Data Summary Report
Lower Columbia Slough
DEQ Task Order No. 57-08-32
Portland, Oregon

Prepared for:
Oregon Department of Environmental Quality

September 14, 2012
1888-00/Task 4

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A Division of Apex Companies, LLC
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1.0 Introduction

This report describes the field activities and presents the results for the sediment sampling conducted to assess the vertical and lateral extent of elevated areas of polychlorinated biphenyl (PCB) contamination in the Lower Columbia Slough in Portland, Oregon (the Site). The study focused on four priority cleanup areas located between river miles 5.9 and 8.7 of the Columbia Slough identified in the Oregon Department of Environmental Quality's (DEQ's) 2011 Columbia Slough Sediment Study: Lower Slough Between River Mile 5.9 and 8.7 (Columbia Slough Study). The sediment sampling was performed to delineate the vertical and lateral extent of PCB contamination within these four priority cleanup areas. Sediment sampling and analysis was conducted in accordance with the Sediment Sampling Work Plan – Lower Columbia Slough Sediment Study (Ash Creek Associates [Ash Creek], 2011). This report was prepared for the DEQ under Task 4 of Task Order No. 57-08-32.

1.1 Purpose

The purpose of the work was to assess the vertical and lateral extent of PCB contamination in sediment within each of the four priority cleanup areas located between river miles 5.9 and 8.7 of the Columbia Slough. The results of the site investigation will be used to assess the current Site conditions in support of future cleanup activities.

1.2 Scope of Work

To accomplish the above objectives, the scope of work consisted of the following general tasks:

1) Complete surface and subsurface sediment sampling;
2) Analyze sediment samples for PCBs and total organic carbon (TOC);
3) Complete follow-up analysis of archived samples based upon initial sediment analytical results; and
4) Prepare an investigation summary report that discusses sediment assessment activities, analytical results, and the areas targeted for remediation (i.e. this report).

2.0 Background

This section presents a description of the Site and the geology and hydrology.

2.1 Site Location and Project Descriptions

The Site is located within the upper portion of the Lower Slough section of the Columbia Slough between City of Portland Outfall 59 (river mile 5.9) and the Peninsula Drainage District #2 (PEN 2) levee (river mile

8.7) in the City of Portland, Multnomah County, Oregon (Figures 1 and 2). The elevation at the Site ranges from approximately 9 to 10 feet above mean sea level. The Lower Slough is tidally influenced, as it is directly connected to the Willamette River. The Columbia Slough Watershed drains approximately 32,700 acres of land, including areas in Fairview Lake and Fairview Creek, and portions of Troutdale, Fairview, Gresham, Maywood Park, Wood Village, and unincorporated Multnomah County. Historically, the watershed contained channels, streams, lakes, ponds, and wetlands. As a result of urban development, the watershed has been altered, including building levees and draining and filling the wetland areas. The water has been channelized into what is now called the Columbia Slough. Side creeks and channels were filled in or diverted to underground pipes. The area is now an extensively managed surface water system with many water control structures.

2.2 Geology and Hydrology

The primary near-site-vicinity geologic unit underlying the project Site has been mapped as surficial soil deposits of unconsolidated alluvium derived from river and stream deposits at the ground surface. These soils consist of sand and silt of recent age (Holocene Age, within the last 10,000 years) deposited on the flood plains of the Columbia River. Some of the materials are re-worked deposits of upstream formations by the Columbia River. This unit is typically found in thicknesses of less than 50 feet. This unit mantles the eroded surface of Pleistocene-aged, unconsolidated sand and silt alluvium deposits, and the eroded surface of late-Pleistocene lacustrine (lake sediment) deposits. Office review of the U.S. Soil Conservation Service (now known as the Natural Resource Conservation Service [NRCS]) manual for Multnomah County indicates the primary near-surface soils on the Site consist of Sauvie silt loam (protected) and Rafton silt loam (protected). The “protected” designation indicates protection against flooding from dikes and levees. Sauvie silt loam soils are characterized as poorly drained, dark-grayish-brown, fine-grained soils formed in recent alluvium with some mixing of volcanic ash. Rafton silt loam soils are characterized as very poorly drained, dark-grayish-brown, silty loam soils formed on flood plains and low terraces.

3.0 Field Activities

3.1 Sediment Sampling Locations

Figures 3 through 8 show the locations of the sediment samples within each of the four Priority Characterization Areas identified in the 2011 DEQ study. A summary of sample locations and depths is included as Table 1. A photograph log showing sample locations and sampling methodologies is presented in Appendix A. Field sampling sheets are presented in Appendix B.

Based on the known extent of PCBs in each of the Priority Characterization Areas as summarized in the Work Plan, the following discussion presents the locations and rationales for the sampling locations within each of the Priority Characterization Areas.

Priority Characterization Area #1, Pacific Meats Cleanup Site/City of Portland Outfall 60

Shallow Sediment. The Outfall 60 area was previously defined by a single shallow composite sediment sample collected within the vicinity of the outfall, along with several additional downstream shallow sediment samples defining the extent of shallow sediment contamination along the southern portion of the slough in this vicinity. One five-point composite sample was collected to the north of the single historical composite sample to further delineate sediment in the vicinity of the outfall. Two additional five-point composites were collected upstream of Outfall 60 to characterize the area upstream of the outfall and to better define the east edge of the characterization area. Two additional samples were collected to better define sediment contamination along the west edge of the characterization area. Shallow composite sample locations from PCA #1 are shown on Figure 3.

Deep Sediment. One sample was collected at the approximate location of the highest historical shallow sediment sample concentration to define the vertical extent of contamination. A second deep sample location was collected in the vicinity of Outfall 60. Deep sample locations from PCA #1 are shown on Figure 4.

Priority Characterization Area #2, City of Portland Outfall 61

Shallow Sediment. Five-point composite sediment samples were collected upstream and downstream of Outfall 61 to supplement the limited historical sample data in this area, to define the presence and/or extent of PCB contamination in this area, and to define the east and west edges of the characterization area. Given the relatively limited historical data, an additional five-point composite sample was collected downstream of the primary downstream composite sample as an alternate; however, PCB concentrations in the primary composite samples indicated a consistent trend of declining concentrations in this area and the alternate sample was therefore not analyzed. Shallow composite sample locations from PCA #1 are shown on Figure 5.

Deep Sediment: A deep sample was collected downstream of Outfall 61 in the vicinity of a historical deep sample with elevated PCB concentrations to better define the vertical extent of contamination within this characterization area. The deep sediment sample location in PCA #2 is shown on Figure 5.

Priority Characterization Area #3, Vicinity of City of Portland Outfall 62/62A, Wastech (ECSI #1271), City of Portland Outfall 63 at Vancouver Bridge, and City of Portland Outfall 64

Shallow Sediment. To provide further delineation of sediment in the vicinity of Outfall 62/62A, five-point composite samples were collected to the north and west of the single historical composite sample for this area. Two additional five-point composite sediment samples were collected downstream to further delineate

the area with a high historical sample concentration (420 micrograms per kilogram [µg/kg] at 0 to 55 centimeters below the mud line [cm bml]) to the west of Outfall 62/62A and to better define the west edge of the characterization area. An alternate composite sample was collected downstream of the two primary downstream composite samples associated with the outfall and upstream of the westernmost characterization sample; however, based on the concentrations of the two primary downstream samples, this alternate sample was not analyzed. Two additional five-point composite sediment samples were collected upstream of Outfall 62/62A to better characterize the sediment upstream of Outfall 62/62A, as well as to characterize the extent of sediment contamination detected on the western edge of the former Wastech recycling facility and adjacent industrial facilities.

Two five-point composite samples were collected on the north and south sides of the channel in the area with a high historical sample concentration (630 µg/kg at 0-75 cm bml) to better define the area of contamination to the west of Outfall 63.

To delineate the eastern edge of the characterization area, two five-point composite samples were collected on the north and south sides of the channel in the vicinity of a historical surface grab sample with an elevated PCB concentration (102 µg/kg). Shallow composite sample locations from PCA #3 are shown on Figure 6.

Deep Sediment. Deep sediment samples were collected in the vicinity of Outfall 62/62A and Outfall 63 to define the vertical extent of contamination adjacent to these outfalls. A third deep sample was collected in an area with a high historical sample concentration (630 µg/kg at 0-75 cm bml). Deep sediment sample locations from PCA #3 are shown on Figure 7.

Priority Characterization Area #4, Downstream of City of Portland Outfall 65

Shallow Sediment. Five-point composite sediment samples were collected upstream, downstream, and adjacent to the area of the highest historical PCB concentrations to supplement the limited historical sample data and better define the extent of PCB contamination in this area. Additionally, an alternate composite sample was collected upstream of the primary composite samples and downstream of the outfall sample. Based on the sample results from the upstream primary composite sample, the alternate sample was analyzed. Shallow composite sample locations from PCA #4 are shown on Figure 8.

Deep Sediment: A deep sample was collected from a location within the vicinity of the highest historical sample concentration to define the vertical extent of contamination at this location. The deep sediment sample location in PCA #4 is shown on Figure 8.

3.2 Decision Process for Analyzing Samples

Following the Work Plan protocols, sediment samples were collected to delineate the nature and extent of PCB contamination in sediments at each of the four Priority Characterization Areas in order to define the extent of active sediment cleanup needed (i.e., areas where PCB concentrations are significantly elevated over baseline levels) to achieve the Remediation Goal (RG) for the Lower Columbia Slough. It is our understanding that the RG will be achieved through a combination of active remediation of higher concentration areas (e.g., Priority Characterization Areas), source control, and natural attenuation. Samples were generally collected in accordance with the Work Plan, using the decision process for sampling and analysis of alternate samples presented in each Priority Characterization Area sampling description in Section 3.1.

3.3 Deviations from the Work Plan

Sample collection was conducted in general accordance with the Work Plan (Ash Creek, 2012) using methodology described in Section 4.0 of the SAP. Deviations from the Work Plan are summarized as follows.

- Shallow composite samples were collected with a bottom dredge sampler, as opposed to the core barrel sampler described in the Work Plan. In general, the sediment encountered in the upper 10 cm of the slough bottom was too soft for the core barrel to effectively recover. Use of the dredge sampler allowed sufficient sample recovery in the upper 10 cm.
- The location for composite sample PCA3-03s was moved 25 feet to the northwest (Figure 6). Attempts to sample at the original location resulted in no sediment recovery. The lack of recovery was the result of debris (i.e. broken bottles, metals scraps, boards) encountered on the sediment surface.
- Due to a greater than expected water depth (approximately 17 feet to mud line) at the proposed sample location, sample location PCA3-03d was moved 140 feet to the west. It is suspected that the depth at this location was associated with the footing excavations associated with the Vancouver Avenue bridge replacement.
- At location PCA3-02d, no samples were collected between 30 and 85 cm bml due to the lack of sediment recovery. An increase in sediment density allowed for sample collection from the interval below 85 cm bml (85 to 115 cm bml).
- At sample locations PCA2-01d and PCA3-02d, sampling was terminated at 120 and 115 cm, respectively. Due to the weight of the hand-operated sampling equipment, the maximum sampling depth of the core barrel sampler is approximately 16 feet below the water level. The exploration depths of PCA2-01d and PCA3-02d were approximately 15.7 and 15.0 feet below the water line, respectively.

- At sample location PCA-03d, soft clayey silts were encountered beneath stiff sediments in the 0 to 60 cm intervals extending to a depth of at least 150 cm bml. As experienced in the soft surface sediments, no sediment was recovered in multiple attempts to sample this soft sediment interval.

3.4 Sample Collection

Sediment sampling of the Lower Columbia Slough was conducted between June 6 and June 14, 2012. Samples were collected using an 18-foot flat-bottomed aluminum boat provided by Multnomah County Drainage District. A Trimble GeoXH handheld global positioning system (GPS) unit was used for sample location control with pre-determined coordinates presented in the Work Plan. In general, sample collection was consistent with methods described in the Work Plan.

Shallow five-point composite samples were collected at the locations specified in Table 1. The individual sub-samples were collected from the upper 10 cm of sediment with an AMS bottom dredge. The five individual sub-samples were composited in decontaminated stainless steel bowls before being placed in laboratory supplied containers.

Deep sediment samples were collected in 30 cm increments beginning at the mud line and continuing to the depth of sampling equipment refusal. The samples were collected with a manually driven core barrel sampler with an internally removable tip to allow discrete interval sampling. The deep sample intervals were removed from the core barrel liners, temporarily placed in decontaminated stainless steel bowls, and then packed into laboratory supplied containers.

With the exception of the instances noted in Section 3.3 above, samples were collected in accordance with the Work Plan and the SAP.

