organic Carbon - Duplicates	9060	**40500**	*30.0*	100	mg/Kg	1x	43025	09/22/10 18:02	09/22/10 18:02	
PTI0586-07 (FO105906)			**Soil**			**Sampled: 09/16/10 00:00**				
Total Organic Carbon - Duplicates	9060	**25100**	*30.0*	100	mg/Kg	1x	43025	09/22/10 18:15	09/22/10 18:15	

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-7132
ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor Inline**	
6543 N. Burlington Ave.	Project Number:	30001516	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	10/06/10 15:15

Organic Carbon, Total (TOC) - Laboratory Quality Control Results

TestAmerica Connecticut

QC Batch: 43025 **Soil Preparation Method: NA**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (220-43025-5)					**QC Source:**								**Extracted: 09/22/10 13:05**	
Total Organic Carbon - Duplicates	9060	5238	30.0	100	mg/Kg	1x	--	4110	127%	(28-172)	--	--	09/22/10 13:05	
Blank (220-43025-6)					**QC Source:**								**Extracted: 09/22/10 13:11**	
Total Organic Carbon - Duplicates	9060	ND	30.0	100	mg/Kg	1x	--	--	--	--	--	--	09/22/10 13:11	

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Darrell Auvil, Project Manager

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ph: (503) 906.9200 fax: (503) 906.9210

City of Portland Water Pollution Laboratory	Project Name:	**Portland Harbor Inline**	
6543 N. Burlington Ave.	Project Number:	30001516	Report Created:
Portland, OR 97203	Project Manager:	Jennifer Shackelford	10/06/10 15:15

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

CERTIFICATION SUMMARY

Subcontracted Laboratories

TestAmerica Connecticut

128 Long Hill Cross Road - Shelton, CT 06484

Method Performed: 9060

Samples: PTI0586-01, PTI0586-02, PTI0586-03, PTI0586-04, PTI0586-05, PTI0586-06, PTI0586-07

TestAmerica Portland

Darrell Auvil, Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210 [X]
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: PT105586

CLIENT: City of Portland

REPORT TO: Jennifer Shackelford

ADDRESS:

PHONE: FAX:

INVOICE TO: Charles Lytle

P.O. NUMBER: 36238

PROJECT NAME: Portland Harbor

PROJECT NUMBER: Inline Samp

SAMPLED BY:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [X] STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: TOC	REQUESTED ANALYSES: PCB Congeners All 209 (*)	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	F0105900	9/14/10 1527		X	X	S	2		
2	901	9/16/10 0945		X	X	S	2		
3	902	1011		X	X	S	2		
4	903	1043		X	X	S	2		
5	904	1131		X	X	S	2		
6	905	1208		X	X	S	2		
7	906	—		X	X	S	2		
8									
9									
10									

RELEASED BY: Rona Klinch — FIRM: City of Portland — DATE: 9/17/10 — TIME: 11:05 — RECEIVED BY: Bob F — FIRM: TAP — DATE: 9/17/10 — TIME: 11:05

RELEASED BY: Bob F — FIRM: TAP — DATE: 9/17/10 — TIME: 13:20 — RECEIVED BY: Jessica Nye — FIRM: TAP — DATE: 9/17/10 — TIME: 1320

ADDITIONAL REMARKS: (*) Send out to Pace Analytical for PCB Congeners - All 209. Thanks

TEMP: 5.4

PAGE 1 OF 1

TAL-1000(0408)

TestAmerica Portland

Sample Receiving Checklist

Work Order #: PT105886 Date/Time Received: 9/17/10 1320

Client Name and Project: COFP

Time Zone:
☐EDT/EST ☐CDT/CST ☐MDT/MST ☑PDT/PST ☐AK ☐OTHER

Unpacking Checks:

Cooler #(s): 1

Temperatures: 3.4 ____ ____ ____ ____

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: ____

Initials: 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 #: PT105886

Login Checks:

Initials: JM

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?
JM ☑	☑	☐	29. Were subcontract COCs printed?
☑	☐	☐	30. Was HF dilution logged?

Labeling and Storage Checks:

Initials: JM

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).

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Darrell Auvil
Test America
9405 SW Nimbus Avenue
Beaverton OR 97008

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10138556
Sample Receipt Date: 09/21/2010
Client Project #: PTI0586
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 29, 2010

Nate Habte, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
natnael.habte@pacelabs.com

Report Prepared Date:
October 29, 2010

Report of Laboratory Analysis

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on seven samples submitted by a representative of Test America - Portland. The samples were analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to approximately 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 15-165%. With fifteen exceptions, flagged "R" on the 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. Sample PTI0586-02 (FO105901) and PTI0586-07 (FO105906) were analyzed at a variety of dilutions and re-extracted due to matrix related retention time shifts in the analyses. In both cases, the results for the di-chlorinated congeners were those from a secondary dilution and were flagged "N2".

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the one blank to be free of PCB congeners at the reporting limits while the other contained low levels of two PCB congeners. The congeners present in Blank-26614 were found in the sample extracts at levels over ten times higher than in the blank. In general, levels less than ten times the background are not considered statistically different from the background. 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 94-136% with relative percent differences of 0.0-10.8%. These results indicate high levels of accuracy and precision for these analyses. Matrix spikes were not prepared with the samples.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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	Tennesee	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

Appendix A

Sample Management

COC p. 1 (of 3)

SUBCONTRACT ORDER
TestAmerica Portland

1128 **PTI0586** 10138556

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:** JM

Analysis	Units	Expires	Comments
Sample ID: PTI0586-01 (FO105900 - Soil)		Sampled: 09/14/10 15:27	001
1668 PCB 209 Congeners - !	ug/l	03/13/11 15:27	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-02 (FO105901 - Soil)		Sampled: 09/16/10 09:45	002
1668 PCB 209 Congeners - !	ug/l	03/15/11 09:45	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-03 (FO105902 - Soil)		Sampled: 09/16/10 10:11	003
1668 PCB 209 Congeners - !	ug/l	03/15/11 10:11	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-04 (FO105903 - Soil)		Sampled: 09/16/10 10:43	004
1668 PCB 209 Congeners - !	ug/l	03/15/11 10:43	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-05 (FO105904 - Soil)		Sampled: 09/16/10 11:31	005
1668 PCB 209 Congeners - !	ug/l	03/15/11 11:31	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			
Sample ID: PTI0586-06 (FO105905 - Soil)		Sampled: 09/16/10 12:08	006
1668 PCB 209 Congeners - !	ug/l	03/15/11 12:08	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			

Released By	Date/Time	Received By	Date/Time
Jessica Nyn	9/20/10	Alicia Klar/PaceMN	9/21/10 0952

T= 2.8°C

Page 1 of 2

SUBCONTRACT ORDER
TestAmerica Portland

PTI0586

(COC p. 2 of 3)

Analysis	Units	Expires	Comments
Sample ID: PTI0586-07 (FO105906 - Soil)		Sampled: 09/16/10 00:00	007
1668 PCB 209 Congeners - 1 ug/l		03/15/11 00:00	full 209 list, sub to PACE
Containers Supplied:			
4 oz. jar Amber (A)			

COC p. 3 (of 3)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: PTI0942

CLIENT: City of Portland
REPORT TO: Jennifer Shackelford
ADDRESS:
PHONE: FAX:
PROJECT NAME: Portland Harbor
PROJECT NUMBER:
SAMPLED BY:

INVOICE TO: Charles Lytle
P.O. NUMBER: 36238

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: [X] 10 STD. 7 5 4 3 2 1 <1
Petroleum Hydrocarbon Analyses: 5 STD. 4 3 2 1 <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE / REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	REQUESTED ANALYSES	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	FD105900	9/14/10 1527	Replacement for PTI0586-01 MAH 9/30/10	S	1		
2							
3							
4							
5							
6							
7							
8							
9							
10							

RELEASED BY: [signature] PRINT NAME: Mackenzie ...	FIRM: City of Portland	DATE: 9/28/10 TIME: 1355	RECEIVED BY: [signature] PRINT NAME: Bob F. FIRM: TAP DATE: 9/28/10 TIME: 13:55
RELEASED BY: [signature] PRINT NAME: Bob F	FIRM: TAP	DATE: 9/28/10 TIME: 18:20	RECEIVED BY: [signature] PRINT NAME: Megan Henning FIRM: TAP DATE: 09/28/10 TIME: 1820

ADDITIONAL REMARKS: * replacement jar for PCB Congeners (PACE)

TEMP: 0.5
PAGE 1 OF 1

TAL-1000(0408)

SCUR 1 (of 2)

Sample Condition Upon Receipt

Pace Analytical

Client Name: Test America **Project #** 10138556

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 4170 7526 2307

Optional: Proj. Due Date: Proj. Name:

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:** ~~Wet~~ Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.8 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 9/21/10 MSP

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12. Sample 201 Broken During Log In.
-includes date/time/ID/Analysis Matrix: SV		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	Samp #
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Darrell Anvil Date/Time: 9/21/10 @ 15:00

Comments/ Resolution:

— 1668-209 confirmed.

— 4 wk stan TAT is fine, despite note on COC.

Project Manager Review: NAH **Date:** 9/21/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

SCUR 2 (of 2)

Pace Analytical

Sample Condition Upon Receipt

Client Name: Test America **Project #** 10138556

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 4170-7526-2925

Custody 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 ✓ No _____

Thermometer Used ~~80944942~~ or 79425 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 0.6 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and initials of person examining contents: 9.30.10

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: SL		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl Samp #
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☑No	Initial when completed → Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): —		

Client Notification/ Resolution: **Field Data Required?** Y / N

Person Contacted: _____ **Date/Time:** _____

Comments/ Resolution: Resubmittal for 10138556001 (PTI0586-01). Bottle was dropped in S.R. upon arrival on 9/21/10.

Project Manager Review: NAH **Date:** 9/30/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

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

Appendix B

Sample Analysis Summary

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 - Test America

Client's Sample ID	PTI0586-01(FO105900)		
Lab Sample ID	10138556001		
Filename	P101016A_06		
Injected By	BAL		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	0.5	Dilution	5
Dry Weight Extracted	10.3 g	Collected	09/14/2010 15:27
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 09:47

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.246	3.82	2.0	0.623	36	I
13C-4-MoCB	3	11.565	2.59	2.0	1.05	55	I
13C-2,2'-DiCB	4	11.889	1.63	2.0	0.905	45	
13C-4,4'-DiCB	15	19.929	1.55	2.0	1.27	63	
13C-2,2',6-TrCB	19	16.250	1.05	2.0	1.07	54	
13C-3,4,4'-TrCB	37	28.210	1.08	2.0	1.42	71	
13C-2,2',6,6'-TeCB	54	20.243	0.81	2.0	1.34	67	
13C-3,4,4',5-TeCB	81	35.522	0.81	2.0	1.16	58	
13C-3,3',4,4'-TeCB	77	36.092	0.79	2.0	1.14	57	
13C-2,2',4,6,6'-PeCB	104	26.767	1.53	2.0	1.57	78	
13C-2,3,3',4,4'-PeCB	105	39.697	1.56	2.0	0.999	50	
13C-2,3,4,4',5-PeCB	114	39.026	1.63	2.0	1.06	53	
13C-2,3',4,4',5-PeCB	118	38.490	1.48	2.0	1.04	52	
13C-2,3',4,4',5'-PeCB	123	38.188	1.55	2.0	1.08	54	
13C-3,3',4,4',5-PeCB	126	42.901	1.75	2.0	0.940	47	
13C-2,2',4,4',6,6'-HxCB	155	33.006	1.30	2.0	2.09	104	
13C-HxCB (156/157)	156/157	45.903	1.26	4.0	2.45	61	
13C-2,3',4,4',5,5'-HxCB	167	44.762	1.25	2.0	1.32	66	
13C-3,3',4,4',5,5'-HxCB	169	49.307	1.26	2.0	1.20	60	
13C-2,2',3,4',5,6,6'-HpCB	188	38.959	1.09	2.0	2.21	110	
13C-2,3,3',4,4',5,5'-HpCB	189	51.822	1.05	2.0	1.44	72	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.443	0.90	2.0	1.76	88	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.603	0.91	2.0	1.52	76	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.759	0.76	2.0	1.64	82	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.240	0.78	2.0	1.43	71	
13C--DeCB	209	59.022	0.72	2.0	1.43	72	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.631	1.09	2.0	1.55	77	
13C-2,3,3',5,5'-PeCB	111	36.142	1.60	2.0	1.39	69	
13C-2,2',3,3',5,5',6-HpCB	178	42.096	1.01	2.0	1.56	78	
Recovery Standards							
13C-2,5-DiCB	9	14.753	1.57	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.744	0.79	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.274	1.56	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.659	1.26	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.043	0.91	2.0	NA	NA	

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Nn = Value obtained from additional analyses

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ND = Not Detected
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* = See Discussion
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ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-01(FO105900)
Lab Sample ID 10138556001
Filename P101016A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.3
2		---	---	ND	---	24.3
3		---	---	ND	---	24.3
4		11.913	1.52	68.5	---	24.3
5		---	---	ND	---	24.3
6		15.328	1.46	46.7	---	24.3
7		---	---	ND	---	24.3
8		15.927	1.50	191	---	24.3
9		---	---	ND	---	24.3
10		---	---	ND	---	24.3
11		19.186	1.55	877	---	146
12	12/13	---	---	ND	---	48.6
13	12/13	---	---	ND	---	48.6
14		---	---	ND	---	24.3
15		19.977	1.50	282	---	24.3
16		19.846	1.07	201	---	24.3
17		19.294	1.04	181	---	24.3
18	18/30	18.767	1.04	362	---	48.6
19		16.287	0.91	42.8	---	24.3
20	20/28	23.648	1.02	1140	---	48.6
21	21/33	23.916	1.01	721	---	48.6
22		24.369	1.02	501	---	24.3
23		---	---	ND	---	24.3
24		---	---	ND	---	24.3
25		22.927	1.00	78.0	---	24.3
26	26/29	22.642	0.99	179	---	48.6
27		19.570	0.94	39.9	---	24.3
28	20/28	23.648	1.02	(1140)	---	48.6
29	26/29	22.642	0.99	(179)	---	48.6
30	18/30	18.767	1.04	(362)	---	48.6
31		23.313	0.99	973	---	24.3
32		20.529	0.99	162	---	24.3
33	21/33	23.916	1.01	(721)	---	48.6
34		---	---	ND	---	24.3
35		27.790	0.99	66.4	---	24.3
36		---	---	ND	---	24.3
37		28.243	1.00	691	---	24.3
38		---	---	ND	---	24.3
39		---	---	ND	---	24.3
40	40/41/71	28.008	0.77	1060	---	146
41	40/41/71	28.008	0.77	(1060)	---	146
42		27.455	0.77	453	---	48.6
43	43/73	---	---	ND	---	97.2
44	44/47/65	26.868	0.79	1850	---	146
45	45/51	23.715	0.82	221	---	97.2
46		24.067	0.79	83.6	---	48.6
47	44/47/65	26.868	0.79	(1850)	---	146
48		26.616	0.72	283	---	48.6