4.0 Chemical Analyses and Results

Chemical analyses were performed to determine the magnitude and extent of PCBs in the slough sediment. Sediment samples were containerized and transferred to Pace Labs of Seattle, Washington, by chain-of-custody for chemical analysis.

4.1 Analyses Performed

Samples were analyzed for the following analytes:

- PCBs by EPA Method 8082
- TOC by EPA Method 9060

Laboratory analytical reports, chain-of-custody documentation, and quality assurance review are provided in Appendix C. As noted in the quality assurance review, the Method Detection Limits (MDLs) and Method Reporting Limits (MRLs) were elevated for all of the samples. In the scoping phase of this project, the laboratory indicated that they could achieve MDLs ranging from 1.41 ppb to 5.24 ppb and MRLs of 17 ppb for all PCB Aroclors. However, MRLs and MDLs were elevated compared to these goals because of the relatively high water content of the samples. Conversion of the results to dry weight basis resulted in MDLs in the range of 22.4 to 47.8 milligrams per kilogram (mg/kg).

4.2 Chemical Results

In summary, the majority of PCB results were below detection limits. Results for samples collected in each of the Priority Characterization Areas were lower than historical samples, including samples collected in close proximity to historical sample locations.

Priority Characterization Area #1, Pacific Meats Cleanup Site/City of Portland Outfall 60

Six shallow composite sediment samples were analyzed from Priority Characterization Area #1. Each composite sample was made up of 5 discrete sub-samples collected from 0 to 10 centimeters bml. A duplicate was analyzed for sample PCA-1-04s. Sample PCA1-03s was split, with duplicate analysis conducted by ESC Lab Sciences of Mt. Juliet, Tennessee (ESC). In addition to the composite samples, discrete deep interval samples were collected from locations PCA1-01d and PCA1-02d at intervals of 0 to 30 cm, 30 to 60 cm, and 60 to 90 cm for each sample location.

Samples were analyzed for PCBs and TOC. Table 2 lists the analytical results for these sediment samples. TOC values ranged from a low of 3,750 mg/kg in the discrete sample PCA1-01d (60 to 90 cm bml) to a high of 35,700 mg/kg in the duplicate sample for PCA1-05s. PCBs were not detected, with the exception of Aroclor 1254 in discrete sample PCA1-05d (0 to 30 cm bml), detected at a concentration of 0.0600 mg/kg. Figures 3 and 4 show the locations and PCB concentrations of the sediment samples in Priority Characterization Area #1.

Priority Characterization Area #2, City of Portland Outfall 61

Two shallow composite sediment samples were analyzed from Priority Characterization Area #2. Both composite samples were made up of 5 discrete sub-samples collected from 0 to 10 centimeters bml. In addition to the composite samples, five discrete deep interval samples were collected from locations PCA2-01d including a split sample for PCA2-01d (30 to 60 cm) which was analyzed by ESC. A duplicate sample of PCA2-01d (60 to 90 cm) was also analyzed. The depth intervals for the discrete samples were from 0 to 30 cm, 30 to 60 cm, and 60 to 90 cm bml.

Samples were analyzed for PCBs and TOC. Table 3 lists the analytical results for these sediment samples. TOC values ranged from a low of 17,700 mg/kg in the discrete sample PCA2-01d (0 to 30 cm bml) to a high of 63,800 mg/kg in the discrete sample for PCA2-01d (60 to 90 cm bml). PCBs were not detected, with the exception of Aroclor 1254 in discrete sample PCA2-01d (30 to 60 cm bml), detected at a concentration of 0.131 mg/kg. Figure 5 shows the locations and PCB concentrations of the sediment samples in Priority Characterization Area #2.

Priority Characterization Area #3, Vicinity of City of Portland Outfall 62/62A, Wastech (ECSI #1271), City of Portland Outfall 63 at Vancouver Bridge, and City of Portland Outfall 64

Eleven shallow composite sediment samples were analyzed in Priority Characterization Area #1, including a split sample on sample PCA3-04s, which was analyzed by a separate laboratory. Each composite sample was made up of 5 discrete sub-samples collected from 0 to 10 cm bml. In addition to the composite samples, seven discrete deep interval samples were collected from locations PCA3-01d, PCA3-02d, and PCA3-03d. The depth intervals for the discrete samples were from 0 to 30 cm, 30 to 60 cm, and 60 to 90 cm bml (PCA3-01d only).

Samples were analyzed for PCBs and TOC. Table 4 lists the analytical results for these sediment samples. TOC values ranged from a low of 712 mg/kg in the discrete sample PCA3-01d (60 to 90 cm bml) to a high of 28,500 mg/kg in the composite sample for PCA3-03s. PCBs were not detected, with the exception of Aroclor 1254 in discrete sample PCA3-01d (0 to 30 cm bml), detected at a concentration of 0.118 mg/kg. Figures 6 and 7 show the locations and PCB concentrations of the sediment samples in Priority Characterization Area #3.

Priority Characterization Area #4, Downstream of City of Portland Outfall 65

Four shallow composite sediment samples were analyzed in Priority Characterization Area #4, including three primary composite samples and one alternate composite sample. Each composite sample was made up of 5 discrete sub-samples collected from 0 to 10 centimeters bml. In addition to the composite samples, three discrete deep samples were collected from location PCA4-01d. The depth intervals for the discrete samples were from 0 to 30 cm, 30 to 60 cm, and 60 to 90 cm bml.

Samples were analyzed for PCBs and TOC. Table 5 lists the analytical results for these sediment samples. TOC values ranged from a low of 10,100 mg/kg in the discrete sample PCA4-01d (60 to 90 cm bml) to a high of 28,400 mg/kg in the composite sample for PCA4-01s. Aroclor 1254 was detected above laboratory detection limits in composite samples PCA4-02s and PCA4-3s, at concentrations of 0.0792 and 0.111 mg/kg respectively. Figure 8 shows the locations and PCB concentrations of the sediment samples collected in Priority Characterization Area #4.

4.3 Laboratory Sample Validation

To better validate laboratory data for the sediment samples, sediment collected from three locations was split into two sets of containers and shipped to a second laboratory (ESC). The split samples were collected and analyzed from two surface samples (PCA1-03s and PCA3-04s) and one deep sample (PCA2-01d[30-60]).

Prior to dividing sampled sediment between two containers for shipment to the analytical laboratories, the collected sediment (composite subsamples in the case of the shallow samples and discrete interval samples in the case of the deep samples) was placed into a stainless steel mixing bowl and homogenized using a stainless steel spoon until the sediment was of uniform color and texture. Once homogenized, the sediment sample was evenly divided, placed in appropriate containers, properly labeled, and placed into a cooler for shipment to the laboratory.

The shallow sample results for both the Pace- and ESC-analyzed samples were non-detect for PCBs. In the deep sample interval analyzed (PCA2-01d[30-60]), Pace detected PCBs at a concentration of 0.131 mg/kg and ESC did not detect PCB concentrations above the reporting limit (<0.034 mg/kg). Laboratory analytical results for these split samples are included in the data tables for each respective Priority Characterization Area presented in Tables 2 through 5. These results suggest that there may be some variability even in samples collected closely together.

5.0 Summary and Conclusions

Sediment sampling was conducted within four Priority Characterization Areas of the Lower Columbia Slough in order to delineate the vertical and lateral extent of PCB contamination within each of these four priority cleanup areas.

For the surface sediment samples, the only detected concentrations were found in PCA #4 (concentrations of 0.079 and 0.111 mg/kg) in the locations shown on Figure 8. Deep sample concentrations were also primarily not detected above laboratory method detection limits, with the exception of one interval in each of areas PCA #1, PCA #2, and PCA #3 in the locations shown on Figures 4, 5, and 7, respectively. Detected concentrations in the deep samples ranged from 0.060 to 0.131 mg/kg.

Based on our sample results in each Priority Characterization Area, sufficient data were collected to delineate the lateral and vertical extent of PCB contamination within each of the areas. Laboratory data validation sampling (i.e., split samples) shows that there is some variability in the spatial distribution of sample concentrations within each of the areas.

6.0 References

Ash Creek, 2012. *Sediment Sampling Work Plan – Lower Columbia Slough Sediment Study.* DEQ Task Order No. 57-08-32. March 21, 2012.

City of Portland - Bureau of Environmental Services, (BES) 2009. *Columbia Slough Sediment Analysis Sampling 2006, prepared for the Oregon Department of Environmental Quality (DEQ).* January 2009.

Oregon DEQ, 2011. *Columbia Slough Sediment Study: Lower Slough Between River Mile 5.9 and 8.7.* March 2011.

Oregon DEQ, 2011b. *Quality Assurance Project Plan/Sampling and Analysis Plan: Whitaker Slough Sediment Investigation.* January 2011.

Oregon DEQ, 2011c. *Database of Historical Columbia Slough Sample Data: Microsoft Access and ESRI Geodatabase Files.* Compact Disc of Files Provided to Ash Creek by DEQ in October 2011.

U.S. Army Corps of Engineers. 1998. *Columbia Slough Sediment Quality Investigation for the 1135 Study. Portland District Corps of Engineers.* May 1998.

Table 1 - Sample Summary
Lower Columbia Slough Sediment Data Report
Oregon Department of Environmental Quality
Portland, Oregon

Priority Characterization Area	Sample Location	Coordinates (ORHP-NF)		Sample Depth	
		Northing (X)	*Easting (Y)*	*Shallow*	*Deep*
PCA-1	PCA1-01S(a-e)	7640917	709304	X	
	PCA1-02S(a-e)	7640444	709473	X	
	PCA1-03S(a-e)	7641088	709271	X	
	PCA1-04S(a-e)	7641357	709138	X	
	PCA1-05S(a-e)	7641329	709038	X	
	PCA1-01D	7640787	709268		X
	PCA1-02D	7641052	709151		X
PCA-2	PCA2-01S(a-e)	7642994	708352	X	
	PCA2-02S(a-e)	7643518	708110	X	
	PCA2-03S(a-e)	7642851	708480	X (Alternate)	
	PCA2-01D	7643122	708247		X
PCA-3	PCA3-01S(a-e)	7644763	707821	X	
	PCA3-02S(a-e)	7645455	707508	X	
	PCA3-03S(a-e)	7645334	707392	X	
	PCA3-04S(a-e)	7645774	707577	X	
	PCA3-05S(a-e)	7646175	707504	X	
	PCA3-06S(a-e)	7646818	707100	X	
	PCA3-07S(a-e)	7646788	706973	X	
	PCA3-08S(a-e)	7647552	706936	X	
	PCA3-09S(a-e)	7647577	706839	X	
	PCA3-10S(a-e)	7645061	707594	X (Alternate)	
	PCA3-01D	7645484	707370		X
	PCA3-02D	7646776	707069		X
	PCA3-03D	7647065	706887		X
PCA-4	PCA4-01S(a-e)	7650565	706129	X	
	PCA4-02S(a-e)	7650776	706117	X	
	PCA4-03S(a-e)	7650846	705980	X	
	PCA4-04S(a-e)	7651033	705933	X (Alternate)	
	PCA4-01D	7650686	706085		X

Notes:

1. ORHP-NF - Oregon State Plane Coordinate System, North Zone (feet)
2. PCBs - Polychlorinated Biphenyls by EPA 8082
3. Shallow - Shallow interval samples were collected from the sediment surface to 10 cm below the mudline (bml). Listed coordinates are the center point of a five point composite sample.
4. Deep - Deep interval samples were collected in 30 cm increments from the sediment surface to the depth of effective sampling equipment refusal.

Table 2 - PCA-1 Sediment Anaytical Results
Lower Columbia Slough Sediment Data Report
Oregon Department of Environmental Quality
Portland, Oregon

Sample ID:	PCA1-01s	PCA1-02s	PCA1-03s	PCA1-03s	PCA1-04s	PCA1-04s DUP	PCA1-05s	PCA1-01d (0-30)	PCA1-01d (30-60)	PCA1-01d (60-90)	PCA1-02d (0-30)	PCA1-02d (30-60)	PCA1-02d (60-90)
Type:	Composite	Composite	Composite	Composite - SPLIT	Composite	Composite	Composite	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete
Lab ID:	2512573001	2512573002	2512573003	L580755-01 (ESC)	2512573004	2512573005	2512573006	2512573007	2512573008	2512573009	2512573010	2512573011	2512573012
Sample Date:	6/7/2012	6/7/2012	6/7/2012	6/7/2012	6/7/2012	6/7/2012	6/7/2012	6/6/2012	6/6/2012	6/6/2012	6/6/2012	6/6/2012	6/6/2012
Depth:	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Deep (0-30 cm)	Deep (30-60 cm)	Deep (60-90 cm)	Deep (0-30 cm)	Deep (30-60 cm)	Deep (60-90 cm)
Total Organic Carbon - TOC by EPA 9060 (mg/kg)													
Total Organic Carbon	15,900	21,800	22,500	19,000	23,900	24,100	32,700	12,700	16,900	3,750	15,800	14,300	13,200
PCBs by EPA 8082 (mg/kg)													
Aroclor 1016	<0.0384	<0.0310	<0.0455	<0.047	<0.0457	<0.0478	<0.0431	<0.0301	<0.0259	<0.0240	<0.0283	<0.0235	<0.0224
Aroclor 1221	<0.0384	<0.0310	<0.0455	<0.047	<0.0457	<0.0478	<0.0431	<0.0301	<0.0259	<0.0240	<0.0283	<0.0235	<0.0224
Aroclor 1232	<0.0384	<0.0310	<0.0455	<0.047	<0.0457	<0.0478	<0.0431	<0.0301	<0.0259	<0.0240	<0.0283	<0.0235	<0.0224
Aroclor 1242	<0.0384	<0.0310	<0.0455	<0.047	<0.0457	<0.0478	<0.0431	<0.0301	<0.0259	<0.0240	<0.0283	<0.0235	<0.0224
Aroclor 1248	<0.0384	<0.0310	<0.0455	<0.047	<0.0457	<0.0478	<0.0431	<0.0301	<0.0259	<0.0240	<0.0283	<0.0235	<0.0224
Aroclor 1254	<0.0384	<0.0310	<0.0455	<0.047	<0.0457	<0.0478	<0.0431	**0.0600 J**	<0.0259	<0.0240	<0.0283	<0.0235	<0.0224
Aroclor 1260	<0.0384	<0.0310	<0.0455	<0.047	<0.0457	<0.0478	<0.0431	<0.0301	<0.0259	<0.0240	<0.0283	<0.0235	<0.0224
Total PCBs	--	--	--	--	--	--	--	**0.0600 J**	--	--	--	--	--

Notes:
1. **Bold** indicates detected concentration of listed analyte.
2. PCBs = Polychlorinated Biphenyls
3. mg/kg = Milligrams per kilogram (parts per million [ppm]).
4. < = Not detected above the indicated method detection limit (MDL).
5. -- = Not available.
6. Total PCBs = Sum of detected PCBs.
7. J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
8. All samples analyzed by Pace, unless noted otherwise (i.e. split samples).

Table 3 - PCA-2 Sediment Anaytical Results
Lower Columbia Slough Sediment Data Report
Oregon Department of Environmental Quality
Portland, Oregon

Sample ID:	PCA2-01s	PCA2-02s	PCA2-01d (0-30)	PCA2-01d (30-60)	PCA2-01d (30-60)	PCA2-01d (60-90)	PCA2-01d (60-90) DUP
Type:	Composite	Composite	Discrete	Discrete	Discrete - SPLIT	Discrete	Discrete
Lab ID:	2512573013	2512573014	2512573016	2512573017	L580755 (ESC)	2512573018	2512573019
Sample Date:	6/7/2012	6/7/2012	6/13/2012	6/13/2012	6/13/2012	6/13/2012	6/13/2012
Depth:	Shallow (0-10 cm)	Shallow (0-10 cm)	Deep (0-30 cm)	Deep (30-60 cm)	Deep (30-60 cm)	Deep (60-90 cm)	Deep (60-90 cm)
Total Organic Carbon - TOC by EPA 9060 (mg/kg)							
Total Organic Carbon	32,300	22,500	17,700	29,300	22,000	63,800	41,400
PCBs by EPA 8082 (mg/kg)							
Aroclor 1016	<0.0473	<0.0368	<0.0295	<0.0332	<0.034	<0.0364	<0.0351
Aroclor 1221	<0.0473	<0.0368	<0.0295	<0.0332	<0.034	<0.0364	<0.0351
Aroclor 1232	<0.0473	<0.0368	<0.0295	<0.0332	<0.034	<0.0364	<0.0351
Aroclor 1242	<0.0473	<0.0368	<0.0295	<0.0332	<0.034	<0.0364	<0.0351
Aroclor 1248	<0.0473	<0.0368	<0.0295	<0.0332	<0.034	<0.0364	<0.0351
Aroclor 1254	<0.0473	<0.0368	<0.0295	**0.131**	<0.034	<0.0364	<0.0351
Aroclor 1260	<0.0473	<0.0368	<0.0295	<0.0332	<0.034	<0.0364	<0.0351
Total PCBs	--	--	--	**0.131**	--	--	--

Notes:

1. **Bold** indicates detected concentration of listed analyte.
2. PCBs = Polychlorinated Biphenyls
3. mg/kg = Milligrams per kilogram (parts per million [ppm]).
4. < = Not detected above the indicated method detection limit (MDL).
5. -- = Not available.
6. Total PCBs = Sum of detected PCBs.
7. J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
8. All samples analyzed by Pace, unless noted otherwise (i.e. split samples).

Table 4 - PCA-3 Sediment Anaytical Results
Lower Columbia Slough Sediment Data Report
Oregon Department of Environmental Quality
Portland, Oregon

Sample ID:	PCA3-01s	PCA3-02s	PCA3-02s DUP	PCA3-03s	PCA3-04s	PCA3-04s	PCA3-05s	PCA3-06s	PCA3-07s	PCA3-08s	PCA3-09s	PCA3-01d (0-30)	PCA3-01d (30-60)	PCA3-01d (60-90)	PCA3-02d (0-30)	PCA3-02d (85-115)	PCA3-03d (0-30)	PCA3-03d (30-60)
Type:	Composite	Composite	Composite	Composite	Composite	Composite - SPLIT	Composite	Composite	Composite	Composite	Composite	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete
Lab ID:	2512573021	2512573022	2512573023	2512573024	2512573025	L580755-02 (ESC)	2512573026	2512573027	2512573028	2512573029	2512573030	2512573032	2512573033	2512573034	2512599003	2512599004	2512599001	2512599002
Sample Date:	6/8/2012	6/8/2012	6/9/2012	6/12/2012	6/8/2012	6/8/2012	6/8/2012	6/8/2012	6/8/2012	6/8/2012	6/8/2012	6/13/2012	6/13/2012	6/13/2012	6/14/2012	6/14/2012	6/14/2012	6/14/2012
Depth:	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Deep (0-30 cm)	Deep (30-60 cm)	Deep (60-90 cm)	Deep (0-30 cm)	Deep (85-115 cm)	Deep (0-30 cm)	Deep (30-60 cm)
Total Organic Carbon - TOC by EPA 9060 (mg/kg)																		
Total Organic Carbon	25,400	13,700	15,300	28,500	22,300	20,000	25,300	25,400	10,900	20,500	24,300	3,940	1,250	712	20,800	21,800	18,900	20,800
PCBs by EPA 8082 (mg/kg)																		
Aroclor 1016	<0.0472	<0.0323	<0.0325	<0.0343	<0.0478	<0.045	<0.0455	<0.0408	<0.0332	<0.0414	<0.0421	<0.0265	<0.0242	<0.0111	<0.0439	<0.0435	<0.0472	<0.0415
Aroclor 1221	<0.0472	<0.0323	<0.0325	<0.0343	<0.0478	<0.045	<0.0455	<0.0408	<0.0332	<0.0414	<0.0421	<0.0265	<0.0242	<0.0111	<0.0439	<0.0435	<0.0472	<0.0415
Aroclor 1232	<0.0472	<0.0323	<0.0325	<0.0343	<0.0478	<0.045	<0.0455	<0.0408	<0.0332	<0.0414	<0.0421	<0.0265	<0.0242	<0.0111	<0.0439	<0.0435	<0.0472	<0.0415
Aroclor 1242	<0.0472	<0.0323	<0.0325	<0.0343	<0.0478	<0.045	<0.0455	<0.0408	<0.0332	<0.0414	<0.0421	<0.0265	<0.0242	<0.0111	<0.0439	<0.0435	<0.0472	<0.0415
Aroclor 1248	<0.0472	<0.0323	<0.0325	<0.0343	<0.0478	<0.045	<0.0455	<0.0408	<0.0332	<0.0414	<0.0421	<0.0265	<0.0242	<0.0111	<0.0439	<0.0435	<0.0472	<0.0415
Aroclor 1254	<0.0472	<0.0323	<0.0325	<0.0343	<0.0478	<0.045	<0.0455	<0.0408	<0.0332	<0.0414	<0.0421	0.118	<0.0242	<0.0111	<0.0439	<0.0435	<0.0472	<0.0415
Aroclor 1260	<0.0472	<0.0323	<0.0325	<0.0343	<0.0478	<0.045	<0.0455	<0.0408	<0.0332	<0.0414	<0.0421	<0.0265	<0.0242	<0.0111	<0.0439	<0.0435	<0.0472	<0.0415
Total PCBs	--	--	--	--	--	--	--	--	--	--	--	0.118	--	--	--	--	--	--

Notes:
1. **Bold** indicates detected concentration of listed analyte.
2. PCBs = Polychlorinated Biphenyls
3. mg/kg = Milligrams per kilogram (parts per million [ppm]).
4. < = Not detected above the indicated method detection limit (MDL).
5. -- = Not available.
6. Total PCBs = Sum of detected PCBs.
7. J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
8. All samples analyzed by Pace, unless noted otherwise (i.e. split samples).

Table 5 - PCA-4 Sediment Anaytical Results
Lower Columbia Slough Sediment Data Report
Oregon Department of Environmental Quality
Portland, Oregon

Sample ID:	PCA4-01s	PCA4-02s	PCA4-03s	PCA4-04s	PCA4-01d (0-30)	PCA4-01d (30-60)	PCA4-01d (60-90)
Type:	Composite	Composite	Composite	Composite	Discrete	Discrete	Discrete
Lab ID:	2512573036	2512573037	2512573038	2512573039	2512573040	2512573041	2512573042
Sample Date:	6/12/2012	6/12/2012	6/12/2012	6/12/2012	6/12/2012	6/12/2012	6/12/2012
Depth:	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Shallow (0-10 cm)	Deep (0-30 cm)	Deep (30-60 cm)	Deep (60-90 cm)
Total Organic Carbon - TOC by EPA 9060 (mg/kg)							
Total Organic Carbon	28,600	17,400	21,900	13,400	24,200	24,900	10,100
PCBs by EPA 8082 (mg/kg)							
Aroclor 1016	<0.0341	<0.0309	<0.0339	<0.0163	<0.0327	<0.0323	<0.0260
Aroclor 1221	<0.0341	<0.0309	<0.0339	<0.0163	<0.0327	<0.0323	<0.0260
Aroclor 1232	<0.0341	<0.0309	<0.0339	<0.0163	<0.0327	<0.0323	<0.0260
Aroclor 1242	<0.0341	<0.0309	<0.0339	<0.0163	<0.0327	<0.0323	<0.0260
Aroclor 1248	<0.0341	<0.0309	<0.0339	<0.0163	<0.0327	<0.0323	<0.0260
Aroclor 1254	<0.0341	0.0792	0.111	<0.0163	<0.0327	<0.0323	<0.0260
Aroclor 1260	<0.0341	<0.0309	<0.0339	<0.0163	<0.0327	<0.0323	<0.0260
Total PCBs	--	0.0792	0.111	--	--	--	--

Notes:

1. **Bold** indicates detected concentration of listed analyte.
2. PCBs = Polychlorinated Biphenyls
3. mg/kg = Milligrams per kilogram (parts per million [ppm]).
4. < = Not detected above the indicated method detection limit (MDL).
5. -- = Not available.
6. Total PCBs = Sum of detected PCBs.
7. J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
8. All samples analyzed by Pace, unless noted otherwise (i.e. split samples).

Note: Base map prepared from USGS 7.5-minute quadrangle of Portland, OR, dated 2011 as provided by USGS.gov.