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-01(FO105900)
Lab Sample ID 10138556001
Filename P101016A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.331	0.77	928	---	97.2
50	50/53	22.927	0.75	153	---	97.2
51	45/51	23.715	0.82	(221)	---	97.2
52		25.761	0.79	2890	---	48.6
53	50/53	22.927	0.75	(153)	---	97.2
54		---	---	ND	---	48.6
55		---	---	ND	---	48.6
56		32.151	0.74	1060	---	48.6
57		---	---	ND	---	48.6
58		---	---	ND	---	48.6
59	59/62/75	27.254	0.77	154	---	146
60		32.386	0.74	542	---	48.6
61	61/70/74/76	31.094	0.75	5000	---	194
62	59/62/75	27.254	0.77	(154)	---	146
63		30.742	0.73	83.1	---	48.6
64		28.277	0.79	962	---	48.6
65	44/47/65	26.868	0.79	(1850)	---	146
66		31.446	0.74	2070	---	48.6
67		30.440	0.72	70.6	---	48.6
68		---	---	ND	---	48.6
69	49/69	26.331	0.77	(928)	---	97.2
70	61/70/74/76	31.094	0.75	(5000)	---	194
71	40/41/71	28.008	0.77	(1060)	---	146
72		---	---	ND	---	48.6
73	43/73	---	---	ND	---	97.2
74	61/70/74/76	31.094	0.75	(5000)	---	194
75	59/62/75	27.254	0.77	(154)	---	146
76	61/70/74/76	31.094	0.75	(5000)	---	194
77		36.108	0.74	446	---	48.6
78		---	---	ND	---	48.6
79		34.448	0.73	53.7	---	48.6
80		---	---	ND	---	48.6
81		---	---	ND	---	48.6
82		35.689	1.52	1220	---	48.6
83		33.761	1.57	405	---	48.6
84		31.279	1.54	2120	---	48.6
85	85/116/117	35.169	1.55	1310	---	146
86	86/87/97/108/119/125	34.515	1.60	6490	---	292
87	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
88	88/91	31.061	1.57	906	---	97.2
89		31.782	1.68	76.5	---	48.6
90	90/101/113	33.308	1.56	7830	---	146
91	88/91	31.061	1.57	(906)	---	97.2
92		32.671	1.58	1340	---	48.6
93	93/98/100/102	30.491	1.69	205	---	194
94		---	---	ND	---	48.6
95		30.105	1.58	5370	---	48.6
96		---	---	ND	---	48.6

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REPORT OF LABORATORY ANALYSIS

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-01(FO105900)
Lab Sample ID 10138556001
Filename P101016A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
98	93/98/100/102	30.491	1.69	(205)	---	194
99		33.912	1.58	3320	---	48.6
100	93/98/100/102	30.491	1.69	(205)	---	194
101	90/101/113	33.308	1.56	(7830)	---	146
102	93/98/100/102	30.491	1.69	(205)	---	194
103		---	---	ND	---	48.6
104		---	---	ND	---	48.6
105		39.714	1.43	4200	---	48.6
106		---	---	ND	---	48.6
107	107/124	37.802	1.50	420	---	97.2
108	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
109		38.071	1.55	649	---	48.6
110	110/115	35.371	1.57	10600	---	97.2
111		---	---	ND	---	48.6
112		---	---	ND	---	48.6
113	90/101/113	33.308	1.56	(7830)	---	146
114		39.060	1.55	230	---	48.6
115	110/115	35.371	1.57	(10600)	---	97.2
116	85/116/117	35.169	1.55	(1310)	---	146
117	85/116/117	35.169	1.55	(1310)	---	146
118		38.523	1.60	9730	---	48.6
119	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
120		---	---	ND	---	48.6
121		---	---	ND	---	48.6
122		38.876	1.47	128	---	48.6
123		38.171	1.45	182	---	48.6
124	107/124	37.802	1.50	(420)	---	97.2
125	86/87/97/108/119/125	34.515	1.60	(6490)	---	292
126		42.917	1.30 I	---	100	48.6
127		---	---	ND	---	48.6
128	128/166	42.968	1.24	2160	---	97.2
129	129/138/163	41.693	1.25	12600	---	146
130		41.039	1.17	892	---	48.6
131		38.104	1.20	197	---	48.6
132		38.574	1.25	4220	---	48.6
133		39.144	1.22	138	---	48.6
134	134/143	37.467	1.19	612	---	97.2
135	135/151	36.343	1.24	2470	---	97.2
136		33.761	1.25	1070	---	48.6
137		41.240	1.23	858	---	48.6
138	129/138/163	41.693	1.25	(12600)	---	146
139	139/140	37.903	1.20	231	---	97.2
140	139/140	37.903	1.20	(231)	---	97.2
141		40.603	1.38	1670	---	48.6
142		---	---	ND	---	48.6
143	134/143	37.467	1.19	(612)	---	97.2
144		36.897	1.27	443	---	48.6

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-01(FO105900)
Lab Sample ID 10138556001
Filename P101016A_06

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	48.6
146		39.798	1.20	1340	---	48.6
147	147/149	37.282	1.24	6910	---	97.2
148		---	---	ND	---	48.6
149	147/149	37.282	1.24	(6910)	---	97.2
150		---	---	ND	---	48.6
151	135/151	36.343	1.24	(2470)	---	97.2
152		---	---	ND	---	48.6
153	153/168	40.418	1.19	7760	---	97.2
154		36.578	1.28	68.5	---	48.6
155		---	---	ND	---	48.6
156	156/157	45.936	1.22	2040	---	97.2
157	156/157	45.936	1.22	(2040)	---	97.2
158		42.096	1.26	1310	---	48.6
159		---	---	ND	---	48.6
160		---	---	ND	---	48.6
161		---	---	ND	---	48.6
162		44.326	1.19	61.2	---	48.6
163	129/138/163	41.693	1.25	(12600)	---	146
164		41.374	1.29	680	---	48.6
165		---	---	ND	---	48.6
166	128/166	42.968	1.24	(2160)	---	97.2
167		44.796	1.20	588	---	48.6
168	153/168	40.418	1.19	(7760)	---	97.2
169		---	---	ND	---	48.6
170		48.619	1.05	1550	---	48.6
171	171/173	44.997	1.05	516	---	97.2
172		46.674	1.06	282	---	48.6
173	171/173	44.997	1.05	(516)	---	97.2
174		43.907	1.02	1310	---	48.6
175		42.783	1.07	61.3	---	48.6
176		40.234	1.02	195	---	48.6
177		44.360	1.02	758	---	48.6
178		42.146	1.03	269	---	48.6
179		39.328	1.05	596	---	48.6
180	180/193	47.328	1.03	2990	---	97.2
181		---	---	ND	---	48.6
182		---	---	ND	---	48.6
183	183/185	43.689	1.02	1070	---	97.2
184		---	---	ND	---	48.6
185	183/185	43.689	1.02	(1070)	---	97.2
186		---	---	ND	---	48.6
187		43.051	1.05	1450	---	48.6
188		---	---	ND	---	48.6
189		51.844	1.06	88.7	---	48.6
190		49.156	1.03	282	---	48.6
191		47.714	1.11	61.2	---	48.6
192		---	---	ND	---	48.6

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Sample Analysis Results

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IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.328	1.03	(2990)	---	97.2
194		54.064	0.87	674	---	72.9
195		51.564	0.90	231	---	72.9
196		49.978	0.97	422	---	72.9
197	197/200	---	---	ND	---	146
198	198/199	49.307	0.88	936	---	146
199	198/199	49.307	0.88	(936)	---	146
200	197/200	---	---	ND	---	146
201		45.399	0.91	145	---	72.9
202		44.477	0.91	219	---	72.9
203		50.179	0.89	561	---	72.9
204		---	---	ND	---	72.9
205		---	---	ND	---	72.9
206		56.802	0.79	731	---	72.9
207		52.189	0.83	94.7	---	72.9
208		51.262	0.76	220	---	72.9
209		59.066	0.68	293	---	72.9

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Nn = Value obtained from additional analyses

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ND = Not Detected
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X = Outside QC Limits
RT = Retention Time
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REPORT OF LABORATORY ANALYSIS

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	PTI0586-01(FO105900)
Lab Sample ID	10138556001
Filename	P101016A_06

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	1470
Total Trichloro Biphenyls	5340
Total Tetrachloro Biphenyls	18400
Total Pentachloro Biphenyls	56700
Total Hexachloro Biphenyls	48300
Total Heptachloro Biphenyls	11500
Total Octachloro Biphenyls	3190
Total Nonachloro Biphenyls	1050
Decachloro Biphenyls	293
Total PCBs	146000

ND = Not Detected
Results reported on a dry weight basis

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Pace Analytical Services, Inc.
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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0586-02(FO105901)		
Lab Sample ID	10138556002-R		
Filename	P101019A_09		
Injected By	SMT		
Total Amount Extracted	11.3 g	Matrix	Solid
% Moisture	10.4	Dilution	10
Dry Weight Extracted	10.1 g	Collected	09/16/2010 09:45
ICAL ID	P101019A01	Received	09/21/2010 09:52
CCal Filename(s)	P101019A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/19/2010 14:58

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.078	1.41	2.0	1.30	84	I
13C-4-MoCB	3	11.398	1.21	2.0	1.22	85	I
13C-2,2'-DiCB	4	11.517	1.64	2.0	1.07	53	N2
13C-4,4'-DiCB	15	19.651	1.47	2.0	1.24	62	N2
13C-2,2',6-TrCB	19	16.215	1.47	2.0	1.11	67	I
13C-3,4,4'-TrCB	37	28.236	1.14	2.0	1.81	91	
13C-2,2',6,6'-TeCB	54	20.304	0.72	2.0	1.25	63	
13C-3,4,4',5-TeCB	81	35.362	0.84	2.0	2.63	131	
13C-3,3',4,4'-TeCB	77	35.915	0.84	2.0	2.95	147	
13C-2,2',4,6,6'-PeCB	104	26.827	1.72	2.0	0.833	42	
13C-2,3,3',4,4'-PeCB	105	39.420	1.54	2.0	2.42	121	
13C-2,3,4,4',5-PeCB	114	38.782	1.46	2.0	2.57	129	
13C-2,3',4,4',5-PeCB	118	38.263	1.53	2.0	2.31	116	
13C-2,3',4,4',5'-PeCB	123	37.944	1.59	2.0	2.36	118	
13C-3,3',4,4',5-PeCB	126	42.521	1.58	2.0	3.31	165	R
13C-2,2',4,4',6,6'-HxCB	155	32.931	1.35	2.0	0.724	36	
13C-HxCB (156/157)	156/157	45.506	1.28	4.0	3.59	90	
13C-2,3',4,4',5,5'-HxCB	167	44.332	1.29	2.0	1.78	89	
13C-3,3',4,4',5,5'-HxCB	169	48.776	1.32	2.0	1.92	96	
13C-2,2',3,4',5,6,6'-HpCB	188	38.732	1.05	2.0	1.02	51	
13C-2,3,3',4,4',5,5'-HpCB	189	51.314	1.04	2.0	1.63	82	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.047	0.85	2.0	1.38	69	
13C-2,3,3',4,4',5,5',6-OcCB	205	53.987	0.95	2.0	1.60	80	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.099	0.77	2.0	1.62	81	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.754	0.77	2.0	1.40	70	
13C--DeCB	209	58.297	0.61	2.0	1.35	68	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.708	1.10	2.0	1.66	83	
13C-2,3,3',5,5'-PeCB	111	35.965	1.49	2.0	1.85	92	
13C-2,2',3,3',5,5',6-HpCB	178	41.750	1.04	2.0	1.50	75	
Recovery Standards							
13C-2,5-DiCB	9	14.753	1.57	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.871	0.77	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.216	1.52	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.348	1.29	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.470	0.91	2.0	NA	NA	

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REPORT OF LABORATORY ANALYSIS

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 PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg		EMPC ng/Kg	EML ng/Kg
1		8.066	10.67 I	---		26.3	24.8
2		---	---	ND		---	24.8
3		11.458	2.83	53.9		---	24.8
4		11.540	1.46	55.8	N2	---	24.8
5		---	---	ND		---	24.8
6		15.003	1.50	59.0	N2	---	24.8
7		---	---	ND		---	24.8
8		15.590	1.57	394	N2	---	24.8
9		---	---	ND		---	24.8
10		---	---	ND		---	24.8
11		18.885	1.57	656	N2	---	149
12	12/13	19.268	1.93 I	---		69.6	49.5
13	12/13	19.268	1.93 I	---		(69.6)	49.5
14		---	---	ND		---	24.8
15		19.663	1.41	1040	N2	---	24.8
16		---	---	ND		---	24.8
17		19.343	1.20	77.6		---	24.8
18	18/30	18.840	1.02	211		---	49.5
19		16.215	0.96	35.0		---	24.8
20	20/28	23.725	1.01	1080		---	49.5
21	21/33	23.976	1.05	408		---	49.5
22		24.429	1.01	369		---	24.8
23		---	---	ND		---	24.8
24		---	---	ND		---	24.8
25		22.987	0.95	68.7		---	24.8
26	26/29	22.735	1.02	132		---	49.5
27		---	---	ND		---	24.8
28	20/28	23.725	1.01	(1080)		---	49.5
29	26/29	22.735	1.02	(132)		---	49.5
30	18/30	18.840	1.02	(211)		---	49.5
31		23.406	1.11	867		---	24.8
32		20.572	1.12	166		---	24.8
33	21/33	23.976	1.05	(408)		---	49.5
34		---	---	ND		---	24.8
35		27.850	0.95	94.5		---	24.8
36		---	---	ND		---	24.8
37		28.286	1.05	1430		---	24.8
38		---	---	ND		---	24.8
39		---	---	ND		---	24.8
40	40/41/71	28.034	0.82	928		---	149
41	40/41/71	28.034	0.82	(928)		---	149
42		27.498	0.77	280		---	49.5
43	43/73	---	---	ND		---	99.1
44	44/47/65	26.928	0.79	1340		---	149
45	45/51	23.741	0.72	314		---	99.1
46		24.144	0.81	108		---	49.5
47	44/47/65	26.928	0.79	(1340)		---	149
48		26.726	0.91 I	---		173	49.5

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REPORT OF LABORATORY ANALYSIS

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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 PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.441	0.82	739	---	99.1
50	50/53	23.037	0.78	277	---	99.1
51	45/51	23.741	0.72	(314)	---	99.1
52		25.871	0.80	3310	---	49.5
53	50/53	23.037	0.78	(277)	---	99.1
54		---	---	ND	---	49.5
55		---	---	ND	---	49.5
56		32.092	0.78	1060	---	49.5
57		---	---	ND	---	49.5
58		---	---	ND	---	49.5
59	59/62/75	27.313	0.86	201	---	149
60		32.310	0.77	396	---	49.5
61	61/70/74/76	31.086	0.79	3990	---	198
62	59/62/75	27.313	0.86	(201)	---	149
63		30.717	0.71	51.6	---	49.5
64		28.269	0.81	888	---	49.5
65	44/47/65	26.928	0.79	(1340)	---	149
66		31.422	0.79	1980	---	49.5
67		30.466	0.77	54.1	---	49.5
68		---	---	ND	---	49.5
69	49/69	26.441	0.82	(739)	---	99.1
70	61/70/74/76	31.086	0.79	(3990)	---	198
71	40/41/71	28.034	0.82	(928)	---	149
72		---	---	ND	---	49.5
73	43/73	---	---	ND	---	99.1
74	61/70/74/76	31.086	0.79	(3990)	---	198
75	59/62/75	27.313	0.86	(201)	---	149
76	61/70/74/76	31.086	0.79	(3990)	---	198
77		35.949	0.78	1480	---	49.5
78		---	---	ND	---	49.5
79		34.322	0.86	224	---	49.5
80		---	---	ND	---	49.5
81		35.379	0.67	60.7	---	49.5
82		---	---	ND	---	49.5
83		33.685	1.58	1440	---	49.5
84		31.220	1.57	3390	---	49.5
85	85/116/117	35.228	1.56	32700	---	149
86	86/87/97/108/119/125	34.406	1.60	10900	---	297
87	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
88	88/91	31.019	1.60	2270	---	99.1
89		31.723	1.59	161	---	49.5
90	90/101/113	33.232	1.58	15000	---	149
91	88/91	31.019	1.60	(2270)	---	99.1
92		32.595	1.61	2120	---	49.5
93	93/98/100/102	30.483	1.56	372	---	198
94		---	---	ND	---	49.5
95		30.114	1.57	12700	---	49.5
96		27.213	1.55	58.5	---	49.5

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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
98	93/98/100/102	30.483	1.56	(372)	---	198
99		33.819	1.60	6900	---	49.5
100	93/98/100/102	30.483	1.56	(372)	---	198
101	90/101/113	33.232	1.58	(15000)	---	149
102	93/98/100/102	30.483	1.56	(372)	---	198
103		29.426	1.67	60.6	---	49.5
104		---	---	ND	---	49.5
105		39.436	1.56	8480	---	49.5
106		---	---	ND	---	49.5
107	107/124	37.592	1.57	1220	---	99.1
108	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
109		37.843	1.53	1710	---	49.5
110	110/115	35.529	1.60	1760	---	99.1
111		36.133	1.70	246	---	49.5
112		---	---	ND	---	49.5
113	90/101/113	33.232	1.58	(15000)	---	149
114		38.799	1.43	414	---	49.5
115	110/115	35.529	1.60	(1760)	---	99.1
116	85/116/117	35.228	1.56	(32700)	---	149
117	85/116/117	35.228	1.56	(32700)	---	149
118		38.279	1.56	22100	---	49.5
119	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
120		---	---	ND	---	49.5
121		---	---	ND	---	49.5
122		38.615	1.41	406	---	49.5
123		37.944	1.42	561	---	49.5
124	107/124	37.592	1.57	(1220)	---	99.1
125	86/87/97/108/119/125	34.406	1.60	(10900)	---	297
126		42.521	1.47	249	---	49.5
127		40.945	1.54	119	---	49.5
128	128/166	42.605	1.25	8850	---	99.1
129	129/138/163	41.365	1.26	50100	---	149
130		40.727	1.25	3130	---	49.5
131		37.877	1.33	552	---	49.5
132		38.330	1.26	13600	---	49.5
133		38.883	1.28	569	---	49.5
134	134/143	37.240	1.25	2030	---	99.1
135	135/151	36.133	1.27	5740	---	99.1
136		33.668	1.24	2700	---	49.5
137		40.929	1.25	2310	---	49.5
138	129/138/163	41.365	1.26	(50100)	---	149
139	139/140	37.692	1.20	687	---	99.1
140	139/140	37.692	1.20	(687)	---	99.1
141		40.308	1.28	8160	---	49.5
142		---	---	ND	---	49.5
143	134/143	37.240	1.25	(2030)	---	99.1
144		---	---	ND	---	49.5

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.5
146		39.503	1.28	4200	---	49.5
147	147/149	37.089	1.25	24800	---	99.1
148		---	---	ND	---	49.5
149	147/149	37.089	1.25	(24800)	---	99.1
150		---	---	ND	---	49.5
151	135/151	36.133	1.27	(5740)	---	99.1
152		---	---	ND	---	49.5
153	153/168	40.141	1.26	38800	---	99.1
154		36.418	1.29	267	---	49.5
155		---	---	ND	---	49.5
156	156/157	45.506	1.27	5950	---	99.1
157	156/157	45.506	1.27	(5950)	---	99.1
158		41.767	1.26	5260	---	49.5
159		43.611	1.22	105	---	49.5
160		---	---	ND	---	49.5
161		---	---	ND	---	49.5
162		43.880	1.16	209	---	49.5
163	129/138/163	41.365	1.26	(50100)	---	149
164		41.063	1.30	3400	---	49.5
165		39.084	1.20	114	---	49.5
166	128/166	42.605	1.25	(8850)	---	99.1
167		44.383	1.26	2510	---	49.5
168	153/168	40.141	1.26	(38800)	---	99.1
169		48.809	1.39	84.1	---	49.5
170		48.138	1.05	15400	---	49.5
171	171/173	44.601	1.03	4800	---	99.1
172		46.227	1.04	3330	---	49.5
173	171/173	44.601	1.03	(4800)	---	99.1
174		43.528	1.04	18600	---	49.5
175		42.421	1.06	827	---	49.5
176		39.956	1.07	1810	---	49.5
177		43.980	1.06	9460	---	49.5
178		41.800	1.07	3710	---	49.5
179		39.067	1.06	6290	---	49.5
180	180/193	46.881	1.04	45600	---	99.1
181		44.366	0.99	120	---	49.5
182		---	---	ND	---	49.5
183	183/185	43.310	1.04	14500	---	99.1
184		---	---	ND	---	49.5
185	183/185	43.310	1.04	(14500)	---	99.1
186		---	---	ND	---	49.5
187		42.689	1.03	21000	---	49.5
188		38.732	1.11	110	---	49.5
189		51.336	1.04	606	---	49.5
190		48.675	1.05	3120	---	49.5
191		47.233	1.12	708	---	49.5
192		---	---	ND	---	49.5

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-02(FO105901)
Lab Sample ID 10138556002-R
Filename P101019A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	46.881	1.04	(45600)	---	99.1
194		53.491	0.90	18300	---	74.3
195		51.034	0.91	5020	---	74.3
196		49.497	0.92	9630	---	74.3
197	197/200	46.009	0.90	2740	---	149
198	198/199	48.843	0.88	24500	---	149
199	198/199	48.843	0.88	(24500)	---	149
200	197/200	46.009	0.90	(2740)	---	149
201		45.003	0.92	3060	---	74.3
202		44.081	0.89	5660	---	74.3
203		49.698	0.92	15900	---	74.3
204		---	---	ND	---	74.3
205		54.030	0.92	767	---	74.3
206		56.120	0.78	24300	---	74.3
207		51.724	0.79	2760	---	74.3
208		50.776	0.77	6990	---	74.3
209		58.319	0.68	8100	---	74.3

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REPORT OF LABORATORY ANALYSIS

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	PTI0586-02(FO105901)
Lab Sample ID	10138556002-R
Filename	P101019A_09

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	53.9
Total Dichloro Biphenyls	2200
Total Trichloro Biphenyls	4940
Total Tetrachloro Biphenyls	17700
Total Pentachloro Biphenyls	125000
Total Hexachloro Biphenyls	184000
Total Heptachloro Biphenyls	150000
Total Octachloro Biphenyls	85600
Total Nonachloro Biphenyls	34000
Decachloro Biphenyls	8100
Total PCBs	612000

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	PTI0586-03(FO105902)		
Lab Sample ID	10138556003		
Filename	P101016A_07		
Injected By	BAL		
Total Amount Extracted	15.0 g	Matrix	Solid
% Moisture	32.5	Dilution	5
Dry Weight Extracted	10.1 g	Collected	09/16/2010 10:11
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 10:51

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.258	3.21	2.0	0.784	39
13C-4-MoCB	3	11.577	2.66	2.0	1.04	52
13C-2,2'-DiCB	4	11.901	1.61	2.0	0.859	43
13C-4,4'-DiCB	15	19.978	1.61	2.0	1.13	57
13C-2,2',6-TrCB	19	16.287	1.08	2.0	1.02	51
13C-3,4,4'-TrCB	37	28.260	1.04	2.0	1.38	69
13C-2,2',6,6'-TeCB	54	20.260	0.78	2.0	1.28	64
13C-3,4,4',5-TeCB	81	35.523	0.80	2.0	1.07	54
13C-3,3',4,4'-TeCB	77	36.127	0.80	2.0	1.06	53
13C-2,2',4,6,6'-PeCB	104	26.801	1.62	2.0	1.54	77
13C-2,3,3',4,4'-PeCB	105	39.716	1.65	2.0	1.000	50
13C-2,3,4,4',5-PeCB	114	39.062	1.65	2.0	1.03	52
13C-2,3',4,4',5-PeCB	118	38.525	1.52	2.0	1.01	50
13C-2,3',4,4',5'-PeCB	123	38.189	1.46	2.0	1.01	50
13C-3,3',4,4',5-PeCB	126	42.936	1.57	2.0	0.911	46
13C-2,2',4,4',6,6'-HxCB	155	33.024	1.32	2.0	1.93	96
13C-HxCB (156/157)	156/157	45.955	1.26	4.0	2.34	58
13C-2,3',4,4',5,5'-HxCB	167	44.781	1.30	2.0	1.21	60
13C-3,3',4,4',5,5'-HxCB	169	49.293	1.24	2.0	1.08	54
13C-2,2',3,4',5,6,6'-HpCB	188	38.978	1.04	2.0	2.13	107
13C-2,3,3',4,4',5,5'-HpCB	189	51.829	1.02	2.0	1.40	70
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.445	0.94	2.0	1.77	89
13C-2,3,3',4,4',5,5',6-OcCB	205	54.589	0.95	2.0	1.36	68
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.788	0.78	2.0	1.53	77
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.226	0.83	2.0	1.36	68
13C--DeCB	209	59.051	0.67	2.0	1.20	60
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.665	1.10	2.0	1.58	79
13C-2,3,3',5,5'-PeCB	111	36.160	1.54	2.0	1.41	71
13C-2,2',3,3',5,5',6-HpCB	178	42.131	1.09	2.0	1.54	77
Recovery Standards						
13C-2,5-DiCB	9	14.777	1.58	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.778	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.292	1.62	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.695	1.30	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.007	0.87	2.0	NA	NA

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REPORT OF LABORATORY ANALYSIS

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.7
2		---	---	ND	---	24.7
3		---	---	ND	---	24.7
4		11.949	1.57	140	---	24.7
5		---	---	ND	---	24.7
6		15.364	1.43	56.4	---	24.7
7		---	---	ND	---	24.7
8		15.939	1.47	229	---	24.7
9		---	---	ND	---	24.7
10		---	---	ND	---	24.7
11		19.211	1.51	476	---	148
12	12/13	---	---	ND	---	49.4
13	12/13	---	---	ND	---	49.4
14		---	---	ND	---	24.7
15		20.001	1.49	447	---	24.7
16		19.870	1.00	216	---	24.7
17		19.318	1.05	212	---	24.7
18	18/30	18.803	1.06	460	---	49.4
19		16.311	1.09	134	---	24.7
20	20/28	23.682	1.03	989	---	49.4
21	21/33	23.950	1.06	435	---	49.4
22		24.403	0.98	337	---	24.7
23		---	---	ND	---	24.7
24		---	---	ND	---	24.7
25		22.961	1.06	66.3	---	24.7
26	26/29	22.659	0.95	146	---	49.4
27		19.594	1.05	77.4	---	24.7
28	20/28	23.682	1.03	(989)	---	49.4
29	26/29	22.659	0.95	(146)	---	49.4
30	18/30	18.803	1.06	(460)	---	49.4
31		23.346	1.03	750	---	24.7
32		20.562	0.99	269	---	24.7
33	21/33	23.950	1.06	(435)	---	49.4
34		---	---	ND	---	24.7
35		27.841	1.06	39.9	---	24.7
36		---	---	ND	---	24.7
37		28.277	0.99	530	---	24.7
38		---	---	ND	---	24.7
39		---	---	ND	---	24.7
40	40/41/71	28.042	0.77	1150	---	148
41	40/41/71	28.042	0.77	(1150)	---	148
42		27.489	0.80	477	---	49.4
43	43/73	---	---	ND	---	98.8
44	44/47/65	26.902	0.78	2160	---	148
45	45/51	23.749	0.81	440	---	98.8
46		24.101	0.83	159	---	49.4
47	44/47/65	26.902	0.78	(2160)	---	148
48		26.667	0.80	231	---	49.4

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.365	0.77	1070	---	98.8
50	50/53	22.961	0.80	345	---	98.8
51	45/51	23.749	0.81	(440)	---	98.8
52		25.812	0.79	4790	---	49.4
53	50/53	22.961	0.80	(345)	---	98.8
54		---	---	ND	---	49.4
55		---	---	ND	---	49.4
56		32.168	0.78	874	---	49.4
57		---	---	ND	---	49.4
58		---	---	ND	---	49.4
59	59/62/75	27.271	0.76	227	---	148
60		32.420	0.73	341	---	49.4
61	61/70/74/76	31.128	0.73	3460	---	198
62	59/62/75	27.271	0.76	(227)	---	148
63		30.776	0.75	65.7	---	49.4
64		28.311	0.78	1180	---	49.4
65	44/47/65	26.902	0.78	(2160)	---	148
66		31.481	0.73	1580	---	49.4
67		30.474	0.75	50.8	---	49.4
68		---	---	ND	---	49.4
69	49/69	26.365	0.77	(1070)	---	98.8
70	61/70/74/76	31.128	0.73	(3460)	---	198
71	40/41/71	28.042	0.77	(1150)	---	148
72		---	---	ND	---	49.4
73	43/73	---	---	ND	---	98.8
74	61/70/74/76	31.128	0.73	(3460)	---	198
75	59/62/75	27.271	0.76	(227)	---	148
76	61/70/74/76	31.128	0.73	(3460)	---	198
77		36.160	0.75	373	---	49.4
78		---	---	ND	---	49.4
79		34.449	0.65	57.7	---	49.4
80		---	---	ND	---	49.4
81		---	---	ND	---	49.4
82		35.707	1.57	1550	---	49.4
83		33.778	1.77	471	---	49.4
84		31.296	1.57	3240	---	49.4
85	85/116/117	35.221	1.55	1560	---	148
86	86/87/97/108/119/125	34.550	1.57	7810	---	296
87	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
88	88/91	31.078	1.58	1400	---	98.8
89		31.799	1.50	108	---	49.4
90	90/101/113	33.326	1.62	10600	---	148
91	88/91	31.078	1.58	(1400)	---	98.8
92		32.705	1.61	1970	---	49.4
93	93/98/100/102	30.525	1.61	296	---	198
94		---	---	ND	---	49.4
95		30.139	1.57	9080	---	49.4
96		27.221	1.63	60.3	---	49.4