0 2,000 4,000

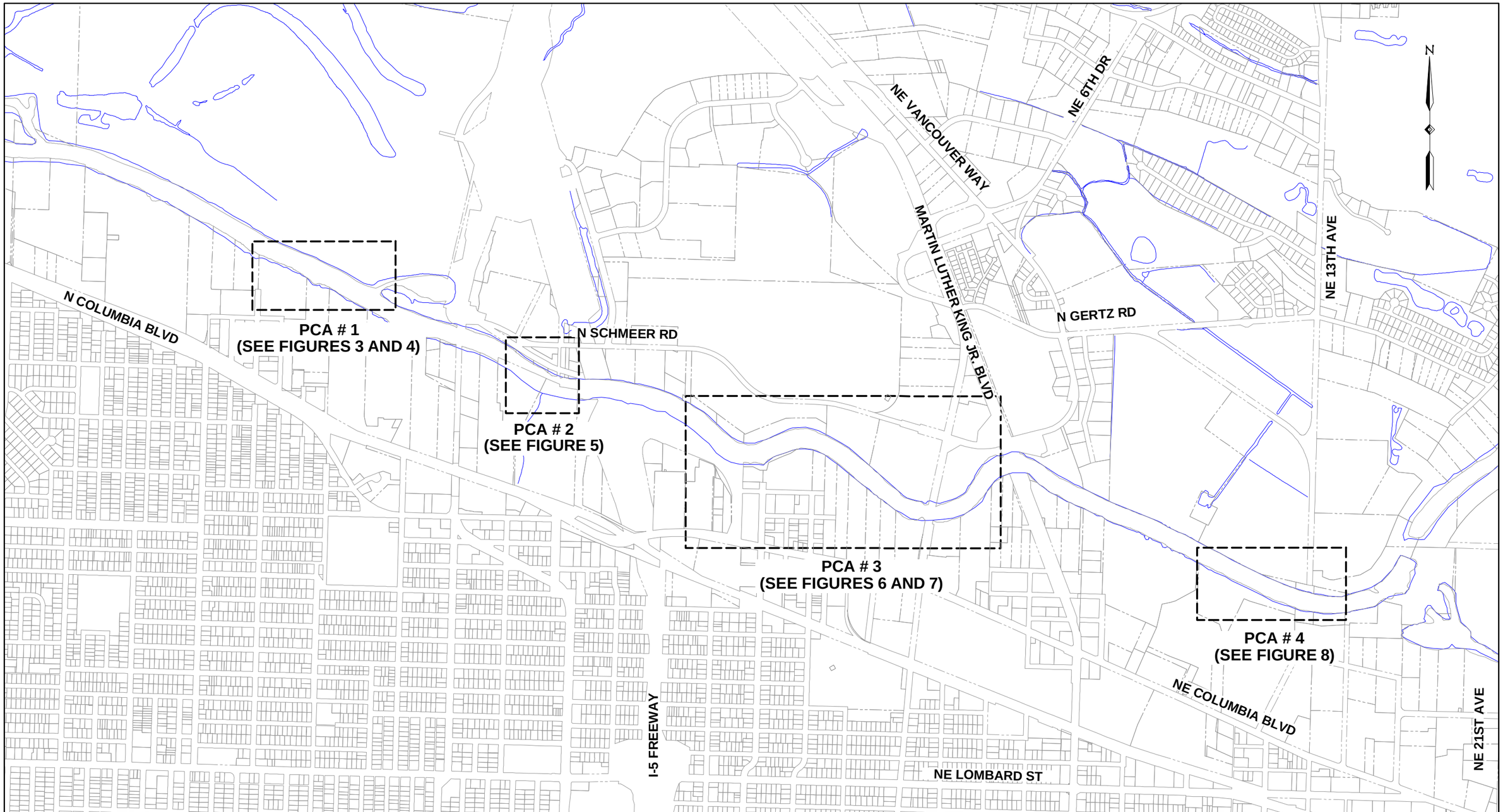
Approximate Scale in Feet

N

Site Location Map

Sediment Characterization Data Report - Lower Columbia Slough
Oregon Department of Environmental Quality
Portland, Oregon

Ash Creek Associates, A Division of Apex Companies, LLC	Project Number	1888-00	Figure
	August 2012		1



0 1,000 2,000

Scale in Feet

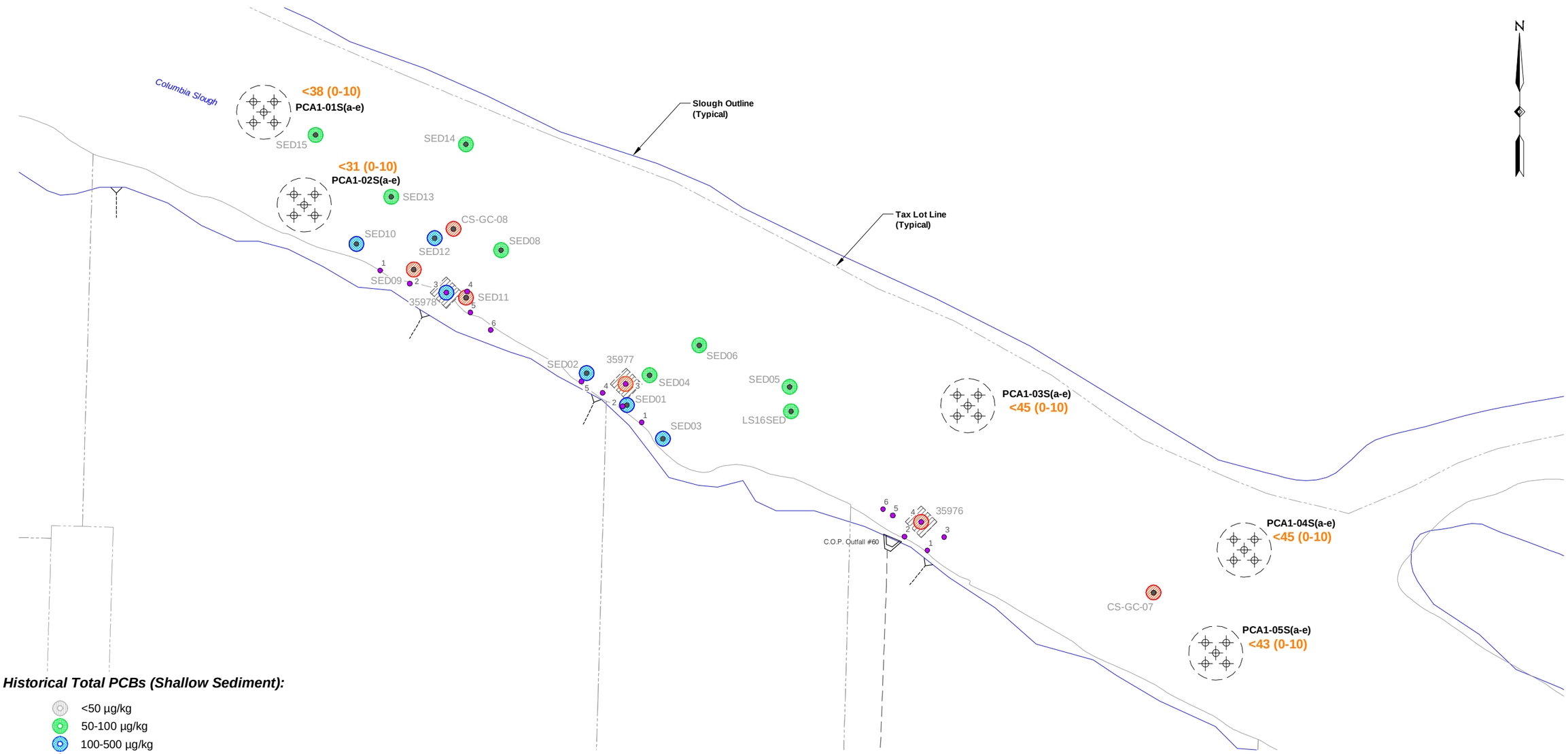
Site Vicinity Plan

Sediment Characterization Data Report - Lower Columbia Slough
Oregon Department of Environmental Quality
Portland, Oregon

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

Project Number	1888-00	Figure
August 2012		2

NOTE:
1) Tax lots and water outlines (blue) prepared from City of Portland Data Sets (ORHP-NF).



Historical Total PCBs (Shallow Sediment):

- <50 µg/kg
- 50-100 µg/kg
- 100-500 µg/kg
- 500+ µg/kg

Legend:

- CS-GC-07 — Historical Sediment Sample Location
- C.O.P. Outfall #60 — City of Portland (C.O.P.) Outfall Location
- PCA1-01S(a-e) — Shallow Sediment Sample Location (0-30 cm)
- 35978 — Historical DEQ Sediment Sample Location (Multiple Point Composite Sample)
- Non-City Outfall Location
- <38 (0-10) — Polychlorinated Biphenyls (PCB) Concentration in µg/kg and (Depth in Centimeters)

Composite Sample Detail:

20' a b c d e 20' — Samples for Composite to be Collected at Center and at 4 Locations (a, b, c, d and e) on a 20' Grid

0 100 200
Scale in Feet

NOTES:
1) Base map prepared from City of Portland Data Sets (ORHP-NF).
2) Samples from DEQ geodatabase files.
3) Stormwater facility locations from BES data (8/12/10).
4) Locations of CS-GC-07 and CS-GC-08 are approximate.

Shallow Sample Locations PCA #1

Sediment Characterization Data Report - Lower Columbia Slough
Oregon Department of Environmental Quality
Portland, Oregon

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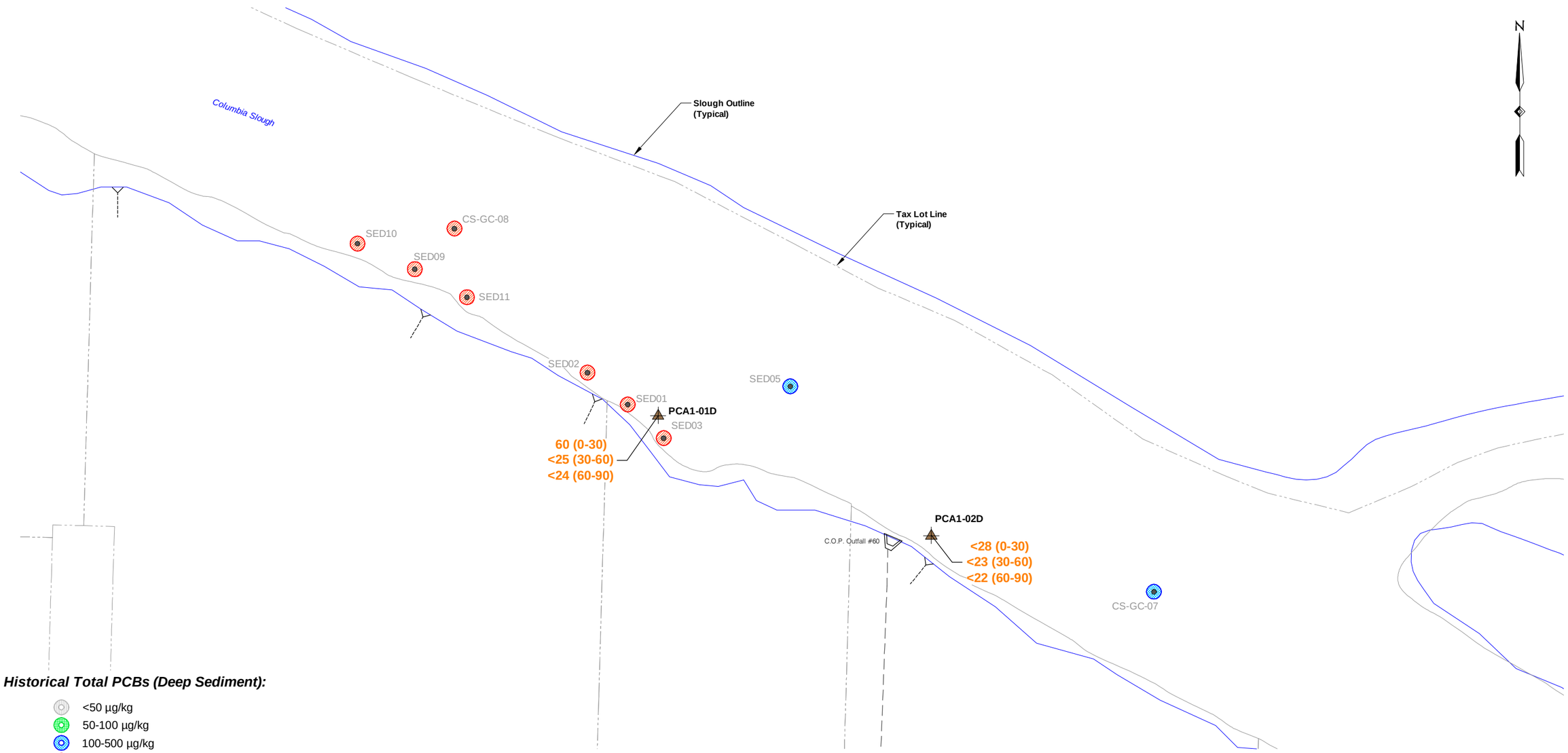
Project Number	1888-00	Figure
August 2012		3



Historical Total PCBs (Deep Sediment):

- <50 µg/kg
- 50-100 µg/kg
- 100-500 µg/kg
- 500+ µg/kg

Legend:

- SED09 — Historical Sediment Sample Location
- C.O.P. Outfall #60 — City of Portland (C.O.P.) Outfall Location
- PCA1-02 — Deep Sediment Sample Location (0-Refusal; 30 cm Increments)
- Non-City Outfall Location
- 60 (0-30) — Polychlorinated Biphenyls (PCB) Concentration in µg/kg and (Depth in Centimeters for Shallow Sample Locations; Depth in Centimeters Below Mudline for Deep Sample Locations)

0 100 200
Scale in Feet

NOTES:
1) Base map prepared from City of Portland Data Sets (ORHP-NF).
2) Samples from DEQ geodatabase files.
3) Stormwater facility locations from BES data (8/12/10).
4) Location of CS-GC-07 and CS-GC-08 is approximate.