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
98	93/98/100/102	30.525	1.61	(296)	---	198
99		33.946	1.57	4270	---	49.4
100	93/98/100/102	30.525	1.61	(296)	---	198
101	90/101/113	33.326	1.62	(10600)	---	148
102	93/98/100/102	30.525	1.61	(296)	---	198
103		---	---	ND	---	49.4
104		---	---	ND	---	49.4
105		39.749	1.44	4370	---	49.4
106		---	---	ND	---	49.4
107	107/124	37.854	1.53	466	---	98.8
108	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
109		38.106	1.53	705	---	49.4
110	110/115	35.389	1.57	14300	---	98.8
111		---	---	ND	---	49.4
112		---	---	ND	---	49.4
113	90/101/113	33.326	1.62	(10600)	---	148
114		39.078	1.50	216	---	49.4
115	110/115	35.389	1.57	(14300)	---	98.8
116	85/116/117	35.221	1.55	(1560)	---	148
117	85/116/117	35.221	1.55	(1560)	---	148
118		38.542	1.57	10100	---	49.4
119	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
120		---	---	ND	---	49.4
121		---	---	ND	---	49.4
122		38.877	1.53	140	---	49.4
123		38.206	1.65	200	---	49.4
124	107/124	37.854	1.53	(466)	---	98.8
125	86/87/97/108/119/125	34.550	1.57	(7810)	---	296
126		42.936	1.79 I	---	82.1	49.4
127		---	---	ND	---	49.4
128	128/166	42.986	1.22	2610	---	98.8
129	129/138/163	41.712	1.21	14300	---	148
130		41.057	1.16	1020	---	49.4
131		38.139	1.16	260	---	49.4
132		38.609	1.26	5330	---	49.4
133		39.145	1.14	173	---	49.4
134	134/143	37.519	1.22	735	---	98.8
135	135/151	36.361	1.25	3160	---	98.8
136		33.795	1.27	1530	---	49.4
137		41.275	1.22	955	---	49.4
138	129/138/163	41.712	1.21	(14300)	---	148
139	139/140	37.921	1.26	279	---	98.8
140	139/140	37.921	1.26	(279)	---	98.8
141		40.638	1.21	2230	---	49.4
142		---	---	ND	---	49.4
143	134/143	37.519	1.22	(735)	---	98.8
144		36.948	1.25	556	---	49.4

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.4
146		39.816	1.21	1660	---	49.4
147	147/149	37.317	1.20	8740	---	98.8
148		---	---	ND	---	49.4
149	147/149	37.317	1.20	(8740)	---	98.8
150		---	---	ND	---	49.4
151	135/151	36.361	1.25	(3160)	---	98.8
152		---	---	ND	---	49.4
153	153/168	40.437	1.22	8880	---	98.8
154		36.630	1.22	83.8	---	49.4
155		---	---	ND	---	49.4
156	156/157	45.938	1.24	2180	---	98.8
157	156/157	45.938	1.24	(2180)	---	98.8
158		42.114	1.19	1510	---	49.4
159		---	---	ND	---	49.4
160		---	---	ND	---	49.4
161		---	---	ND	---	49.4
162		---	---	ND	---	49.4
163	129/138/163	41.712	1.21	(14300)	---	148
164		41.376	1.20	817	---	49.4
165		---	---	ND	---	49.4
166	128/166	42.986	1.22	(2610)	---	98.8
167		44.781	1.27	658	---	49.4
168	153/168	40.437	1.22	(8880)	---	98.8
169		---	---	ND	---	49.4
170		48.622	1.04	1710	---	49.4
171	171/173	45.016	1.06	561	---	98.8
172		46.676	1.05	291	---	49.4
173	171/173	45.016	1.06	(561)	---	98.8
174		43.925	1.09	1550	---	49.4
175		42.785	1.10	84.6	---	49.4
176		40.252	1.07	234	---	49.4
177		44.362	1.05	881	---	49.4
178		42.148	1.11	328	---	49.4
179		39.364	1.02	717	---	49.4
180	180/193	47.347	1.05	3250	---	98.8
181		---	---	ND	---	49.4
182		---	---	ND	---	49.4
183	183/185	43.691	1.01	1220	---	98.8
184		---	---	ND	---	49.4
185	183/185	43.691	1.01	(1220)	---	98.8
186		---	---	ND	---	49.4
187		43.070	1.05	1670	---	49.4
188		---	---	ND	---	49.4
189		51.851	1.11	89.5	---	49.4
190		49.158	1.06	309	---	49.4
191		47.716	1.16	68.7	---	49.4
192		---	---	ND	---	49.4

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-03(FO105902)
Lab Sample ID 10138556003
Filename P101016A_07

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.347	1.05	(3250)	---	98.8
194		54.071	0.91	719	---	74.1
195		51.528	0.94	242	---	74.1
196		49.997	0.93	406	---	74.1
197	197/200	---	---	ND	---	148
198	198/199	49.309	0.91	985	---	148
199	198/199	49.309	0.91	(985)	---	148
200	197/200	---	---	ND	---	148
201		45.401	0.89	147	---	74.1
202		44.462	0.92	217	---	74.1
203		50.181	0.91	581	---	74.1
204		---	---	ND	---	74.1
205		---	---	ND	---	74.1
206		56.788	0.81	749	---	74.1
207		52.196	0.79	85.8	---	74.1
208		51.269	0.81	223	---	74.1
209		59.094	0.70	364	---	74.1

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REPORT OF LABORATORY ANALYSIS

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	PTI0586-03(FO105902)
Lab Sample ID	10138556003
Filename	P101016A_07

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	1350
Total Trichloro Biphenyls	4660
Total Tetrachloro Biphenyls	19000
Total Pentachloro Biphenyls	72900
Total Hexachloro Biphenyls	57700
Total Heptachloro Biphenyls	13000
Total Octachloro Biphenyls	3300
Total Nonachloro Biphenyls	1060
Decachloro Biphenyls	364
Total PCBs	173000

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	PTI0586-04(FO105903)		
Lab Sample ID	10138556004		
Filename	P101016A_08		
Injected By	BAL		
Total Amount Extracted	18.4 g	Matrix	Solid
% Moisture	44.7	Dilution	5
Dry Weight Extracted	10.1 g	Collected	09/16/2010 10:43
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 11:56

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.282	2.82	2.0	0.651	33
13C-4-MoCB	3	11.601	3.43	2.0	0.888	44
13C-2,2'-DiCB	4	11.937	1.58	2.0	0.783	39
13C-4,4'-DiCB	15	20.001	1.61	2.0	0.918	46
13C-2,2',6-TrCB	19	16.299	1.16	2.0	0.938	47
13C-3,4,4'-TrCB	37	28.277	1.14	2.0	1.25	63
13C-2,2',6,6'-TeCB	54	20.327	0.79	2.0	1.09	55
13C-3,4,4',5-TeCB	81	35.539	0.81	2.0	0.982	49
13C-3,3',4,4'-TeCB	77	36.159	0.80	2.0	0.990	50
13C-2,2',4,6,6'-PeCB	104	26.834	1.60	2.0	1.32	66
13C-2,3,3',4,4'-PeCB	105	39.732	1.62	2.0	0.952	48
13C-2,3,4,4',5-PeCB	114	39.077	1.64	2.0	0.981	49
13C-2,3',4,4',5-PeCB	118	38.541	1.69	2.0	0.964	48
13C-2,3',4,4',5'-PeCB	123	38.189	1.66	2.0	0.962	48
13C-3,3',4,4',5-PeCB	126	42.935	1.63	2.0	0.876	44
13C-2,2',4,4',6,6'-HxCB	155	33.040	1.28	2.0	1.77	88
13C-HxCB (156/157)	156/157	45.954	1.25	4.0	2.22	56
13C-2,3',4,4',5,5'-HxCB	167	44.796	1.26	2.0	1.15	57
13C-3,3',4,4',5,5'-HxCB	169	49.308	1.19	2.0	0.978	49
13C-2,2',3,4',5,6,6'-HpCB	188	38.994	1.07	2.0	2.11	105
13C-2,3,3',4,4',5,5'-HpCB	189	51.844	1.06	2.0	1.31	66
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.461	0.89	2.0	1.72	86
13C-2,3,3',4,4',5,5',6-OcCB	205	54.647	0.90	2.0	1.30	65
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.802	0.76	2.0	1.42	71
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.241	0.81	2.0	1.22	61
13C--DeCB	209	59.087	0.73	2.0	1.11	56
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.681	1.08	2.0	1.34	67
13C-2,3,3',5,5'-PeCB	111	36.193	1.64	2.0	1.19	60
13C-2,2',3,3',5,5',6-HpCB	178	42.130	1.05	2.0	1.36	68
Recovery Standards						
13C-2,5-DiCB	9	14.801	1.61	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.811	0.82	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.325	1.58	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.694	1.23	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.065	0.97	2.0	NA	NA

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REPORT OF LABORATORY ANALYSIS

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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 PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		8.282	3.19	30.7	---	24.6
2		---	---	ND	---	24.6
3		11.625	3.28	37.3	---	24.6
4		11.961	1.47	59.2	---	24.6
5		---	---	ND	---	24.6
6		15.388	1.58	37.1	---	24.6
7		---	---	ND	---	24.6
8		15.963	1.45	148	---	24.6
9		---	---	ND	---	24.6
10		---	---	ND	---	24.6
11		19.258	1.54	546	---	148
12	12/13	---	---	ND	---	49.3
13	12/13	---	---	ND	---	49.3
14		---	---	ND	---	24.6
15		20.049	1.53	335	---	24.6
16		19.905	1.04	122	---	24.6
17		19.366	1.04	126	---	24.6
18	18/30	18.839	1.04	257	---	49.3
19		16.335	1.11	61.9	---	24.6
20	20/28	23.715	1.03	733	---	49.3
21	21/33	23.983	1.00	299	---	49.3
22		24.436	0.97	237	---	24.6
23		---	---	ND	---	24.6
24		---	---	ND	---	24.6
25		22.960	1.07	49.8	---	24.6
26	26/29	22.709	1.05	111	---	49.3
27		19.618	1.08	43.4	---	24.6
28	20/28	23.715	1.03	(733)	---	49.3
29	26/29	22.709	1.05	(111)	---	49.3
30	18/30	18.839	1.04	(257)	---	49.3
31		23.363	1.00	525	---	24.6
32		20.595	0.95	142	---	24.6
33	21/33	23.983	1.00	(299)	---	49.3
34		---	---	ND	---	24.6
35		27.874	1.16	34.0	---	24.6
36		---	---	ND	---	24.6
37		28.310	0.96	436	---	24.6
38		---	---	ND	---	24.6
39		---	---	ND	---	24.6
40	40/41/71	28.075	0.77	784	---	148
41	40/41/71	28.075	0.77	(784)	---	148
42		27.539	0.81	316	---	49.3
43	43/73	---	---	ND	---	98.5
44	44/47/65	26.935	0.79	1330	---	148
45	45/51	23.782	0.82	284	---	98.5
46		24.117	0.82	111	---	49.3
47	44/47/65	26.935	0.79	(1330)	---	148
48		26.700	0.73	179	---	49.3

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.381	0.79	673	---	98.5
50	50/53	22.977	0.78	211	---	98.5
51	45/51	23.782	0.82	(284)	---	98.5
52		25.845	0.79	2360	---	49.3
53	50/53	22.977	0.78	(211)	---	98.5
54		---	---	ND	---	49.3
55		---	---	ND	---	49.3
56		32.218	0.74	609	---	49.3
57		---	---	ND	---	49.3
58		---	---	ND	---	49.3
59	59/62/75	---	---	ND	---	148
60		32.453	0.74	278	---	49.3
61	61/70/74/76	31.161	0.73	2220	---	197
62	59/62/75	---	---	ND	---	148
63		---	---	ND	---	49.3
64		28.327	0.79	719	---	49.3
65	44/47/65	26.935	0.79	(1330)	---	148
66		31.497	0.73	1150	---	49.3
67		---	---	ND	---	49.3
68		---	---	ND	---	49.3
69	49/69	26.381	0.79	(673)	---	98.5
70	61/70/74/76	31.161	0.73	(2220)	---	197
71	40/41/71	28.075	0.77	(784)	---	148
72		---	---	ND	---	49.3
73	43/73	---	---	ND	---	98.5
74	61/70/74/76	31.161	0.73	(2220)	---	197
75	59/62/75	---	---	ND	---	148
76	61/70/74/76	31.161	0.73	(2220)	---	197
77		36.176	0.77	225	---	49.3
78		---	---	ND	---	49.3
79		---	---	ND	---	49.3
80		---	---	ND	---	49.3
81		---	---	ND	---	49.3
82		35.723	1.55	629	---	49.3
83		33.828	1.43	377	---	49.3
84		31.329	1.59	1430	---	49.3
85	85/116/117	35.220	1.60	663	---	148
86	86/87/97/108/119/125	34.465	1.58	1480	---	296
87	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
88	88/91	31.111	1.59	650	---	98.5
89		31.832	1.65	55.5	---	49.3
90	90/101/113	33.358	1.57	4620	---	148
91	88/91	31.111	1.59	(650)	---	98.5
92		32.738	1.56	840	---	49.3
93	93/98/100/102	---	---	ND	---	197
94		---	---	ND	---	49.3
95		30.189	1.59	4020	---	49.3
96		---	---	ND	---	49.3

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
98	93/98/100/102	---	---	ND	---	197
99		33.962	1.56	1750	---	49.3
100	93/98/100/102	---	---	ND	---	197
101	90/101/113	33.358	1.57	(4620)	---	148
102	93/98/100/102	---	---	ND	---	197
103		---	---	ND	---	49.3
104		---	---	ND	---	49.3
105		39.765	1.45	1860	---	49.3
106		---	---	ND	---	49.3
107	107/124	37.853	1.48	203	---	98.5
108	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
109		38.088	1.46	279	---	49.3
110	110/115	35.421	1.57	5940	---	98.5
111		---	---	ND	---	49.3
112		---	---	ND	---	49.3
113	90/101/113	33.358	1.57	(4620)	---	148
114		39.094	1.65	102	---	49.3
115	110/115	35.421	1.57	(5940)	---	98.5
116	85/116/117	35.220	1.60	(663)	---	148
117	85/116/117	35.220	1.60	(663)	---	148
118		38.558	1.47	4310	---	49.3
119	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
120		---	---	ND	---	49.3
121		---	---	ND	---	49.3
122		38.876	1.43	63.5	---	49.3
123		38.205	1.43	107	---	49.3
124	107/124	37.853	1.48	(203)	---	98.5
125	86/87/97/108/119/125	34.465	1.58	(1480)	---	296
126		---	---	ND	---	49.3
127		---	---	ND	---	49.3
128	128/166	43.002	1.25	1100	---	98.5
129	129/138/163	41.727	1.25	6740	---	148
130		41.073	1.23	452	---	49.3
131		38.138	1.18	114	---	49.3
132		38.625	1.25	2510	---	49.3
133		39.161	1.27	91.1	---	49.3
134	134/143	37.518	1.21	318	---	98.5
135	135/151	36.360	1.25	2390	---	98.5
136		33.828	1.24	888	---	49.3
137		41.274	1.26	423	---	49.3
138	129/138/163	41.727	1.25	(6740)	---	148
139	139/140	37.954	1.33	130	---	98.5
140	139/140	37.954	1.33	(130)	---	98.5
141		40.637	1.25	1210	---	49.3
142		---	---	ND	---	49.3
143	134/143	37.518	1.21	(318)	---	98.5
144		36.964	1.32	365	---	49.3

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.3
146		39.832	1.23	871	---	49.3
147	147/149	37.333	1.24	5460	---	98.5
148		---	---	ND	---	49.3
149	147/149	37.333	1.24	(5460)	---	98.5
150		---	---	ND	---	49.3
151	135/151	36.360	1.25	(2390)	---	98.5
152		---	---	ND	---	49.3
153	153/168	40.470	1.24	5420	---	98.5
154		---	---	ND	---	49.3
155		---	---	ND	---	49.3
156	156/157	45.954	1.22	891	---	98.5
157	156/157	45.954	1.22	(891)	---	98.5
158		42.130	1.26	693	---	49.3
159		---	---	ND	---	49.3
160		---	---	ND	---	49.3
161		---	---	ND	---	49.3
162		---	---	ND	---	49.3
163	129/138/163	41.727	1.25	(6740)	---	148
164		41.392	1.22	366	---	49.3
165		---	---	ND	---	49.3
166	128/166	43.002	1.25	(1100)	---	98.5
167		44.830	1.20	288	---	49.3
168	153/168	40.470	1.24	(5420)	---	98.5
169		---	---	ND	---	49.3
170		48.620	1.06	923	---	49.3
171	171/173	45.014	1.01	390	---	98.5
172		46.691	1.03	199	---	49.3
173	171/173	45.014	1.01	(390)	---	98.5
174		43.924	1.07	1340	---	49.3
175		42.801	0.99	71.9	---	49.3
176		40.268	1.04	328	---	49.3
177		44.377	1.03	701	---	49.3
178		42.163	1.02	404	---	49.3
179		39.363	1.04	1500	---	49.3
180	180/193	47.345	1.05	2340	---	98.5
181		---	---	ND	---	49.3
182		---	---	ND	---	49.3
183	183/185	43.706	0.98	1370	---	98.5
184		---	---	ND	---	49.3
185	183/185	43.706	0.98	(1370)	---	98.5
186		---	---	ND	---	49.3
187		43.086	1.05	2290	---	49.3
188		---	---	ND	---	49.3
189		---	---	ND	---	49.3
190		49.190	1.06	190	---	49.3
191		---	---	ND	---	49.3
192		---	---	ND	---	49.3

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-04(FO105903)
Lab Sample ID 10138556004
Filename P101016A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.345	1.05	(2340)	---	98.5
194		54.065	0.95	504	---	73.9
195		51.564	0.90	187	---	73.9
196		49.995	0.98	358	---	73.9
197	197/200	46.423	0.90	214	---	148
198	198/199	49.324	0.91	908	---	148
199	198/199	49.324	0.91	(908)	---	148
200	197/200	46.423	0.90	(214)	---	148
201		45.417	0.89	269	---	73.9
202		44.495	0.91	497	---	73.9
203		50.213	0.90	518	---	73.9
204		---	---	ND	---	73.9
205		---	---	ND	---	73.9
206		56.845	0.81	518	---	73.9
207		52.211	0.82	78.0	---	73.9
208		51.262	0.77	205	---	73.9
209		59.130	0.70	285	---	73.9

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTI0586-04(FO105903)
Lab Sample ID	10138556004
Filename	P101016A_08

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	68.0
Total Dichloro Biphenyls	1130
Total Trichloro Biphenyls	3180
Total Tetrachloro Biphenyls	11400
Total Pentachloro Biphenyls	29400
Total Hexachloro Biphenyls	30700
Total Heptachloro Biphenyls	12000
Total Octachloro Biphenyls	3460
Total Nonachloro Biphenyls	801
Decachloro Biphenyls	285
Total PCBs	92500

ND = Not Detected
Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

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 - Test America

Client's Sample ID	PTI0586-05(FO105904)		
Lab Sample ID	10138556005		
Filename	P101016A_09		
Injected By	BAL		
Total Amount Extracted	13.3 g	Matrix	Solid
% Moisture	23.2	Dilution	5
Dry Weight Extracted	10.2 g	Collected	09/16/2010 11:31
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 13:01

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.282	3.31	2.0	0.536	27
13C-4-MoCB	3	11.613	2.94	2.0	0.901	45
13C-2,2'-DiCB	4	11.937	1.65	2.0	0.779	39
13C-4,4'-DiCB	15	20.013	1.63	2.0	1.08	54
13C-2,2',6-TrCB	19	16.310	1.12	2.0	0.982	49
13C-3,4,4'-TrCB	37	28.294	1.14	2.0	1.40	70
13C-2,2',6,6'-TeCB	54	20.310	0.79	2.0	1.28	64
13C-3,4,4',5-TeCB	81	35.573	0.78	2.0	1.12	56
13C-3,3',4,4'-TeCB	77	36.160	0.83	2.0	1.10	55
13C-2,2',4,6,6'-PeCB	104	26.835	1.69	2.0	1.43	71
13C-2,3,3',4,4'-PeCB	105	39.732	1.52	2.0	1.07	54
13C-2,3,4,4',5-PeCB	114	39.078	1.62	2.0	1.04	52
13C-2,3',4,4',5-PeCB	118	38.525	1.64	2.0	1.04	52
13C-2,3',4,4',5'-PeCB	123	38.206	1.72	2.0	1.06	53
13C-3,3',4,4',5-PeCB	126	42.936	1.52	2.0	0.923	46
13C-2,2',4,4',6,6'-HxCB	155	33.057	1.28	2.0	2.03	101
13C-HxCB (156/157)	156/157	45.971	1.27	4.0	2.35	59
13C-2,3',4,4',5,5'-HxCB	167	44.797	1.28	2.0	1.23	61
13C-3,3',4,4',5,5'-HxCB	169	49.309	1.24	2.0	1.05	53
13C-2,2',3,4',5,6,6'-HpCB	188	38.994	1.07	2.0	2.52	126
13C-2,3,3',4,4',5,5'-HpCB	189	51.851	1.09	2.0	1.50	75
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.462	0.90	2.0	2.02	101
13C-2,3,3',4,4',5,5',6-OcCB	205	54.610	0.90	2.0	1.38	69
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.766	0.73	2.0	1.53	76
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.247	0.75	2.0	1.41	71
13C--DeCB	209	59.116	0.72	2.0	1.13	57
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.682	1.11	2.0	1.47	73
13C-2,3,3',5,5'-PeCB	111	36.193	1.56	2.0	1.29	65
13C-2,2',3,3',5,5',6-HpCB	178	42.147	1.13	2.0	1.48	74
Recovery Standards						
13C-2,5-DiCB	9	14.813	1.62	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.811	0.83	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	33.325	1.60	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.728	1.26	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.093	0.91	2.0	NA	NA

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REPORT OF LABORATORY ANALYSIS

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		8.318	2.88	28.9	---	24.5
2		11.362	2.93	44.0	---	24.5
3		11.625	2.99	36.3	---	24.5
4		11.949	1.51	109	---	24.5
5		---	---	ND	---	24.5
6		15.400	1.43	46.9	---	24.5
7		---	---	ND	---	24.5
8		15.975	1.48	174	---	24.5
9		---	---	ND	---	24.5
10		---	---	ND	---	24.5
11		19.246	1.56	1330	---	147
12	12/13	19.618	1.57	63.2	---	49.0
13	12/13	19.618	1.57	(63.2)	---	49.0
14		---	---	ND	---	24.5
15		20.025	1.52	383	---	24.5
16		19.905	1.07	212	---	24.5
17		19.342	1.11	199	---	24.5
18	18/30	18.827	1.05	438	---	49.0
19		16.334	1.08	92.4	---	24.5
20	20/28	23.715	0.99	919	---	49.0
21	21/33	23.967	1.00	435	---	49.0
22		24.436	1.00	347	---	24.5
23		---	---	ND	---	24.5
24		---	---	ND	---	24.5
25		22.977	1.05	63.3	---	24.5
26	26/29	22.692	1.03	146	---	49.0
27		19.630	0.99	59.0	---	24.5
28	20/28	23.715	0.99	(919)	---	49.0
29	26/29	22.692	1.03	(146)	---	49.0
30	18/30	18.827	1.05	(438)	---	49.0
31		23.363	1.00	752	---	24.5
32		20.579	1.02	194	---	24.5
33	21/33	23.967	1.00	(435)	---	49.0
34		---	---	ND	---	24.5
35		27.841	0.97	118	---	24.5
36		---	---	ND	---	24.5
37		28.310	1.01	582	---	24.5
38		---	---	ND	---	24.5
39		---	---	ND	---	24.5
40	40/41/71	28.076	0.78	1060	---	147
41	40/41/71	28.076	0.78	(1060)	---	147
42		27.522	0.78	454	---	49.0
43	43/73	---	---	ND	---	97.9
44	44/47/65	26.935	0.77	1840	---	147
45	45/51	23.765	0.78	316	---	97.9
46		24.134	0.81	116	---	49.0
47	44/47/65	26.935	0.77	(1840)	---	147
48		26.667	0.80	274	---	49.0

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Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.382	0.76	949	---	97.9
50	50/53	22.994	0.80	231	---	97.9
51	45/51	23.765	0.78	(316)	---	97.9
52		25.828	0.77	2990	---	49.0
53	50/53	22.994	0.80	(231)	---	97.9
54		---	---	ND	---	49.0
55		---	---	ND	---	49.0
56		32.218	0.75	848	---	49.0
57		---	---	ND	---	49.0
58		---	---	ND	---	49.0
59	59/62/75	27.304	0.81	166	---	147
60		32.453	0.76	419	---	49.0
61	61/70/74/76	31.162	0.75	3420	---	196
62	59/62/75	27.304	0.81	(166)	---	147
63		30.776	0.78	64.9	---	49.0
64		28.327	0.80	892	---	49.0
65	44/47/65	26.935	0.77	(1840)	---	147
66		31.514	0.77	1650	---	49.0
67		---	---	ND	---	49.0
68		---	---	ND	---	49.0
69	49/69	26.382	0.76	(949)	---	97.9
70	61/70/74/76	31.162	0.75	(3420)	---	196
71	40/41/71	28.076	0.78	(1060)	---	147
72		---	---	ND	---	49.0
73	43/73	---	---	ND	---	97.9
74	61/70/74/76	31.162	0.75	(3420)	---	196
75	59/62/75	27.304	0.81	(166)	---	147
76	61/70/74/76	31.162	0.75	(3420)	---	196
77		36.176	0.75	348	---	49.0
78		---	---	ND	---	49.0
79		---	---	ND	---	49.0
80		---	---	ND	---	49.0
81		---	---	ND	---	49.0
82		35.740	1.54	938	---	49.0
83		33.829	1.51	446	---	49.0
84		31.329	1.61	1790	---	49.0
85	85/116/117	35.237	1.60	989	---	147
86	86/87/97/108/119/125	34.583	1.57	4830	---	294
87	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
88	88/91	31.095	1.57	776	---	97.9
89		31.833	1.64	69.3	---	49.0
90	90/101/113	33.359	1.57	6240	---	147
91	88/91	31.095	1.57	(776)	---	97.9
92		32.721	1.58	1140	---	49.0
93	93/98/100/102	---	---	ND	---	196
94		---	---	ND	---	49.0
95		30.172	1.57	4960	---	49.0
96		---	---	ND	---	49.0

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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
98	93/98/100/102	---	---	ND	---	196
99		33.963	1.56	2430	---	49.0
100	93/98/100/102	---	---	ND	---	196
101	90/101/113	33.359	1.57	(6240)	---	147
102	93/98/100/102	---	---	ND	---	196
103		---	---	ND	---	49.0
104		---	---	ND	---	49.0
105		39.766	1.52	2990	---	49.0
106		---	---	ND	---	49.0
107	107/124	37.871	1.47	303	---	97.9
108	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
109		38.105	1.46	415	---	49.0
110	110/115	35.422	1.59	8220	---	97.9
111		---	---	ND	---	49.0
112		---	---	ND	---	49.0
113	90/101/113	33.359	1.57	(6240)	---	147
114		39.095	1.43	167	---	49.0
115	110/115	35.422	1.59	(8220)	---	97.9
116	85/116/117	35.237	1.60	(989)	---	147
117	85/116/117	35.237	1.60	(989)	---	147
118		38.592	1.40	6680	---	49.0
119	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
120		---	---	ND	---	49.0
121		---	---	ND	---	49.0
122		38.910	1.39	103	---	49.0
123		38.206	1.41	169	---	49.0
124	107/124	37.871	1.47	(303)	---	97.9
125	86/87/97/108/119/125	34.583	1.57	(4830)	---	294
126		42.952	1.50	58.7	---	49.0
127		---	---	ND	---	49.0
128	128/166	43.003	1.22	1770	---	97.9
129	129/138/163	41.745	1.23	10300	---	147
130		41.091	1.21	722	---	49.0
131		38.156	1.21	166	---	49.0
132		38.625	1.24	3700	---	49.0
133		39.196	1.27	120	---	49.0
134	134/143	37.501	1.25	654	---	97.9
135	135/151	36.378	1.25	2490	---	97.9
136		33.812	1.29	1050	---	49.0
137		41.292	1.15	653	---	49.0
138	129/138/163	41.745	1.23	(10300)	---	147
139	139/140	37.938	1.24	187	---	97.9
140	139/140	37.938	1.24	(187)	---	97.9
141		40.655	1.08	1720	---	49.0
142		---	---	ND	---	49.0
143	134/143	37.501	1.25	(654)	---	97.9
144		36.965	1.29	414	---	49.0

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.0
146		39.833	1.22	1300	---	49.0
147	147/149	37.334	1.22	6620	---	97.9
148		---	---	ND	---	49.0
149	147/149	37.334	1.22	(6620)	---	97.9
150		---	---	ND	---	49.0
151	135/151	36.378	1.25	(2490)	---	97.9
152		---	---	ND	---	49.0
153	153/168	40.470	1.26	7330	---	97.9
154		36.646	1.28	64.2	---	49.0
155		---	---	ND	---	49.0
156	156/157	45.971	1.21	1530	---	97.9
157	156/157	45.971	1.21	(1530)	---	97.9
158		42.147	1.20	1060	---	49.0
159		---	---	ND	---	49.0
160		---	---	ND	---	49.0
161		---	---	ND	---	49.0
162		44.361	1.22	63.7	---	49.0
163	129/138/163	41.745	1.23	(10300)	---	147
164		41.409	1.14	523	---	49.0
165		---	---	ND	---	49.0
166	128/166	43.003	1.22	(1770)	---	97.9
167		44.814	1.20	460	---	49.0
168	153/168	40.470	1.26	(7330)	---	97.9
169		---	---	ND	---	49.0
170		48.638	1.06	1540	---	49.0
171	171/173	45.032	1.05	537	---	97.9
172		46.709	1.09	310	---	49.0
173	171/173	45.032	1.05	(537)	---	97.9
174		43.942	1.07	1740	---	49.0
175		42.818	0.98	92.1	---	49.0
176		40.286	1.07	265	---	49.0
177		44.395	1.05	949	---	49.0
178		42.164	1.09	390	---	49.0
179		39.363	1.05	887	---	49.0
180	180/193	47.363	1.06	3870	---	97.9
181		---	---	ND	---	49.0
182		---	---	ND	---	49.0
183	183/185	43.724	1.04	1500	---	97.9
184		---	---	ND	---	49.0
185	183/185	43.724	1.04	(1500)	---	97.9
186		---	---	ND	---	49.0
187		43.087	1.06	2260	---	49.0
188		---	---	ND	---	49.0
189		51.872	0.99	88.9	---	49.0
190		49.208	1.06	343	---	49.0
191		47.732	1.08	66.4	---	49.0
192		---	---	ND	---	49.0

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-05(FO105904)
Lab Sample ID 10138556005
Filename P101016A_09

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.363	1.06	(3870)	---	97.9
194		54.071	0.90	1350	---	73.5
195		51.549	0.91	410	---	73.5
196		49.997	0.93	761	---	73.5
197	197/200	46.441	0.91	290	---	147
198	198/199	49.342	0.90	1990	---	147
199	198/199	49.342	0.90	(1990)	---	147
200	197/200	46.441	0.91	(290)	---	147
201		45.418	0.87	304	---	73.5
202		44.495	0.89	438	---	73.5
203		50.215	0.91	1240	---	73.5
204		---	---	ND	---	73.5
205		---	---	ND	---	73.5
206		56.830	0.78	2240	---	73.5
207		52.239	0.75	243	---	73.5
208		51.290	0.77	626	---	73.5
209		59.094	0.69	918	---	73.5