Deep Sample Locations PCA #1

Sediment Characterization Data Report - Lower Columbia Slough
Oregon Department of Environmental Quality
Portland, Oregon

Ash Creek Associates
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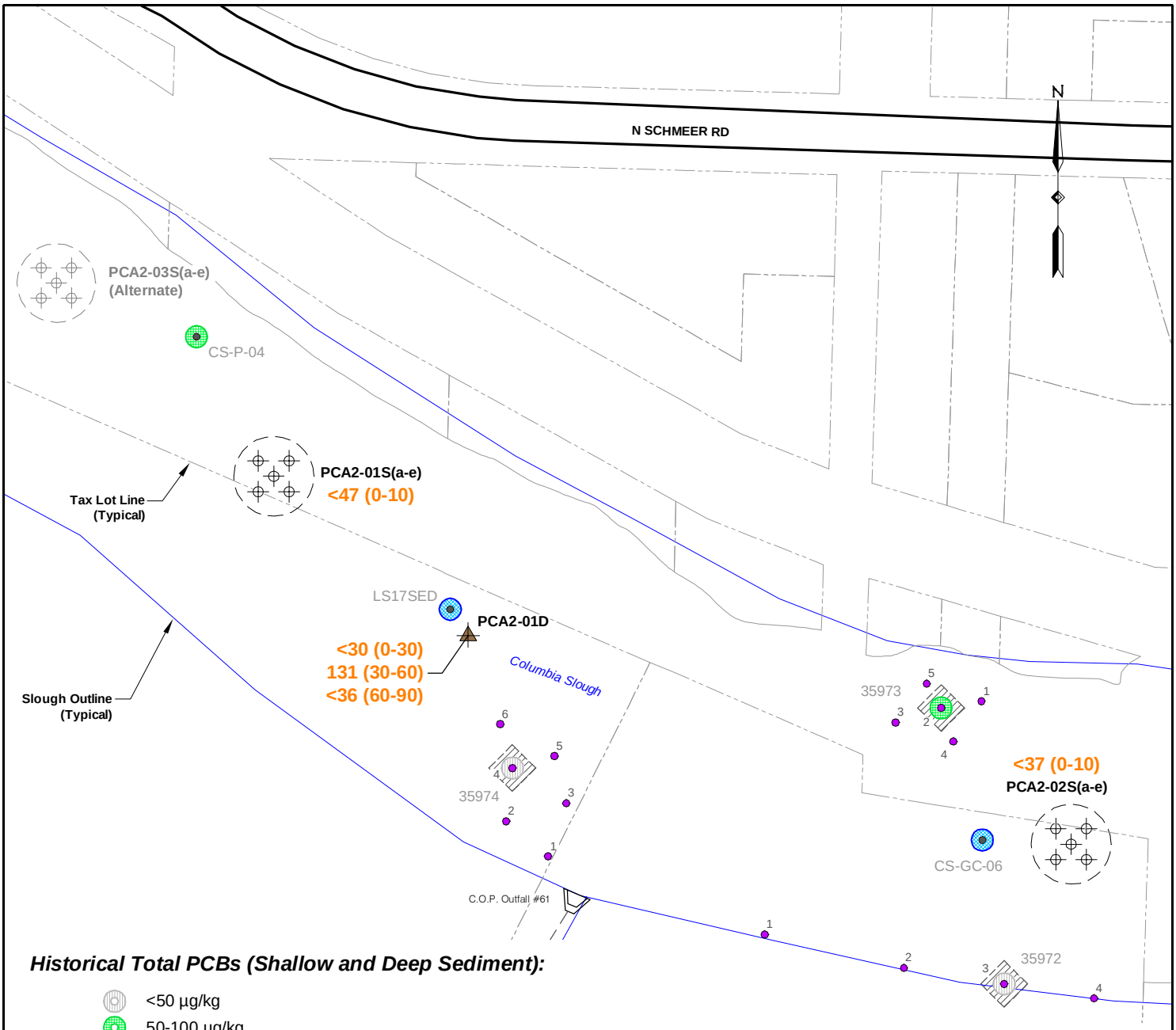
Project Number	1888-00	Figure
August 2012		4



Historical Total PCBs (Shallow and Deep Sediment):

- <50 µg/kg
- 50-100 µg/kg
- 100-500 µg/kg
- 500+ µg/kg

Legend:

CS-GC-06 — Historical Sediment Sample Location

C.O.P. Outfall #61A — City of Portland (C.O.P.) Outfall Location

PCA2-02S(a-e) — Shallow Sediment Sample Location (0-30 cm) (Gray Indicates an Alternate Location. Alternate samples shown were collected but not analyzed)

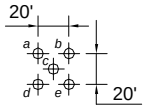
PCA2-03 — Shallow and Deep Sediment Sample Location (0-Refusal; 30 cm Increments)

35974 — Historical DEQ Sediment Sample Location (Multiple Point Composite Sample)

<47 (0-10) — Polychlorinated Biphenyls (PCB) Concentration in µg/kg and (Depth in Centimeters for Shallow Sample Locations; Depth in Centimeters Below Mudline for Deep Sample Locations)

NOTES:
1) Base map prepared from City of Portland Data Sets (ORHP-NF).
2) Samples from DEQ geodatabase files.
3) Stormwater facility locations from BES data (8/12/10).
4) Locations of CS-P-04 and CS-GC-06 are approximate.

Composite Sample Detail:



Samples for Composite to be Collected at Center and at 4 Locations (a, b, c, d and e) on a 20' Grid

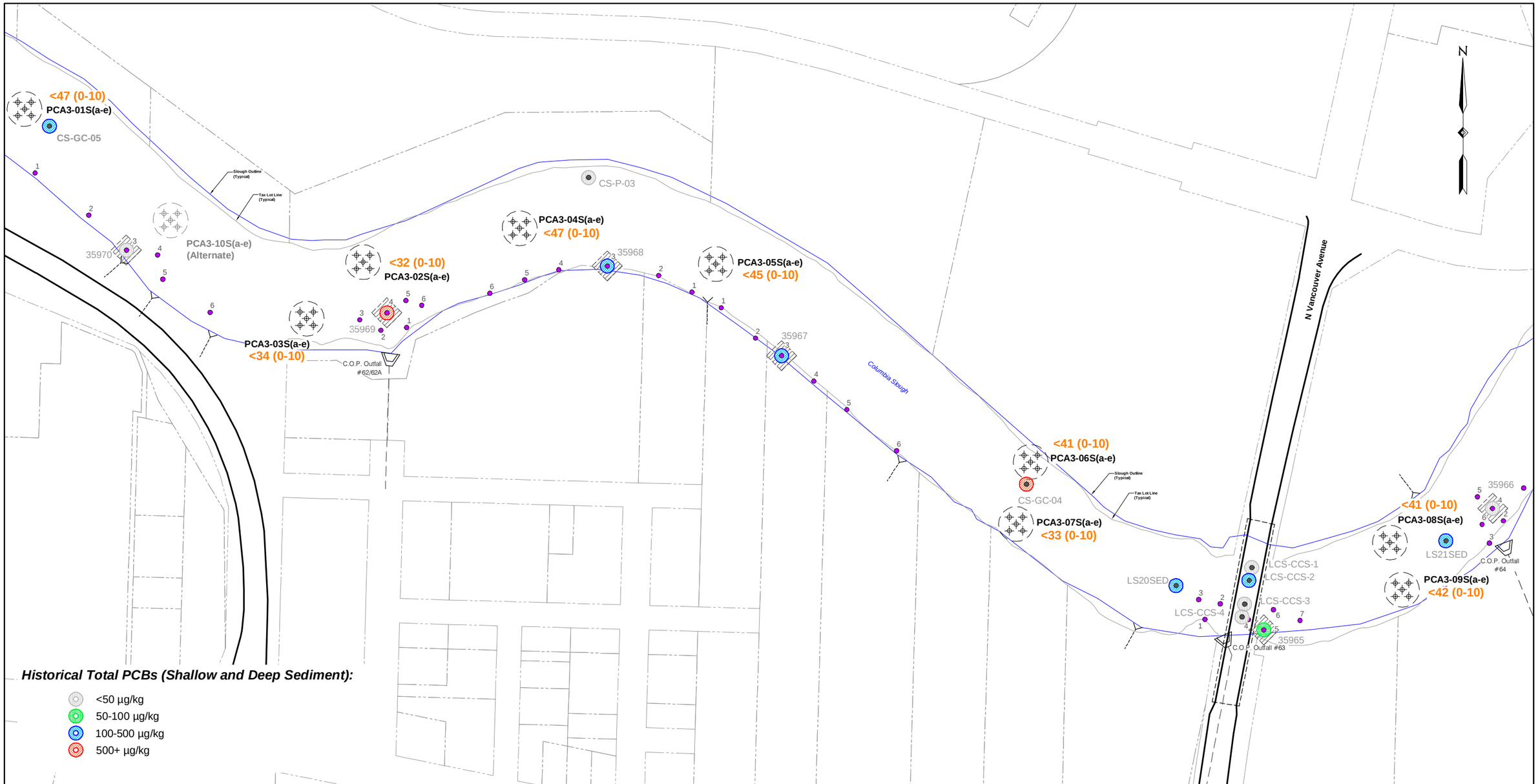
0 100 200
Scale in Feet

Shallow and Deep Sample Locations
PCA #2

Sediment Characterization Data Report - Lower Columbia Slough
Oregon Department of Environmental Quality
Portland, Oregon

Ash Creek Associates
A Division of Apex Companies, LLC
APEX

Project Number	1888-00	Figure
August 2012		5



Historical Total PCBs (Shallow and Deep Sediment):

- <50 µg/kg
- 50-100 µg/kg
- 100-500 µg/kg
- 500+ µg/kg

Legend:

CS-GC-04 — Historical Sediment Sample Location

C.O.P. Outfall #62A — City of Portland (C.O.P.) Outfall Location

PCA3-01S(a-e) — Shallow Sediment Sample Location (0-30 cm) (Gray Indicates an Alternate Location. Alternate samples shown were collected but not analyzed)

35981 — Historical DEQ Sediment Sample Location (Multiple Point Composite Sample)

Non-City Outfall Location

<47 (0-10) — Polychlorinated Biphenyls (PCB) Concentration in µg/kg and (Depth in Centimeters)

Composite Sample Detail:

20' a b c d e 20' — Samples for Composite to be Collected at Center and at 4 Locations (a, b, c, d and e) on a 20' Grid

NOTES:

1) Base map prepared from City of Portland Data Sets (ORHP-NF).
2) Samples from DEQ geodatabase files.
3) Stormwater facility locations from BES data (8/12/10).
4) Locations of CS-P-03 and CS-GC-04 are approximate.