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTI0586-05(FO105904)
Lab Sample ID	10138556005
Filename	P101016A_09

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	109
Total Dichloro Biphenyls	2110
Total Trichloro Biphenyls	4560
Total Tetrachloro Biphenyls	16000
Total Pentachloro Biphenyls	43700
Total Hexachloro Biphenyls	42900
Total Heptachloro Biphenyls	14800
Total Octachloro Biphenyls	6780
Total Nonachloro Biphenyls	3110
Decachloro Biphenyls	918
Total PCBs	135000

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Results reported on a dry weight basis

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Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Test America

Client's Sample ID	PTI0586-06(FO105905)		
Lab Sample ID	10138556006		
Filename	P101016A_10		
Injected By	BAL		
Total Amount Extracted	13.7 g	Matrix	Solid
% Moisture	26.7	Dilution	5
Dry Weight Extracted	10.1 g	Collected	09/16/2010 12:08
ICAL ID	P101016A01	Received	09/21/2010 09:52
CCal Filename(s)	P101016A_02	Extracted	10/11/2010 15:00
Method Blank ID	BLANK-26614	Analyzed	10/16/2010 14:05

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.282	2.97	2.0	0.303	15	R
13C-4-MoCB	3	11.601	2.85	2.0	0.817	41	
13C-2,2'-DiCB	4	11.937	1.63	2.0	0.591	30	
13C-4,4'-DiCB	15	20.001	1.54	2.0	1.05	53	
13C-2,2',6-TrCB	19	16.311	1.07	2.0	0.844	42	
13C-3,4,4'-TrCB	37	28.294	1.13	2.0	1.41	71	
13C-2,2',6,6'-TeCB	54	20.311	0.82	2.0	1.22	61	
13C-3,4,4',5-TeCB	81	35.555	0.75	2.0	1.08	54	
13C-3,3',4,4'-TeCB	77	36.159	0.78	2.0	1.09	54	
13C-2,2',4,6,6'-PeCB	104	26.835	1.60	2.0	1.48	74	
13C-2,3,3',4,4'-PeCB	105	39.748	1.58	2.0	1.07	54	
13C-2,3,4,4',5-PeCB	114	39.094	1.65	2.0	1.06	53	
13C-2,3',4,4',5-PeCB	118	38.557	1.58	2.0	1.07	53	
13C-2,3',4,4',5'-PeCB	123	38.222	1.63	2.0	1.08	54	
13C-3,3',4,4',5-PeCB	126	42.951	1.54	2.0	0.937	47	
13C-2,2',4,4',6,6'-HxCB	155	33.057	1.27	2.0	2.05	102	
13C-HxCB (156/157)	156/157	45.970	1.32	4.0	2.39	60	
13C-2,3',4,4',5,5'-HxCB	167	44.796	1.36	2.0	1.26	63	
13C-3,3',4,4',5,5'-HxCB	169	49.341	1.21	2.0	1.04	52	
13C-2,2',3,4',5,6,6'-HpCB	188	39.010	1.08	2.0	2.45	123	
13C-2,3,3',4,4',5,5'-HpCB	189	51.871	1.02	2.0	1.51	76	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.461	0.89	2.0	1.91	96	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.652	0.90	2.0	1.46	73	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.807	0.81	2.0	1.54	77	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.267	0.82	2.0	1.36	68	
13C--DeCB	209	59.092	0.71	2.0	1.12	56	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.682	1.05	2.0	1.40	70	
13C-2,3,3',5,5'-PeCB	111	36.176	1.63	2.0	1.33	66	
13C-2,2',3,3',5,5',6-HpCB	178	42.146	1.09	2.0	1.46	73	
Recovery Standards							
13C-2,5-DiCB	9	14.813	1.56	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.812	0.82	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.325	1.53	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.710	1.26	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.048	0.86	2.0	NA	NA	

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REPORT OF LABORATORY ANALYSIS

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 PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		8.306	2.79	30.7	---	24.8
2		11.350	2.74	42.8	---	24.8
3		11.625	2.86	29.0	---	24.8
4		11.949	1.58	64.9	---	24.8
5		---	---	ND	---	24.8
6		15.400	1.45	39.6	---	24.8
7		---	---	ND	---	24.8
8		15.963	1.61	151	---	24.8
9		---	---	ND	---	24.8
10		---	---	ND	---	24.8
11		19.247	1.56	1010	---	149
12	12/13	19.618	1.63	53.0	---	49.7
13	12/13	19.618	1.63	(53.0)	---	49.7
14		---	---	ND	---	24.8
15		20.037	1.53	385	---	24.8
16		19.918	1.09	126	---	24.8
17		19.366	1.09	135	---	24.8
18	18/30	18.815	1.07	278	---	49.7
19		16.335	1.16	58.8	---	24.8
20	20/28	23.715	1.01	831	---	49.7
21	21/33	23.967	1.00	378	---	49.7
22		24.436	1.02	330	---	24.8
23		---	---	ND	---	24.8
24		---	---	ND	---	24.8
25		22.977	0.99	56.4	---	24.8
26	26/29	22.692	1.01	120	---	49.7
27		19.642	0.99	41.6	---	24.8
28	20/28	23.715	1.01	(831)	---	49.7
29	26/29	22.692	1.01	(120)	---	49.7
30	18/30	18.815	1.07	(278)	---	49.7
31		23.380	1.01	632	---	24.8
32		20.596	0.98	151	---	24.8
33	21/33	23.967	1.00	(378)	---	49.7
34		---	---	ND	---	24.8
35		27.858	0.93	59.5	---	24.8
36		---	---	ND	---	24.8
37		28.310	0.98	582	---	24.8
38		---	---	ND	---	24.8
39		---	---	ND	---	24.8
40	40/41/71	28.076	0.80	983	---	149
41	40/41/71	28.076	0.80	(983)	---	149
42		27.522	0.79	412	---	49.7
43	43/73	---	---	ND	---	99.3
44	44/47/65	26.935	0.79	1680	---	149
45	45/51	23.765	0.78	267	---	99.3
46		24.134	0.78	98.5	---	49.7
47	44/47/65	26.935	0.79	(1680)	---	149
48		26.684	0.78	234	---	49.7

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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 PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.382	0.79	840	---	99.3
50	50/53	22.994	0.79	196	---	99.3
51	45/51	23.765	0.78	(267)	---	99.3
52		25.828	0.76	2700	---	49.7
53	50/53	22.994	0.79	(196)	---	99.3
54		---	---	ND	---	49.7
55		---	---	ND	---	49.7
56		32.218	0.77	822	---	49.7
57		---	---	ND	---	49.7
58		---	---	ND	---	49.7
59	59/62/75	27.321	0.82	156	---	149
60		32.453	0.77	406	---	49.7
61	61/70/74/76	31.161	0.74	3180	---	199
62	59/62/75	27.321	0.82	(156)	---	149
63		30.809	0.80	62.3	---	49.7
64		28.327	0.79	845	---	49.7
65	44/47/65	26.935	0.79	(1680)	---	149
66		31.497	0.74	1570	---	49.7
67		---	---	ND	---	49.7
68		---	---	ND	---	49.7
69	49/69	26.382	0.79	(840)	---	99.3
70	61/70/74/76	31.161	0.74	(3180)	---	199
71	40/41/71	28.076	0.80	(983)	---	149
72		---	---	ND	---	49.7
73	43/73	---	---	ND	---	99.3
74	61/70/74/76	31.161	0.74	(3180)	---	199
75	59/62/75	27.321	0.82	(156)	---	149
76	61/70/74/76	31.161	0.74	(3180)	---	199
77		36.176	0.75	381	---	49.7
78		---	---	ND	---	49.7
79		---	---	ND	---	49.7
80		---	---	ND	---	49.7
81		---	---	ND	---	49.7
82		35.740	1.58	896	---	49.7
83		33.828	1.63	360	---	49.7
84		31.329	1.57	1620	---	49.7
85	85/116/117	35.220	1.37	888	---	149
86	86/87/97/108/119/125	34.583	1.58	4460	---	298
87	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
88	88/91	31.111	1.58	710	---	99.3
89		31.832	1.48	62.6	---	49.7
90	90/101/113	33.358	1.60	5680	---	149
91	88/91	31.111	1.58	(710)	---	99.3
92		32.738	1.61	1040	---	49.7
93	93/98/100/102	---	---	ND	---	199
94		---	---	ND	---	49.7
95		30.172	1.55	4370	---	49.7
96		---	---	ND	---	49.7

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Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
98	93/98/100/102	---	---	ND	---	199
99		33.962	1.61	2310	---	49.7
100	93/98/100/102	---	---	ND	---	199
101	90/101/113	33.358	1.60	(5680)	---	149
102	93/98/100/102	---	---	ND	---	199
103		---	---	ND	---	49.7
104		---	---	ND	---	49.7
105		39.782	1.60	2770	---	49.7
106		---	---	ND	---	49.7
107	107/124	37.870	1.49	272	---	99.3
108	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
109		38.138	1.41	403	---	49.7
110	110/115	35.421	1.59	7890	---	99.3
111		---	---	ND	---	49.7
112		---	---	ND	---	49.7
113	90/101/113	33.358	1.60	(5680)	---	149
114		39.128	1.56	160	---	49.7
115	110/115	35.421	1.59	(7890)	---	99.3
116	85/116/117	35.220	1.37	(888)	---	149
117	85/116/117	35.220	1.37	(888)	---	149
118		38.591	1.61	6190	---	49.7
119	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
120		---	---	ND	---	49.7
121		---	---	ND	---	49.7
122		38.910	1.64	85.6	---	49.7
123		38.222	1.48	141	---	49.7
124	107/124	37.870	1.49	(272)	---	99.3
125	86/87/97/108/119/125	34.583	1.58	(4460)	---	298
126		42.985	1.55	107	---	49.7
127		---	---	ND	---	49.7
128	128/166	43.019	1.24	1580	---	99.3
129	129/138/163	41.744	1.25	9600	---	149
130		41.073	1.22	661	---	49.7
131		38.172	1.21	153	---	49.7
132		38.624	1.24	3250	---	49.7
133		39.195	1.24	112	---	49.7
134	134/143	37.534	1.31	451	---	99.3
135	135/151	36.377	1.29	2350	---	99.3
136		33.828	1.24	945	---	49.7
137		41.291	1.20	509	---	49.7
138	129/138/163	41.744	1.25	(9600)	---	149
139	139/140	37.937	1.24	158	---	99.3
140	139/140	37.937	1.24	(158)	---	99.3
141		40.671	1.11	1540	---	49.7
142		---	---	ND	---	49.7
143	134/143	37.534	1.31	(451)	---	99.3
144		36.964	1.29	387	---	49.7

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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.7
146		39.849	1.21	1200	---	49.7
147	147/149	37.333	1.24	6210	---	99.3
148		---	---	ND	---	49.7
149	147/149	37.333	1.24	(6210)	---	99.3
150		---	---	ND	---	49.7
151	135/151	36.377	1.29	(2350)	---	99.3
152		---	---	ND	---	49.7
153	153/168	40.469	1.28	7060	---	99.3
154		36.645	1.14	57.9	---	49.7
155		---	---	ND	---	49.7
156	156/157	45.970	1.28	1390	---	99.3
157	156/157	45.970	1.28	(1390)	---	99.3
158		42.146	1.24	985	---	49.7
159		---	---	ND	---	49.7
160		---	---	ND	---	49.7
161		---	---	ND	---	49.7
162		44.411	1.18	61.6	---	49.7
163	129/138/163	41.744	1.25	(9600)	---	149
164		41.425	1.22	568	---	49.7
165		---	---	ND	---	49.7
166	128/166	43.019	1.24	(1580)	---	99.3
167		44.847	1.23	436	---	49.7
168	153/168	40.469	1.28	(7060)	---	99.3
169		---	---	ND	---	49.7
170		48.637	1.07	1520	---	49.7
171	171/173	45.031	1.08	551	---	99.3
172		46.708	1.05	319	---	49.7
173	171/173	45.031	1.08	(551)	---	99.3
174		43.958	1.06	1810	---	49.7
175		42.834	1.09	95.2	---	49.7
176		40.268	1.05	287	---	49.7
177		44.394	1.02	955	---	49.7
178		42.180	1.06	420	---	49.7
179		39.379	1.04	935	---	49.7
180	180/193	47.379	1.05	3980	---	99.3
181		---	---	ND	---	49.7
182		---	---	ND	---	49.7
183	183/185	43.723	1.04	1580	---	99.3
184		---	---	ND	---	49.7
185	183/185	43.723	1.04	(1580)	---	99.3
186		---	---	ND	---	49.7
187		43.102	1.07	2400	---	49.7
188		---	---	ND	---	49.7
189		51.871	1.05	81.2	---	49.7
190		49.190	1.04	340	---	49.7
191		47.714	0.99	73.5	---	49.7
192		---	---	ND	---	49.7

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-06(FO105905)
Lab Sample ID 10138556006
Filename P101016A_10

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	47.379	1.05	(3980)	---	99.3
194		54.091	0.89	1350	---	74.5
195		51.569	0.92	414	---	74.5
196		50.012	0.90	777	---	74.5
197	197/200	46.440	0.90	312	---	149
198	198/199	49.341	0.90	2030	---	149
199	198/199	49.341	0.90	(2030)	---	149
200	197/200	46.440	0.90	(312)	---	149
201		45.434	0.89	326	---	74.5
202		44.494	0.92	490	---	74.5
203		50.213	0.89	1290	---	74.5
204		---	---	ND	---	74.5
205		---	---	ND	---	74.5
206		56.829	0.78	2030	---	74.5
207		52.259	0.80	230	---	74.5
208		51.289	0.79	597	---	74.5
209		59.114	0.69	708	---	74.5

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	PTI0586-06(FO105905)
Lab Sample ID	10138556006
Filename	P101016A_10

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	102
Total Dichloro Biphenyls	1700
Total Trichloro Biphenyls	3780
Total Tetrachloro Biphenyls	14800
Total Pentachloro Biphenyls	40400
Total Hexachloro Biphenyls	39700
Total Heptachloro Biphenyls	15300
Total Octachloro Biphenyls	6990
Total Nonachloro Biphenyls	2860
Decachloro Biphenyls	708
Total PCBs	126000

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	PTI0586-07(FO105906)		
Lab Sample ID	10138556007		
Filename	P101019A_12		
Injected By	SMT		
Total Amount Extracted	11.5 g	Matrix	Solid
% Moisture	11.4	Dilution	20
Dry Weight Extracted	10.2 g	Collected	09/16/2010
ICAL ID	P101019A01	Received	09/21/2010 09:52
CCal Filename(s)	P101019A_02	Extracted	09/29/2010 14:40
Method Blank ID	BLANK-26482	Analyzed	10/19/2010 18:12

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	7.982	1.73	2.0	1.14	68	I
13C-4-MoCB	3	11.277	2.25	2.0	1.32	72	I
13C-2,2'-DiCB	4	11.637	1.65	2.0	1.01	51	N2
13C-4,4'-DiCB	15	19.761	1.60	2.0	1.38	69	N2
13C-2,2',6-TrCB	19	16.093	1.19	2.0	1.08	54	
13C-3,4,4'-TrCB	37	27.948	1.15	2.0	1.67	83	
13C-2,2',6,6'-TeCB	54	20.033	0.84	2.0	1.16	58	
13C-3,4,4',5-TeCB	81	35.159	0.77	2.0	1.94	97	
13C-3,3',4,4'-TeCB	77	35.746	0.84	2.0	2.05	102	
13C-2,2',4,6,6'-PeCB	104	26.556	1.59	2.0	0.991	50	
13C-2,3,3',4,4'-PeCB	105	39.301	1.58	2.0	1.79	90	
13C-2,3,4,4',5-PeCB	114	38.647	1.57	2.0	1.85	93	
13C-2,3',4,4',5-PeCB	118	38.093	1.53	2.0	1.71	85	
13C-2,3',4,4',5'-PeCB	123	37.758	1.54	2.0	1.80	90	
13C-3,3',4,4',5-PeCB	126	42.420	1.51	2.0	1.89	95	
13C-2,2',4,4',6,6'-HxCB	155	32.693	1.22	2.0	1.01	51	
13C-HxCB (156/157)	156/157	45.422	1.28	4.0	2.79	70	
13C-2,3',4,4',5,5'-HxCB	167	44.265	1.28	2.0	1.49	75	
13C-3,3',4,4',5,5'-HxCB	169	48.726	1.34	2.0	1.56	78	
13C-2,2',3,4',5,6,6'-HpCB	188	38.597	1.14	2.0	1.34	67	
13C-2,3,3',4,4',5,5'-HpCB	189	51.250	1.12	2.0	1.39	70	
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.963	0.87	2.0	1.29	65	
13C-2,3,3',4,4',5,5',6-OcCB	205	53.945	0.96	2.0	1.41	71	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.036	0.81	2.0	1.42	71	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.711	0.89	2.0	1.26	63	
13C--DeCB	209	58.191	0.79	2.0	1.19	60	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.387	1.17	2.0	1.75	87	
13C-2,3,3',5,5'-PeCB	111	35.762	1.65	2.0	1.67	84	
13C-2,2',3,3',5,5',6-HpCB	178	41.699	1.11	2.0	1.47	73	
Recovery Standards							
13C-2,5-DiCB	9	14.512	1.69	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.550	0.77	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	32.979	1.46	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.213	1.24	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.384	0.86	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 PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg		EMPC ng/Kg	EML ng/Kg
1		8.006	3.51	46.8		---	24.6
2		---	---	ND		---	24.6
3		11.301	3.24	58.1		---	24.6
4		11.661	1.67	57.7	N2	---	24.6
5		---	---	ND		---	24.6
6		15.112	1.35	40.6	N2	---	24.6
7		---	---	ND		---	24.6
8		15.687	1.46	228	N2	---	24.6
9		---	---	ND		---	24.6
10		---	---	ND		---	24.6
11		18.982	1.33	351	N2	---	147
12	12/13	---	---	ND		---	49.1
13	12/13	---	---	ND		---	49.1
14		---	---	ND		---	24.6
15		19.773	1.59	703	N2	---	24.6
16		19.628	1.21 I	---		62.4	24.6
17		19.124	1.27 I	---		101	24.6
18	18/30	18.573	1.10	227		---	49.1
19		16.057	1.49 I	---		49.7	24.6
20	20/28	23.437	1.05	820		---	49.1
21	21/33	23.705	1.07	389		---	49.1
22		24.141	1.13	292		---	24.6
23		---	---	ND		---	24.6
24		---	---	ND		---	24.6
25		22.733	0.92	59.6		---	24.6
26	26/29	22.414	0.97	104		---	49.1
27		---	---	ND		---	24.6
28	20/28	23.437	1.05	(820)		---	49.1
29	26/29	22.414	0.97	(104)		---	49.1
30	18/30	18.573	1.10	(227)		---	49.1
31		23.085	1.02	622		---	24.6
32		20.318	0.97	113		---	24.6
33	21/33	23.705	1.07	(389)		---	49.1
34		---	---	ND		---	24.6
35		27.545	0.96	66.7		---	24.6
36		---	---	ND		---	24.6
37		27.981	1.03	922		---	24.6
38		---	---	ND		---	24.6
39		---	---	ND		---	24.6
40	40/41/71	27.780	0.81	722		---	147
41	40/41/71	27.780	0.81	(722)		---	147
42		27.227	0.73	265		---	49.1
43	43/73	---	---	ND		---	98.3
44	44/47/65	26.657	0.79	1300		---	147
45	45/51	23.487	0.80	260		---	98.3
46		23.823	0.72	113		---	49.1
47	44/47/65	26.657	0.79	(1300)		---	147
48		26.422	0.82	113		---	49.1

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
49	49/69	26.120	0.79	656	---	98.3
50	50/53	22.749	0.78	238	---	98.3
51	45/51	23.487	0.80	(260)	---	98.3
52		25.600	0.79	2820	---	49.1
53	50/53	22.749	0.78	(238)	---	98.3
54		---	---	ND	---	49.1
55		---	---	ND	---	49.1
56		31.838	0.80	819	---	49.1
57		---	---	ND	---	49.1
58		---	---	ND	---	49.1
59	59/62/75	27.009	0.84	161	---	147
60		32.090	0.79	321	---	49.1
61	61/70/74/76	30.815	0.79	3030	---	197
62	59/62/75	27.009	0.84	(161)	---	147
63		---	---	ND	---	49.1
64		28.032	0.80	818	---	49.1
65	44/47/65	26.657	0.79	(1300)	---	147
66		31.151	0.75	1560	---	49.1
67		---	---	ND	---	49.1
68		---	---	ND	---	49.1
69	49/69	26.120	0.79	(656)	---	98.3
70	61/70/74/76	30.815	0.79	(3030)	---	197
71	40/41/71	27.780	0.81	(722)	---	147
72		---	---	ND	---	49.1
73	43/73	---	---	ND	---	98.3
74	61/70/74/76	30.815	0.79	(3030)	---	197
75	59/62/75	27.009	0.84	(161)	---	147
76	61/70/74/76	30.815	0.79	(3030)	---	197
77		35.762	0.78	848	---	49.1
78		---	---	ND	---	49.1
79		34.102	0.72	124	---	49.1
80		---	---	ND	---	49.1
81		---	---	ND	---	49.1
82		35.326	1.56	2490	---	49.1
83		33.465	1.65	1000	---	49.1
84		30.983	1.63	3640	---	49.1
85	85/116/117	34.857	1.57	3080	---	147
86	86/87/97/108/119/125	34.203	1.59	9590	---	295
87	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
88	88/91	30.782	1.56	2100	---	98.3
89		31.503	1.45	158	---	49.1
90	90/101/113	32.995	1.59	13600	---	147
91	88/91	30.782	1.56	(2100)	---	98.3
92		32.358	1.58	1870	---	49.1
93	93/98/100/102	30.262	1.47	400	---	197
94		29.373	1.38	57.8	---	49.1
95		29.859	1.60	13300	---	49.1
96		26.942	1.39	59.4	---	49.1

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
97	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
98	93/98/100/102	30.262	1.47	(400)	---	197
99		33.616	1.59	6650	---	49.1
100	93/98/100/102	30.262	1.47	(400)	---	197
101	90/101/113	32.995	1.59	(13600)	---	147
102	93/98/100/102	30.262	1.47	(400)	---	197
103		29.155	1.71	50.6	---	49.1
104		---	---	ND	---	49.1
105		39.301	1.54	6200	---	49.1
106		---	---	ND	---	49.1
107	107/124	37.439	1.51	909	---	98.3
108	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
109		37.674	1.63	1230	---	49.1
110	110/115	35.024	1.57	25600	---	98.3
111		---	---	ND	---	49.1
112		---	---	ND	---	49.1
113	90/101/113	32.995	1.59	(13600)	---	147
114		38.647	1.60	288	---	49.1
115	110/115	35.024	1.57	(25600)	---	98.3
116	85/116/117	34.857	1.57	(3080)	---	147
117	85/116/117	34.857	1.57	(3080)	---	147
118		38.127	1.56	15900	---	49.1
119	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
120		36.265	1.49	53.0	---	49.1
121		---	---	ND	---	49.1
122		38.462	1.42	336	---	49.1
123		37.775	1.60	441	---	49.1
124	107/124	37.439	1.51	(909)	---	98.3
125	86/87/97/108/119/125	34.203	1.59	(9590)	---	295
126		42.420	1.50	211	---	49.1
127		40.844	1.50	83.5	---	49.1
128	128/166	42.504	1.26	7240	---	98.3
129	129/138/163	41.263	1.26	43200	---	147
130		40.609	1.26	2870	---	49.1
131		37.724	1.24	591	---	49.1
132		38.194	1.26	13700	---	49.1
133		38.731	1.26	502	---	49.1
134	134/143	37.104	1.26	1890	---	98.3
135	135/151	35.964	1.25	7330	---	98.3
136		33.465	1.30	3410	---	49.1
137		40.810	1.30	1830	---	49.1
138	129/138/163	41.263	1.26	(43200)	---	147
139	139/140	37.540	1.24	695	---	98.3
140	139/140	37.540	1.24	(695)	---	98.3
141		40.190	1.14	7440	---	49.1
142		---	---	ND	---	49.1
143	134/143	37.104	1.26	(1890)	---	98.3
144		36.534	1.27	1200	---	49.1

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
145		---	---	ND	---	49.1
146		39.385	1.24	4660	---	49.1
147	147/149	36.919	1.26	27100	---	98.3
148		---	---	ND	---	49.1
149	147/149	36.919	1.26	(27100)	---	98.3
150		---	---	ND	---	49.1
151	135/151	35.964	1.25	(7330)	---	98.3
152		---	---	ND	---	49.1
153	153/168	40.005	1.28	33400	---	98.3
154		36.265	1.37	286	---	49.1
155		---	---	ND	---	49.1
156	156/157	45.422	1.24	4800	---	98.3
157	156/157	45.422	1.24	(4800)	---	98.3
158		41.649	1.25	4350	---	49.1
159		---	---	ND	---	49.1
160		---	---	ND	---	49.1
161		---	---	ND	---	49.1
162		43.879	1.19	463	---	49.1
163	129/138/163	41.263	1.26	(43200)	---	147
164		40.944	1.31	3020	---	49.1
165		---	---	ND	---	49.1
166	128/166	42.504	1.26	(7240)	---	98.3
167		44.298	1.26	1870	---	49.1
168	153/168	40.005	1.28	(33400)	---	98.3
169		---	---	ND	---	49.1
170		48.072	1.03	10200	---	49.1
171	171/173	44.516	1.08	3270	---	98.3
172		46.160	1.03	2250	---	49.1
173	171/173	44.516	1.08	(3270)	---	98.3
174		43.443	1.04	13200	---	49.1
175		42.336	1.07	598	---	49.1
176		39.838	1.07	1540	---	49.1
177		43.896	1.05	6520	---	49.1
178		41.699	1.05	2800	---	49.1
179		38.932	1.09	5480	---	49.1
180	180/193	46.830	1.06	29900	---	98.3
181		44.282	1.04	95.9	---	49.1
182		---	---	ND	---	49.1
183	183/185	43.225	1.04	9950	---	98.3
184		---	---	ND	---	49.1
185	183/185	43.225	1.04	(9950)	---	98.3
186		---	---	ND	---	49.1
187		42.605	1.03	16600	---	49.1
188		38.597	0.94	69.9	---	49.1
189		51.272	0.98	475	---	49.1
190		48.625	1.01	2150	---	49.1
191		47.183	0.98	463	---	49.1
192		---	---	ND	---	49.1

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

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Lab Sample ID 10138556007
Filename P101019A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
193	180/193	46.830	1.06	(29900)	---	98.3
194		53.449	0.88	13500	---	73.7
195		50.992	0.93	3740	---	73.7
196		49.447	0.89	7050	---	73.7
197	197/200	45.925	0.91	2280	---	147
198	198/199	48.793	0.91	18700	---	147
199	198/199	48.793	0.91	(18700)	---	147
200	197/200	45.925	0.91	(2280)	---	147
201		44.919	0.92	2270	---	73.7
202		43.997	0.89	4230	---	73.7
203		49.648	0.88	11800	---	73.7
204		---	---	ND	---	73.7
205		53.945	0.89	598	---	73.7
206		56.057	0.77	18900	---	73.7
207		51.681	0.80	2130	---	73.7
208		50.733	0.77	5220	---	73.7
209		58.256	0.72	6670	---	73.7

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID PTI0586-07(FO105906)
Lab Sample ID 10138556007
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Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	105
Total Dichloro Biphenyls	1380
Total Trichloro Biphenyls	3620
Total Tetrachloro Biphenyls	14200
Total Pentachloro Biphenyls	109000
Total Hexachloro Biphenyls	172000
Total Heptachloro Biphenyls	106000
Total Octachloro Biphenyls	64200
Total Nonachloro Biphenyls	26200
Decachloro Biphenyls	6670
Total PCBs	503000

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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	5

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'-OcCB	202	45.641	0.91	2.0	1.58	79	
13C-2,3,3',4,4',5,5',6-OcCB	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'-OcCB	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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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
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EMPC = Estimated Maximum Possible Concentration
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RT = Retention Time
I = Interference

Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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
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Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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
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Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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
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Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

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
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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

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

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-26614		
Filename	P101016A_05		
Injected By	BAL	Matrix	Solid
Total Amount Extracted	10.1 g	Extracted	10/11/2010 15:00
ICAL ID	P101016A01	Analyzed	10/16/2010 08:42
CCal Filename(s)	P101016A_02	Dilution	5

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	8.258	2.87	2.0	0.484	24	R
13C-4-MoCB	3	11.566	2.79	2.0	0.790	40	
13C-2,2'-DiCB	4	11.901	1.55	2.0	0.696	35	
13C-4,4'-DiCB	15	19.954	1.58	2.0	1.08	54	
13C-2,2',6-TrCB	19	16.263	0.98	2.0	0.870	43	
13C-3,4,4'-TrCB	37	28.227	1.05	2.0	1.28	64	
13C-2,2',6,6'-TeCB	54	20.244	0.79	2.0	1.10	55	
13C-3,4,4',5-TeCB	81	35.657	0.80	2.0	0.534	27	
13C-3,3',4,4'-TeCB	77	36.211	0.82	2.0	0.584	29	
13C-2,2',4,6,6'-PeCB	104	26.785	1.64	2.0	2.99	149	
13C-2,3,3',4,4'-PeCB	105	39.816	1.54	2.0	1.34	67	
13C-2,3,4,4',5-PeCB	114	39.179	1.48	2.0	1.28	64	
13C-2,3',4,4',5-PeCB	118	38.626	1.48	2.0	1.29	64	
13C-2,3',4,4',5'-PeCB	123	38.257	1.53	2.0	1.30	65	
13C-3,3',4,4',5-PeCB	126	42.952	1.46	2.0	1.83	91	
13C-2,2',4,4',6,6'-HxCB	155	33.091	1.29	2.0	1.28	64	
13C-HxCB (156/157)	156/157	45.904	1.29	4.0	4.50	112	
13C-2,3',4,4',5,5'-HxCB	167	44.764	1.28	2.0	2.08	104	
13C-3,3',4,4',5,5'-HxCB	169	49.175	1.33	2.0	2.47	124	
13C-2,2',3,4',5,6,6'-HpCB	188	39.095	1.07	2.0	0.885	44	
13C-2,3,3',4,4',5,5'-HpCB	189	51.678	1.02	2.0	1.75	87	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.445	0.90	2.0	1.62	81	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.394	0.91	2.0	1.75	88	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.528	0.79	2.0	1.81	91	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.117	0.81	2.0	1.77	88	
13C--DeCB	209	58.792	0.69	2.0	1.55	78	
Cleanup Standards							
13C-2,4,4'-TrCB	28	23.598	1.07	2.0	1.39	70	
13C-2,3,3',5,5'-PeCB	111	36.261	1.53	2.0	1.31	66	
13C-2,2',3,3',5,5',6-HpCB	178	42.164	1.04	2.0	1.64	82	
Recovery Standards							
13C-2,5-DiCB	9	14.765	1.56	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.745	0.78	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	33.376	1.60	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.745	1.29	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.855	0.88	2.0	NA	NA	