0 100 200

Scale in Feet

Shallow Sample Locations
PCA #3

Sediment Characterization Data Report - Lower Columbia Slough
Oregon Department of Environmental Quality
Portland, Oregon

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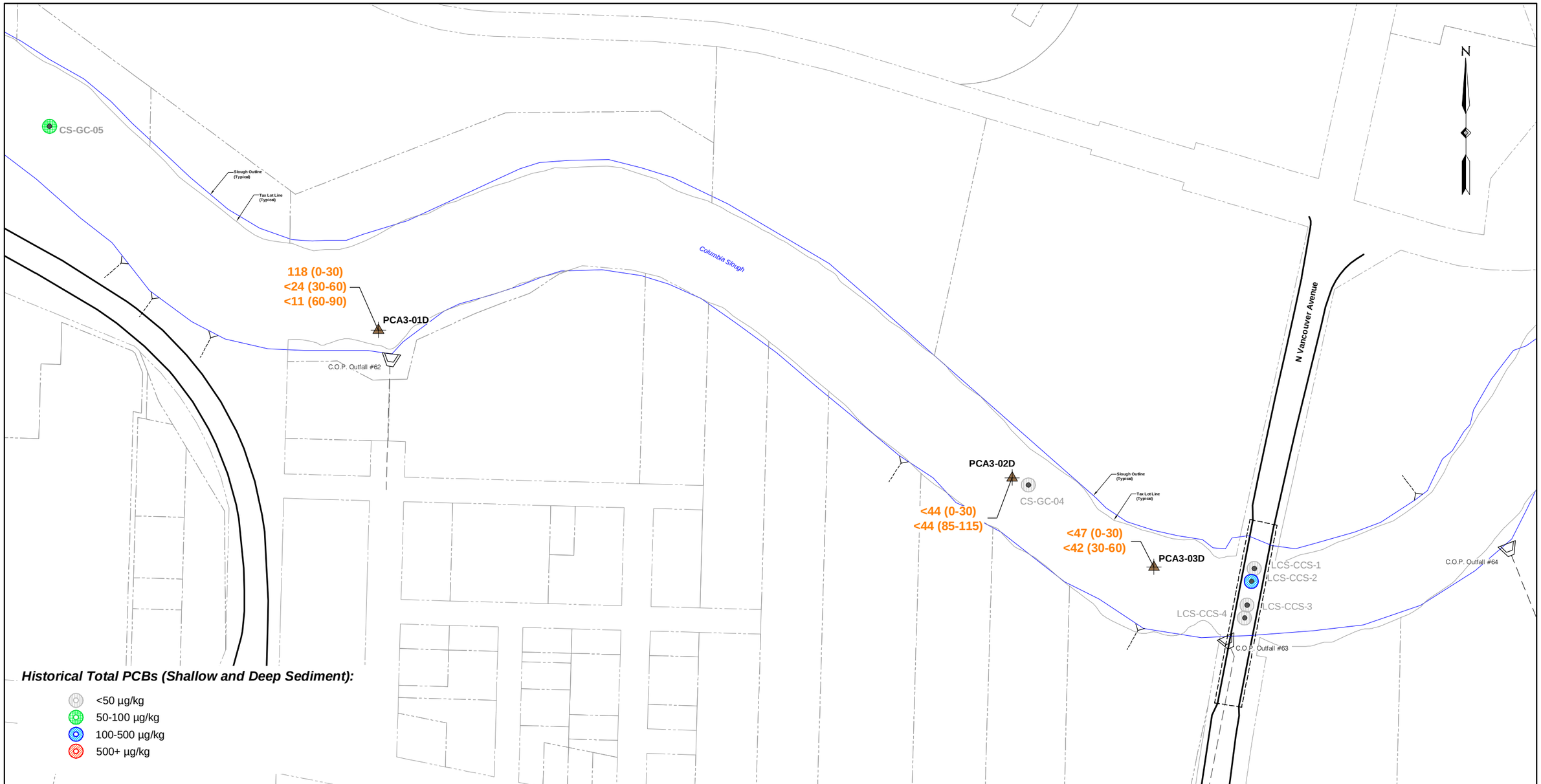
Project Number	1888-00	Figure
August 2012		6



Historical Total PCBs (Shallow and Deep Sediment):

- <50 µg/kg
- 50-100 µg/kg
- 100-500 µg/kg
- 500+ µg/kg

Legend:

- CS-GC-04 — Historical Sediment Sample Location
- C.O.P. Outfall #62A — City of Portland (C.O.P.) Outfall Location
- PCA3-01D — Deep Sediment Sample Location (0-Refusal; 30 cm Increments)
- Non-City Outfall Location
- <44 (0-30) — Polychlorinated Biphenyls (PCB) Concentration in µg/kg and (Depth in Centimeters Below Mudline)

NOTES:

1) Base map prepared from City of Portland Data Sets (ORHP-NF).
2) Samples from DEQ geodatabase files.
3) Stormwater facility locations from BES data (8/12/10)
4) Location of CS-GC-04 is Approximate..

0 200 400

Scale in Feet

Deep Sample Locations
PCA #3

Sediment Characterization Data Report - Lower Columbia Slough
Oregon Department of Environmental Quality
Portland, Oregon

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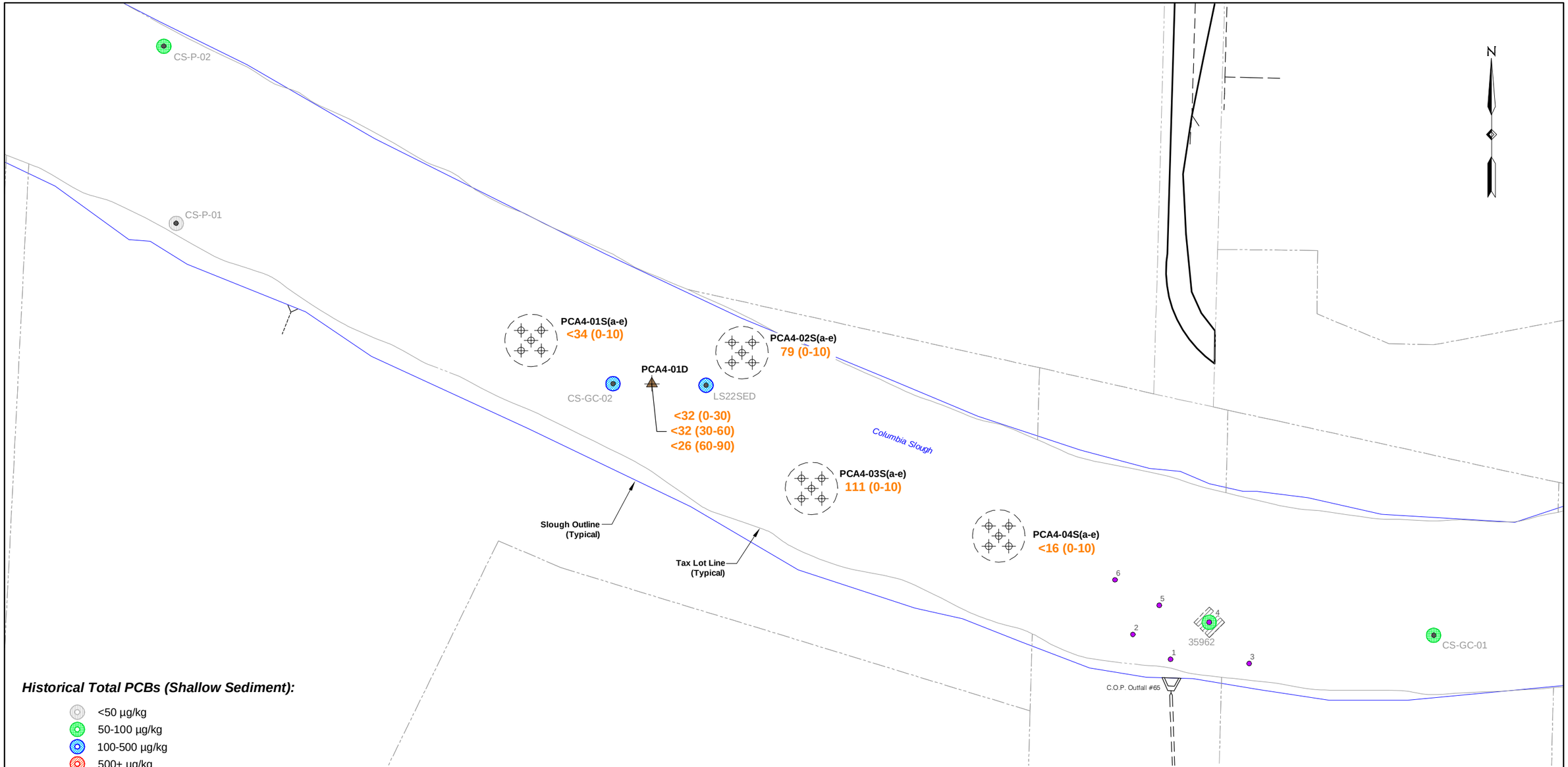
Project Number	1888-00	Figure
August 2012		7



Historical Total PCBs (Shallow Sediment):

- <50 µg/kg
- 50-100 µg/kg
- 100-500 µg/kg
- 500+ µg/kg

Legend:

CS-GC-01 — Historical Sediment Sample Location

C.O.P. Outfall #65 — City of Portland (C.O.P.) Outfall Location

PCA4-01S(a-e) — Shallow Sediment Sample Location (Five Point Composite) (0-30 cm)

PCA4-01 — Shallow and Deep Sediment Sample Location (0-Refusal; 30 cm Increments)

35962 — Historical DEQ Sediment Sample Location (Multiple Point Composite Sample)

Non-City Outfall Location

<34 (0-10) — Polychlorinated Biphenyls (PCB) Concentration in µg/kg and (Depth in Centimeters for Shallow Sample Locations; Depth in Centimeters Below Mudline for Deep Sample Locations)

Composite Sample Detail:

20' a b c d e 20'

Samples for Composite to be Collected at Center and at 4 Locations (a, b, c, d and e) on a 20' Grid

0 100 200

Scale in Feet

NOTES:

1) Base map prepared from City of Portland Data Sets (ORHP-NF).
2) Samples from DEQ geodatabase files.
3) Ditch locations from BES data (8/12/10).
4) Locations of CS-P-01, CS-P-02, CS-GC-01 and CS-GC-02 are approximate.

Shallow and Deep Sample Locations
PCA #4

Sediment Characterization Data Report - Lower Columbia Slough
Oregon Department of Environmental Quality
Portland, Oregon

Ash Creek Associates
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APEX

Project Number	1888-00	Figure
August 2012		8

Appendix A

Photograph Log

PHOTOGRAPH LOG

Project Name: Lower Columbia Slough
Project Number: 1888-00

Client: DEQ
Location: Portland, OR

Photo No: 1	
Photo Date: 6/5/12	
Orientation: Facing East	
Description: Overview of PCA #1	
Photo No: 2	
Photo Date: 6/15/12	
Orientation: Facing East	
Description: Overview of PCA #2	

PHOTOGRAPH LOG

Project Name: Lower Columbia Slough
Project Number: 1888-00

Client: DEQ
Location: Portland, OR

Photo No: 3 **Photo Date:** 6/15/12 **Orientation:** Facing West **Description:** Overview of PCA #3	
Photo No: 4 **Photo Date:** 6/15/12 **Orientation:** Facing Southwest **Description:** PCA #3, piles near COP outfall 62/62A. Debris field surrounding the piles resulted in sample PCA03-03s being moved northwest into the main channel.	

PHOTOGRAPH LOG

Project Name: Lower Columbia Slough
Project Number: 1888-00

Client: DEQ
Location: Portland, OR

Photo No: 5	
Photo Date: 6/5/12	
Orientation: Facing North	
Description: Sampling vessel departing from MCDD headquarters.	
Photo No: 6	
Photo Date: 6/15/2012	
Orientation: Facing West	
Description: Sampling vessel and equipment.	

PHOTOGRAPH LOG

Project Name: Lower Columbia Slough
Project Number: 1888-00

Client: DEQ
Location: Portland, OR

Photo No: 7 **Photo Date:** 6/7/2012 **Orientation:** NA **Description:** Retrieving shallow composite dredge sampler.	
Photo No: 8 **Photo Date:** 6/7/2012 **Orientation:** NA **Description:** Preparing to empty contents of dredge sampler. Material is typical of the soft clayey silts encountered in the shallow samples through the Lower Slough	

Appendix B

Field Data Sheets

Collection Date: 6/7/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: Columbia Slough **Project No:** 1888-00 **Station ID:** PCA1-01S

Sampling Crew: C. Owens, S. Gray
Sampling Vessel: MCDD 18' Sampling Method: Clam shell dredger
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Rain, 50
E / W / Long.
Datum: Zone:

Sample ID: PCA1-01S
Analysis: PCBs/TOC

Grab Number: a Water Depth: 10.5' Penetration/Sampled Depth: 6" Time: 1030
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F w/ organics	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: b Water Depth: 10.5' Penetration/Sampled Depth: 6" Time: 1030
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F w/ organics	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: c Water Depth: 10.5' Penetration/Sampled Depth: 6" Time: 1030
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: d Water Depth: 10.5' Penetration/Sampled Depth: 6" Time: 1030
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: C. Owens

e 10.5' 6" 1030
silt clay w/ organics gray slight

composite sample taken at 1045

Figure C-1
Sample Collection Form

Surface Sediment Field Sample Record

Collection Date: 6/7/12
Date/Time Lab Drop Off:

Project Name: Columbia Slough **Project No:** 1888-00 **Station ID:** PCA1-025

Sampling Crew: C. Owens, S. Gray
Sampling Vessel: MCDP 18' Sampling Method: Clam Shell Dredger
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Rain, 55
E / W / Long.
Datum: Zone:

Sample ID: PCA1-025
Analysis: PCBs/TOC

Grab Number: a Water Depth: 10.7 Penetration/Sampled Depth: 10cm Time: 1052
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight X	Petroleum	
sand C M F (10% m/c)	black	moderate	other:	
silt clay X	brown X	strong	organic	
organic matter (5% [illegible])	brown surface	overwhelming		