Conc = Concentration
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Nn = Value obtained from additional analyses

Results reported on a dry weight basis

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
1		---	---	ND	---	24.8
2		---	---	ND	---	24.8
3		---	---	ND	---	24.8
4		---	---	ND	---	24.8
5		---	---	ND	---	24.8
6		---	---	ND	---	24.8
7		---	---	ND	---	24.8
8		---	---	ND	---	24.8
9		---	---	ND	---	24.8
10		---	---	ND	---	24.8
11		---	---	ND	---	149
12	12/13	---	---	ND	---	49.6
13	12/13	---	---	ND	---	49.6
14		---	---	ND	---	24.8
15		---	---	ND	---	24.8
16		---	---	ND	---	24.8
17		---	---	ND	---	24.8
18	18/30	---	---	ND	---	49.6
19		---	---	ND	---	24.8
20	20/28	---	---	ND	---	49.6
21	21/33	---	---	ND	---	49.6
22		---	---	ND	---	24.8
23		---	---	ND	---	24.8
24		---	---	ND	---	24.8
25		---	---	ND	---	24.8
26	26/29	---	---	ND	---	49.6
27		---	---	ND	---	24.8
28	20/28	---	---	ND	---	49.6
29	26/29	---	---	ND	---	49.6
30	18/30	---	---	ND	---	49.6
31		23.296	1.08	32.7	---	24.8
32		---	---	ND	---	24.8
33	21/33	---	---	ND	---	49.6
34		---	---	ND	---	24.8
35		---	---	ND	---	24.8
36		---	---	ND	---	24.8
37		---	---	ND	---	24.8
38		---	---	ND	---	24.8
39		---	---	ND	---	24.8
40	40/41/71	---	---	ND	---	149
41	40/41/71	---	---	ND	---	149
42		---	---	ND	---	49.6
43	43/73	---	---	ND	---	99.2
44	44/47/65	---	---	ND	---	149
45	45/51	---	---	ND	---	99.2

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
46		---	---	ND	---	49.6
47	44/47/65	---	---	ND	---	149
48		---	---	ND	---	49.6
49	49/69	---	---	ND	---	99.2
50	50/53	---	---	ND	---	99.2
51	45/51	---	---	ND	---	99.2
52		25.762	0.74	56.4	---	49.6
53	50/53	---	---	ND	---	99.2
54		---	---	ND	---	49.6
55		---	---	ND	---	49.6
56		---	---	ND	---	49.6
57		---	---	ND	---	49.6
58		---	---	ND	---	49.6
59	59/62/75	---	---	ND	---	149
60		---	---	ND	---	49.6
61	61/70/74/76	---	---	ND	---	198
62	59/62/75	---	---	ND	---	149
63		---	---	ND	---	49.6
64		---	---	ND	---	49.6
65	44/47/65	---	---	ND	---	149
66		---	---	ND	---	49.6
67		---	---	ND	---	49.6
68		---	---	ND	---	49.6
69	49/69	---	---	ND	---	99.2
70	61/70/74/76	---	---	ND	---	198
71	40/41/71	---	---	ND	---	149
72		---	---	ND	---	49.6
73	43/73	---	---	ND	---	99.2
74	61/70/74/76	---	---	ND	---	198
75	59/62/75	---	---	ND	---	149
76	61/70/74/76	---	---	ND	---	198
77		---	---	ND	---	49.6
78		---	---	ND	---	49.6
79		---	---	ND	---	49.6
80		---	---	ND	---	49.6
81		---	---	ND	---	49.6
82		---	---	ND	---	49.6
83		---	---	ND	---	49.6
84		---	---	ND	---	49.6
85	85/116/117	---	---	ND	---	149
86	86/87/97/108/119/125	---	---	ND	---	298
87	86/87/97/108/119/125	---	---	ND	---	298
88	88/91	---	---	ND	---	99.2
89		---	---	ND	---	49.6
90	90/101/113	---	---	ND	---	149

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
91	88/91	---	---	ND	---	99.2
92		---	---	ND	---	49.6
93	93/98/100/102	---	---	ND	---	198
94		---	---	ND	---	49.6
95		---	---	ND	---	49.6
96		---	---	ND	---	49.6
97	86/87/97/108/119/125	---	---	ND	---	298
98	93/98/100/102	---	---	ND	---	198
99		---	---	ND	---	49.6
100	93/98/100/102	---	---	ND	---	198
101	90/101/113	---	---	ND	---	149
102	93/98/100/102	---	---	ND	---	198
103		---	---	ND	---	49.6
104		---	---	ND	---	49.6
105		---	---	ND	---	49.6
106		---	---	ND	---	49.6
107	107/124	---	---	ND	---	99.2
108	86/87/97/108/119/125	---	---	ND	---	298
109		---	---	ND	---	49.6
110	110/115	---	---	ND	---	99.2
111		---	---	ND	---	49.6
112		---	---	ND	---	49.6
113	90/101/113	---	---	ND	---	149
114		---	---	ND	---	49.6
115	110/115	---	---	ND	---	99.2
116	85/116/117	---	---	ND	---	149
117	85/116/117	---	---	ND	---	149
118		---	---	ND	---	49.6
119	86/87/97/108/119/125	---	---	ND	---	298
120		---	---	ND	---	49.6
121		---	---	ND	---	49.6
122		---	---	ND	---	49.6
123		---	---	ND	---	49.6
124	107/124	---	---	ND	---	99.2
125	86/87/97/108/119/125	---	---	ND	---	298
126		---	---	ND	---	49.6
127		---	---	ND	---	49.6
128	128/166	---	---	ND	---	99.2
129	129/138/163	---	---	ND	---	149
130		---	---	ND	---	49.6
131		---	---	ND	---	49.6
132		---	---	ND	---	49.6
133		---	---	ND	---	49.6
134	134/143	---	---	ND	---	99.2
135	135/151	---	---	ND	---	99.2

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
136		---	---	ND	---	49.6
137		---	---	ND	---	49.6
138	129/138/163	---	---	ND	---	149
139	139/140	---	---	ND	---	99.2
140	139/140	---	---	ND	---	99.2
141		---	---	ND	---	49.6
142		---	---	ND	---	49.6
143	134/143	---	---	ND	---	99.2
144		---	---	ND	---	49.6
145		---	---	ND	---	49.6
146		---	---	ND	---	49.6
147	147/149	---	---	ND	---	99.2
148		---	---	ND	---	49.6
149	147/149	---	---	ND	---	99.2
150		---	---	ND	---	49.6
151	135/151	---	---	ND	---	99.2
152		---	---	ND	---	49.6
153	153/168	---	---	ND	---	99.2
154		---	---	ND	---	49.6
155		---	---	ND	---	49.6
156	156/157	---	---	ND	---	99.2
157	156/157	---	---	ND	---	99.2
158		---	---	ND	---	49.6
159		---	---	ND	---	49.6
160		---	---	ND	---	49.6
161		---	---	ND	---	49.6
162		---	---	ND	---	49.6
163	129/138/163	---	---	ND	---	149
164		---	---	ND	---	49.6
165		---	---	ND	---	49.6
166	128/166	---	---	ND	---	99.2
167		---	---	ND	---	49.6
168	153/168	---	---	ND	---	99.2
169		---	---	ND	---	49.6
170		---	---	ND	---	49.6
171	171/173	---	---	ND	---	99.2
172		---	---	ND	---	49.6
173	171/173	---	---	ND	---	99.2
174		---	---	ND	---	49.6
175		---	---	ND	---	49.6
176		---	---	ND	---	49.6
177		---	---	ND	---	49.6
178		---	---	ND	---	49.6
179		---	---	ND	---	49.6
180	180/193	---	---	ND	---	99.2

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-26614
Filename P101016A_05

IUPAC	Co-elutions	RT	Ratio	Concentration ng/Kg	EMPC ng/Kg	EML ng/Kg
181		---	---	ND	---	49.6
182		---	---	ND	---	49.6
183	183/185	---	---	ND	---	99.2
184		---	---	ND	---	49.6
185	183/185	---	---	ND	---	99.2
186		---	---	ND	---	49.6
187		---	---	ND	---	49.6
188		---	---	ND	---	49.6
189		---	---	ND	---	49.6
190		---	---	ND	---	49.6
191		---	---	ND	---	49.6
192		---	---	ND	---	49.6
193	180/193	---	---	ND	---	99.2
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

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Client Sample ID	DFBLKOV
Lab Sample ID	BLANK-26614
Filename	P101016A_05

Congener Group	Concentration ng/Kg
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	ND
Total Trichloro Biphenyls	32.7
Total Tetrachloro Biphenyls	56.4
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	89.1

ND = Not Detected
Results reported on a dry weight basis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-26483		
Filename	P100930B_10	Matrix	Solid
Total Amount Extracted	10.2 g	Dilution	NA
ICAL ID	P100930B02	Extracted	09/29/2010 14:40
CCal Filename(s)	P100930B_01	Analyzed	10/01/2010 00:01
Method Blank ID	BLANK-26482	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	**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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-26615		
Filename	P101015B_13	Matrix	Solid
Total Amount Extracted	10.1 g	Dilution	5
ICAL ID	P101015B04	Extracted	10/11/2010 15:00
CCal Filename(s)	P101015B_03	Analyzed	10/16/2010 02:15
Method Blank ID	BLANK-26614	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	1.24	124	2.0	0.0685	4	IR
3	1.0	1.10	110	2.0	0.580	29	R
4	1.0	1.16	116	2.0	0.421	21	R
15	1.0	1.15	115	2.0	0.958	48	
19	1.0	1.03	103	2.0	0.776	39	
37	1.0	1.21	121	2.0	1.11	55	
54	1.0	0.991	99	2.0	1.06	53	
81	1.0	0.968	97	2.0	0.523	26	R
77	1.0	1.01	101	2.0	0.544	27	R
104	1.0	1.04	104	2.0	2.66	133	
105	1.0	1.12	112	2.0	1.20	60	
114	1.0	1.03	103	2.0	1.19	60	
118	1.0	1.26	126	2.0	1.15	58	
123	1.0	1.04	104	2.0	1.21	60	
126	1.0	0.939	94	2.0	1.70	85	
155	1.0	1.00	100	2.0	1.19	59	
156/157	2.0	2.07	103	4.0	4.37	109	
167	1.0	1.07	107	2.0	2.06	103	
169	1.0	1.01	101	2.0	2.50	125	
188	1.0	1.01	101	2.0	0.720	36	
189	1.0	1.01	101	2.0	1.52	76	
202	1.0	1.02	102	2.0	1.31	65	
205	1.0	0.999	100	2.0	1.65	83	
206	1.0	1.02	102	2.0	1.66	83	
208	1.0	1.01	101	2.0	1.59	80	
209	1.0	1.31	131	2.0	1.48	74	

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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-26484		
Filename	P100930B_11	Matrix	Solid
Total Amount Extracted	10.4 g	Dilution	NA
ICAL ID	P100930B02	Extracted	09/29/2010 14:40
CCal Filename(s)	P100930B_01	Analyzed	10/01/2010 01:06
Method Blank ID	BLANK-26482	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	**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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

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

Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-26616		
Filename	P101016A_03	Matrix	Solid
Total Amount Extracted	10.2 g	Dilution	5
ICAL ID	P101016A01	Extracted	10/11/2010 15:00
CCal Filename(s)	P101016A_02	Analyzed	10/16/2010 06:33
Method Blank ID	BLANK-26614	Injected By	BAL

	Native Analytes			Labeled Analytes			
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery	Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.15	115	2.0	0.591	34	I
3	1.0	0.992	99	2.0	0.958	48	
4	1.0	1.07	107	2.0	0.864	43	
15	1.0	1.11	111	2.0	1.09	55	
19	1.0	1.08	108	2.0	0.959	48	
37	1.0	1.23	123	2.0	1.15	58	
54	1.0	0.966	97	2.0	1.22	61	
81	1.0	1.00	100	2.0	0.545	27	R
77	1.0	1.06	106	2.0	0.541	27	R
104	1.0	1.03	103	2.0	2.87	143	R
105	1.0	1.12	112	2.0	1.29	65	
114	1.0	1.04	104	2.0	1.24	62	
118	1.0	1.27	127	2.0	1.23	62	
123	1.0	1.09	109	2.0	1.23	61	
126	1.0	0.949	95	2.0	1.88	94	
155	1.0	1.02	102	2.0	1.20	60	
156/157	2.0	2.06	103	4.0	4.71	118	
167	1.0	1.07	107	2.0	2.11	105	
169	1.0	0.979	98	2.0	2.85	142	R
188	1.0	1.02	102	2.0	0.646	32	
189	1.0	0.999	100	2.0	1.55	78	
202	1.0	1.04	104	2.0	1.21	61	
205	1.0	0.992	99	2.0	1.69	84	
206	1.0	1.02	102	2.0	1.70	85	
208	1.0	1.02	102	2.0	1.56	78	
209	1.0	1.28	128	2.0	1.45	72	

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

Spike Recovery Relative Percent Difference (RPD) Results

Client	Test America		
Spike 1 ID	LCS-26483	Spike 2 ID	LCSD-26484
Spike 1 Filename	P100930B_10	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

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Method 1668A

Spike Recovery Relative Percent Difference (RPD) Results

Client	Test America		
Spike 1 ID	LCS-26615	Spike 2 ID	LCSD-26616
Spike 1 Filename	P101015B_13	Spike 2 Filename	P101016A_03

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	124	115	7.5
4-MoCB	3	110	99	10.5
2,2'-DiCB	4	116	107	8.1
4,4'-DiCB	15	115	111	3.5
2,2',6-TrCB	19	103	108	4.7
3,4,4'-TrCB	37	121	123	1.6
2,2',6,6'-TeCB	54	99	97	2.0
3,3',4,4'-TeCB	77	101	106	4.8
3,4,4',5-TeCB	81	97	100	3.0
2,2',4,6,6'-PeCB	104	104	103	1.0
2,3,3',4,4'-PeCB	105	112	112	0.0
2,3,4,4',5-PeCB	114	103	104	1.0
2,3',4,4',5-PeCB	118	126	127	0.8
2,3',4,4',5'-PeCB	123	104	109	4.7
3,3',4,4',5-PeCB	126	94	95	1.1
2,2',4,4',6,6'-HxCB	155	100	102	2.0
(156/157)	156/157	103	103	0.0
2,3',4,4',5,5'-HxCB	167	107	107	0.0
3,3',4,4',5,5'-HxCB	169	101	98	3.0
2,2',3,4',5,6,6'-HpCB	188	101	102	1.0
2,3,3',4,4',5,5'-HpCB	189	101	100	1.0
2,2',3,3',5,5',6,6'-OcCB	202	102	104	1.9
2,3,3',4,4',5,5',6-OcCB	205	100	99	1.0
2,2',3,3',4,4',5,5',6-NoCB	206	102	102	0.0
2,2',3,3',4,5,5',6,6'-NoCB	208	101	102	1.0
Decachlorobiphenyl	209	131	128	2.3

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

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