Grab Number: b Water Depth: Penetration/Sampled Depth: Time: 1057
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight X	Petroleum	
sand C M F (10% m/c)	black	moderate	other:	
silt clay X	brown X	strong	organic	
organic matter (5% [illegible])	brown surface	overwhelming		

Grab Number: c Water Depth: Penetration/Sampled Depth: Time: 1101
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel Same as	gray	slight X	Petroleum	
sand C M F	black	moderate	other:	
silt clay a/b	brown X	strong	organic	
organic matter	brown surface	overwhelming		

Grab Number: d Water Depth: Penetration/Sampled Depth: Time: 1106
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F ≤5% m/f	black X	moderate	other:	
silt clay X	brown	strong	organic	
organic matter 5%	brown surface	overwhelming		

Recorded by: C. Owens

1109.

e

Figure C-1
Sample Collection Form

Composite sample taken at 1110

Collection Date: 6-7-12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: Columbia Slough **Project No:** 1888-00 **Station ID:**

Sampling Crew: C. Owens, S. Gray
Sampling Vessel: MCDP 18' Sampling Method: Clam Shell Dredges
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Rain, 55
E / W / Long.
Datum: Zone:

Sample ID: PCA1-035
Analysis: PCBs/TOC

Grab Number: a Water Depth: 9.67 Penetration/Sampled Depth: 6" Time: 1120
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F cohesive	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: b Water Depth: 9.67 Penetration/Sampled Depth: 6" Time: 1122
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: c Water Depth: 9.67 Penetration/Sampled Depth: 6" Time:
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: d Water Depth: 9.67 Penetration/Sampled Depth: 6" Time:
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: C. Owens

e 9.67 6"
silt clay brown slight

Composite sample time

Figure C-1
Sample Collection Form

Surface Sediment Field Sample Record

Collection Date: 6/7/2
Date/Time Lab Drop Off:

Project Name: **Project No:** **Station ID:** PCA1 – 045

Sampling Crew: C. Owens, S. Gray
Sampling Vessel: MCPD 18' Sampling Method: Clam Shell Dredger
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Rain, 55°
E / W / Long.
Datum: Zone:

Sample ID: PCA1 – 045
Analysis:

Grab Number: a Water Depth: 10' Penetration/Sampled Depth: 6" Time: 1148
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: b Water Depth: 10' Penetration/Sampled Depth: 6" Time: 1152
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: c Water Depth: 10' Penetration/Sampled Depth: 6" Time: 1155
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: d Water Depth: 10' Penetration/Sampled Depth: 6" Time: 1158
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by:

e 10' f 6"
silt clay brown slight

Composite taken at 1200

Figure C-1
Sample Collection Form

Surface Sediment Field Sample Record

Collection Date: 6/7/12
Date/Time Lab Drop Off:

Project Name: Columbia Slough **Project No:** 1888-00 **Station ID:** PCA1-055

Sampling Crew: C. Owens, S. Gray
Sampling Vessel: Smooth 18' Sampling Method: Clam Shell Dredge
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Rain, 60
E / W / Long.
Datum: Zone:

Sample ID: PCA1-055
Analysis: PCBs/TOC

Grab Number: a Water Depth: 10.5' Penetration/Sampled Depth: 6" Time: 1115
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: b Water Depth: 10.5' Penetration/Sampled Depth: 6" Time: 1118
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: c Water Depth: 10.5' Penetration/Sampled Depth: 6" Time: 1120
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: d Water Depth: 10.5' Penetration/Sampled Depth: 6" Time: 1124
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: C. Owens

e 10.5' 6"
silty clay brown slight
Composite taken 1230

Figure C-1
Sample Collection Form

Collection Date: 6/17/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: **Project No:** **Station ID:** PCA2-015

Sampling Crew: S. Gray / K. Owens
Sampling Vessel: [illegible] 18' Sampling Method: Clam Shell
Subcontractor(s):
Station Coordinates: N / Lat. 7083352 Weather: Cloudy, ~60°F
E / W / Long. 7642994
Datum: 3601 N Zone:

Sample ID: PCA2-015
Analysis: TOC / PCBs ST-1340

Grab Number: A Water Depth: 12.5 Penetration/Sampled Depth: 10cm Time: 1332
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: Penetration/Sampled Depth: 10cm Time: 1334
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: C Water Depth: Penetration/Sampled Depth: 10cm Time: 1336
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: Penetration/Sampled Depth: 10cm Time: 1338
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S Gray

Figure C-1
Sample Collection Form

Collection Date: 6/7/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: DEQ- lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA2-025

Sampling Crew: S. Glen / C. Owens
Sampling Vessel: MOOD 18' Sampling Method: Clamshell Dredge
Subcontractor(s):
Station Coordinates: N / Lat. 2083110 Weather: PC, ~60°F
E / W / Long. 7613518
Datum: 3601 Zone:

Sample ID: PCA2-025
Analysis: TOC / PCBs ST=

Grab Number: A Water Depth: 11.6 Penetration/Sampled Depth: 10cm Time: 1353
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	
sand C M F	black	moderate	other: X	
silt clay X	brown X	strong	organic	
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: 11.6 Penetration/Sampled Depth: 10cm Time: 1356
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	
sand C M F	black	moderate	other: X	
silt clay X	brown X	strong	organic	
organic matter	brown surface	overwhelming		

Grab Number: C Water Depth: 11.6 Penetration/Sampled Depth: 10cm Time: 1358
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	
sand C M F	black	moderate	other: X	
silt clay X	brown X	strong	organic	
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 11.6 Penetration/Sampled Depth: 10cm Time: 1400
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	
sand C M F	black	moderate	other: X	
silt clay X	brown X	strong	organic	
organic matter	brown surface	overwhelming		

Recorded by: S. Glen

E
Silt / clay Gray / Brown Slight / organic 1404

Figure C-1
Sample Collection Form

Collection Date: 6/7/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: Duwamish Lower Columbia Slough **Project No:** 18886-00 **Station ID:** PCA2-03S

Sampling Crew: S Gray / M. Cameron
Sampling Vessel: MSD Sampling Method: Clamshell Dredge
Subcontractor(s):
Station Coordinates: N / Lat. 7064480 Weather: Cloudy ~60°F
E / W Long. 7642851
Datum: 3601 N Zone:

Sample ID: PCA2-03S
Analysis: TOC / PCBs ST= 1445

Grab Number: A C Water Depth: 11.8 Penetration/Sampled Depth: 10.0 m Time: 1429
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none ✓	H2S	
gravel	gray ✓	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay ✓	brown ✓	strong		
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: 11.8 Penetration/Sampled Depth: 10.0 m Time: 1432
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none ✓	H2S	
gravel	gray ✓	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay ✓	brown ✓	strong		
organic matter	brown surface	overwhelming		

Grab Number: K A Water Depth: 11.8 Penetration/Sampled Depth: 10.0 m Time: 1435
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray ✓	slight ✓	Petroleum	
sand C M F	black	moderate	other:	
silt clay ✓	brown ✓	strong	organic	
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 11.5 Penetration/Sampled Depth: 10.0 m Time: 1438
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray ✓	slight ✓	Petroleum	
sand C M F	black	moderate	other:	
silt clay ✓	brown ✓	strong	organic	
organic matter	brown surface	overwhelming		

Recorded by: S Gray
E

1441

silt clay gray/brown silt/coarse

Figure C-1
Sample Collection Form

Collection Date: 6/8/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888 **Station ID:** PCA3-01s

Sampling Crew: S Gray / C. Owens
Sampling Vessel: Mikki, 18' Sampling Method: Bottom Dredge
Subcontractor(s):
Station Coordinates: N / Lat. 707821 Weather: Partially Cloudy, ~55° C
E / W / Long. 7644763
Datum: Zone:

Sample ID: PCA3-01s ST=0900
Analysis: TOC/PCBs 2x8oz

Grab Number: a Water Depth: 13.25' Penetration/Sampled Depth: 6" Time: 0840
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: b Water Depth: 13.25' Penetration/Sampled Depth: Time: 0844
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: c Water Depth: 13.25' Penetration/Sampled Depth: Time: 0850
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: d Water Depth: 13.25' Penetration/Sampled Depth: Time: 0853
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: CO/SG

e 13.25' Slight
silt clay brown

Com

Figure C-1
Sample Collection Form

Collection Date:
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA3-2s

Sampling Crew: S. Gray K. Downs
Sampling Vessel: Merry, 18' Sampling Method: Bottom Dredge
Subcontractor(s):
Station Coordinates: N / Lat. 7075008 Weather: Partly cloudy, ~55°F
E / W / Long. 7645455 light showers
Datum: Zone:

Sample ID: PCA3-2s ST=
Analysis: PCBs/TOC 2x8oz + DIP (1x8oz)
light sheen on samples

Grab Number: C Water Depth: 13.1 Penetration/Sampled Depth: 10cm Time: 0941
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight	Petroleum	
sand C MF 10%	black	moderate	other:	
silt clay 90%	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: A Water Depth: 13.1 Penetration/Sampled Depth: 10cm Time: 0944
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight	Petroleum	
sand C MF 10%	black	moderate	other:	
silt clay 90%	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: 13.1 Penetration/Sampled Depth: 10cm Time: 0946
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight	Petroleum	
sand C MF 5%	black	moderate	other:	
silt clay 95%	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 13.1 Penetration/Sampled Depth: 10cm Time: 0949
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight	Petroleum	
sand C MF 10%	black	moderate	other:	
silt clay 90%	brown X	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

0951

E
10% sand
90% silt/clay
gray/brown
none

Figure C-1
Sample Collection Form

Collection Date: 6/12/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: **Project No:** **Station ID:** PCA3-03

Sampling Crew: S. Gray, M. Thomas
Sampling Vessel: MCDPW 18' Sampling Method: Bottom Grab
Subcontractor(s):
Station Coordinates: N/Lat. Weather: light Rain ~60°F
E/W / Long.
Datum: 3601 Zone:

Sample ID: PCA3-03 ST= 0910
Analysis: TOC/PCBs 2x8oz

Grab Number: C Water Depth: 12.0 Penetration/Sampled Depth: 10cm Time: 0848
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	
sand C M F 20%	black	moderate	other:	
silt clay 70%	brown X	strong		
organic matter 10% woody debris	brown surface	overwhelming		

Grab Number: A Water Depth: 12.0 Penetration/Sampled Depth: 10cm Time: 0842
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	
sand C M F 20%	black	moderate	other:	
silt clay 70%	brown X	strong		
organic matter 10% woody debris	brown surface	overwhelming		

Grab Number: B Water Depth: 12.0 Penetration/Sampled Depth: 10cm Time: 0855
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Toward Middle of (Mw point)
gravel	gray	slight	Petroleum	
sand C M F 50%	black	moderate	other:	
silt clay 50%	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 12.0 Penetration/Sampled Depth: 10cm Time: 0903
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	MF
gravel	gray	slight	Petroleum	
sand C M F 50%	black	moderate	other:	
silt clay 50%	brown X	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

E 12.0 10cm 0900

20% Sand
70% silt/clay
10% woody debris
Gray/Brown
None

Figure C-1
Sample Collection Form

Collection Date: 6/8/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PLA3-04s

Sampling Crew: S. Gro / C. Cooper, S. Miller
Sampling Vessel: MCRD 18' Sampling Method: Bottom Dredge
Subcontractor(s):
Station Coordinates: N/ Lat. 707577 Weather:
E/W / Long. 7045774
Datum: 3601 N Zone:

Sample ID: PLA3-04s ST= / 2x8oz
Analysis: TOC / PCB

Grab Number: C Water Depth: 12.3 Penetration/Sampled Depth: 10cm Time: 1052
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: A Water Depth: 12.3 Penetration/Sampled Depth: 10cm Time: 1055
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong	algal c	
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: 12.3 Penetration/Sampled Depth: 10cm Time: 1057
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 12.3 Penetration/Sampled Depth: 10cm Time:
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gro

Figure C-1
Sample Collection Form

Collection Date:
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: **Project No:** **Station ID:** PCA3-05s

Sampling Crew: MCDT S. Gle. / C. Omans
Sampling Vessel: MCDD 18' Sampling Method: Bottom Dredge
Subcontractor(s):
Station Coordinates: N / Lat. 707504 Weather: Cloudy, light rain, ~55°F
E / W / Long. 7646175
Datum: Zone:

Sample ID: PCA3-05s ST=
Analysis: TOC / PCBs

Grab Number: C Water Depth: 12.9 Penetration/Sampled Depth: 10cm Time: 1118

Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay ✓	brown ✓	strong	organic	
organic matter	brown surface	overwhelming		

Grab Number: A Water Depth: 12.9 Penetration/Sampled Depth: 10cm Time: 1121

Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate ✓	other:	
silt clay ✓	brown ✓	strong	organic	
organic matter	brown surface	overwhelming		

Grab Number: ~~D~~ B Water Depth: Penetration/Sampled Depth: Time: 1123

Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: ~~E~~ D Water Depth: Penetration/Sampled Depth: Time: 1125

Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gley

1127

E

Figure C-1
Sample Collection Form

Surface Sediment Field Sample Record

Collection Date:
Date/Time Lab Drop Off:

Project Name: **Project No:** **Station ID:** PCA3-06s

Sampling Crew: S Gray / C Owens, S Miller
Sampling Vessel: McDonald 18' Sampling Method: Buttom Dredge
Subcontractor(s):
Station Coordinates: N / Lat. Weather: cloudy, ~55°F
E / W / Long.
Datum: Zone:

Sample ID: PCA3-06s
Analysis: TOC / PCBs

ST = 1200
2 > 8 m

Grab Number: C Water Depth: 10.6 Penetration/Sampled Depth: 10 cm Time: 1143
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay 85-90%	brown X	strong		
organic matter 10-15%	brown surface	overwhelming		

Grab Number: A Water Depth: 10.6 Penetration/Sampled Depth: 10 cm Time: 1145
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	Moved 5' off Rip Rap
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown X	strong	Vegetation	
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: 10.6 Penetration/Sampled Depth: 10 cm Time: 1149
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	Moved 5' off Rip Rap
gravel	gray	slight	Petroleum	
sand C M F 20%	black	moderate	other:	
silt clay 80%	brown X	strong	organic	
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 10.6 Penetration/Sampled Depth: 10 cm Time: 1152
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Recorded by: S Gray

E brown slight organic 1156

Figure C-1
Sample Collection Form

Collection Date: 6/8/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: **Project No:** 1888 **Station ID:** PCA3-07s

Sampling Crew: S. Gray / C. Amons / S. Miller
Sampling Vessel: McDD, 181 Sampling Method: Bottom Dredge
Subcontractor(s):
Station Coordinates: N / Lat.
E / W / Long.
Weather: Rain ~55°F
Datum: 3K1A Zone:

Sample ID: PCA3-07s
Analysis: TOC/PCBs

57 = 1130
2x 8oz

Grab Number: C Water Depth: 11.7 Penetration/Sampled Depth: 10cm Time: 1206
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F 50%	black	moderate	other:	
silt clay 50%	brown X (light)	strong		
organic matter	brown surface	overwhelming		

Grab Number: A Water Depth: 11.7 Penetration/Sampled Depth: 10cm Time: 1210
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F 50%	black	moderate	other:	
silt clay 50%	brown X (light)	strong		
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: 11.7 Penetration/Sampled Depth: 10cm Time: 1215
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F 50%	black	moderate	other:	
silt clay 50%	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 11.7 Penetration/Sampled Depth: 10cm Time: 1218
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	
sand C M F	black X	moderate	other:	
silt clay X	brown	strong	w/soil	
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

1222

E 11.7 10cm
silt/clay gray slight

Figure C-1
Sample Collection Form

Collection Date: 6/8/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA3-08s

Sampling Crew: S. Glass / C. Owens
Sampling Vessel: Moon 18' Sampling Method: Bottom Dredge
Subcontractor(s):
Station Coordinates: N / Lat. 706 9936 Weather: Overcast / Rain
E / W / Long. 764 7552 ~55°F
Datum: 3601 N Zone:

Sample ID: PCA3-08s ST =
Analysis: TOC / PCBs

Grab Number: C Water Depth: 12.2 Penetration/Sampled Depth: 10cm Time: 1304
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel w/5% organics	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: A Water Depth: 12.2 Penetration/Sampled Depth: 10cm Time: 1307
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: 12.2 Penetration/Sampled Depth: 10cm Time: 1310
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 12.2 Penetration/Sampled Depth: 10cm Time: 1312
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by:

E 12.2 10cm 1314
silt clay brown none

Figure C-1
Sample Collection Form

Collection Date: 6/8/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: Columbia Slough **Project No:** 1888-00 **Station ID:** PCA3-09S

Sampling Crew: C. Owens, S. Gray
Sampling Vessel: MCDP 18' Sampling Method: Bottom dredge
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Rain, 55
E / W / Long.
Datum: Zone:

Sample ID: PCA3-09S
Analysis: PCBs/TOC ST = 1340

Grab Number: a Water Depth: 11.9' Penetration/Sampled Depth: 10cm Time: 1280
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel 15% woody	gray	(slight) organic	Petroleum	
sand C M F	black	moderate	other:	
(silt clay) debris	(brown)	strong		
organic matter	brown surface	overwhelming		

Grab Number: b Water Depth: 11.9' Penetration/Sampled Depth: 10cm Time: 1324
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel w/ leafy	gray	(slight)	Petroleum	
sand C M F	black	moderate	other:	
(silt clay) debris	(brown)	strong		
organic matter	brown surface	overwhelming		

Grab Number: c Water Depth: 11.9' Penetration/Sampled Depth: 10cm Time: 1327
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	(slight)	Petroleum	
sand C M F	black	moderate	other:	
(silt clay)	(brown)	strong		
organic matter	brown surface	overwhelming		

Grab Number: d Water Depth: 11.9' Penetration/Sampled Depth: 10cm Time: 1331
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel w/ woody	gray	slight	Petroleum	
sand C M F	black	(moderate) organic	other:	
(silt clay) debris	(brown)	strong		
organic matter	brown surface	overwhelming		

Recorded by:

e 11.9' 10cm 1335
brown slight
silt clay
5% woody debris

Figure C-1
Sample Collection Form

Collection Date: 6/8/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: Columbia Slough **Project No:** 1888-00 **Station ID:** PCA3-10S

Sampling Crew: C. Owens, S. Gray
Sampling Vessel: MCDD 18' Sampling Method: Bottom Dredge
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Partly cloudy, ~55°C
E / W / Long.
Datum: Zone:

Sample ID: PCA3-10S
Analysis: TOC/ PCBs ST = 0930/2x8oz

Grab Number: C Water Depth: 12.3' Penetration/Sampled Depth: 10cm Time: 0915
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: A Water Depth: 12.3 Penetration/Sampled Depth: 10cm Time: 0919
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F X	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: B Water Depth: 12.3 Penetration/Sampled Depth: 10cm Time: 0922
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: D Water Depth: 12.3 Penetration/Sampled Depth: 10cm Time: 0924
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Recorded by: C. Owens

E 12.3 0927

Silt/clay Brown None

Figure C-1
Sample Collection Form

Collection Date: 6/12/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA4-01s

Sampling Crew: S. Gray / M. Lawrence
Sampling Vessel: MCDD 181 Sampling Method: Bottom Direct
Subcontractor(s): —
Station Coordinates: N / Lat. 706129 Weather: OC, ~60°F
E / W / Long. 765565
Datum: 3601 N Zone:

Sample ID: PCA4-01s
Analysis: TOC/PCBs

ST = 0955
2x8oz
Slight Sheen

Grab Number: C Water Depth: 9.5' Penetration/Sampled Depth: 9.5' 10cm Time: 0935
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Slight Sheen
gravel	gray X	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay 95%	brown X	strong		
organic matter 5%	brown surface	overwhelming		

Grab Number: A Water Depth: 9.5' Penetration/Sampled Depth: 10cm Time: 0941
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Plastic Bag
gravel	gray	slight	Petroleum	
sand C M F 10%	black	moderate	other:	
silt clay 85%	brown X	strong		
organic matter 5%	brown surface	overwhelming		

Grab Number: B Water Depth: 9.5' Penetration/Sampled Depth: 10cm Time: 0945
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight X	Petroleum	
sand C M F 10%	black	moderate	other: X	
silt clay 85%	brown X	strong	organic	
organic matter 5%	brown surface	overwhelming		

Grab Number: D Water Depth: 9.5' Penetration/Sampled Depth: 10cm Time: 0948
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	
sand C M F 5%	black	moderate	other: X	
silt clay 85%	brown X	strong	organic	
organic matter 10%	brown surface	overwhelming		

Recorded by: S. Gray

E 9.5' 10cm 0952
5% m. sand
85% clay/silt
5% : 0.5-.1
slight/bloom
none

Figure C-1
Sample Collection Form

Collection Date: 6/12/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: **Project No:** **Station ID:** PCA4-025

Sampling Crew: S. Clay / M. Thomas
Sampling Vessel: McDD 18'
Sampling Method: Ponar Dredge
Subcontractor(s):
Station Coordinates: N / Lat. 706117
E / W / Long. 7650776
Weather: OC, ~60°C
Datum: 3601 N
Zone:

Sample ID: PCA4-025
Analysis: PCBs / TOC
ST = 1025
2x8cm
slight sheen

Grab Number: C
Water Depth: 8.2
Penetration/Sampled Depth: 10cm
Time: 1005
Bioassay NO

Sediment Type:	Sediment Color:	Sediment Odor:	
cobble	D.O.	none X	H2S
gravel	gray X	slight	Petroleum
sand C M F 15%	black	moderate	other:
silt clay 80%	brown	strong	
organic matter 5%	brown surface	overwhelming	

Comments:

Grab Number: A
Water Depth: 8.2
Penetration/Sampled Depth: 10cm
Time: 1010
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:	
cobble	D.O.	none X	H2S
gravel	gray X	slight	Petroleum
sand C M F 15%	black	moderate	other:
silt clay 75%	brown X	strong	
organic matter 10% (wood chunks)	brown surface	overwhelming	

Comments:

Grab Number: B
Water Depth: 8.2
Penetration/Sampled Depth: 10cm
Time: 1014
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:	
cobble	D.O.	none X	H2S
gravel	gray X	slight	Petroleum
sand C M F 15%	black X	moderate	other:
silt clay 75%	brown	strong	
organic matter 10% chunky	brown surface	overwhelming	

Comments:

Grab Number: D
Water Depth: 8.2
Penetration/Sampled Depth: 10cm
Time: 1019
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:	
cobble	D.O.	none X	H2S
gravel	gray X	slight	Petroleum
sand C M F 15%	black	moderate	other:
silt clay 80%	brown X	strong	
organic matter 5%	brown surface	overwhelming	

Comments:

Recorded by: S. Clay

F 8.2' 10cm 1025

m/f sand 15%
silt clay 80%
organics 5% (wood chunks)

5% brown

mop / m. sheen

Figure C-1
Sample Collection Form

Collection Date: 6/12/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA4-035

Sampling Crew: S. Gray / M. [illegible]
Sampling Vessel: MOD 181 Sampling Method: Bottom Probe
Subcontractor(s): —
Station Coordinates: N / Lat. 705980 Weather: OC, ~60°F
E / W / Long. 7650846
Datum: WGS84 Zone:

Sample ID: PCA4-035
Analysis: TOC/PCBs

ST = 1100
2x8oz slight sheen

Grab Number: C Water Depth: 9.8 Penetration/Sampled Depth: 90 cm Time: 1041
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Light Sheen
gravel	gray	slight	Petroleum	
sand C M F 15%	black	moderate	other:	
silt clay 80%	brown X	strong		
organic matter 5%	brown surface	overwhelming		

Grab Number: A Water Depth: 9.8 Penetration/Sampled Depth: 10 cm Time: 1044
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Trash / Plastic Bag
gravel	gray X	slight	Petroleum	light sheen
sand C M F 5%	black	moderate	other:	
silt clay 90%	brown	strong		
organic matter 5%	brown surface	overwhelming		

Grab Number: B Water Depth: 9.8 Penetration/Sampled Depth: 10 cm Time: 1047
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	light sheen
gravel	gray X	slight	Petroleum	
sand C M F 15%	black	moderate	other:	
silt clay 80%	brown X	strong		
organic matter 5% (wood)	brown surface	overwhelming		

Grab Number: D Water Depth: 9.8 Penetration/Sampled Depth: 10 cm Time: 1051
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	No sheen
gravel	gray	slight	Petroleum	Trash
sand C M F 25%	black	moderate	other:	No sheen
silt clay 70%	brown X	strong		
organic matter 5%	brown surface	overwhelming		

Recorded by: S. Gray

E 9.8 10 cm 1055
f sand 5% gray None trash
s. 17 90% No sheen
organic 5%

Figure C-1
Sample Collection Form

Collection Date: 6/12/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: Inner Cladio Slag **Project No:** 1888.00 **Station ID:** DCA4-045 (AHerzto)

Sampling Crew: S. Gray
Sampling Vessel: MCDD 181 Sampling Method: Bottom Dredge
Subcontractor(s):
Station Coordinates: N/Lat. 705933 Weather: OC, ~60°F
E/W / Long. 7651033
Datum: 3601 Zone:

Sample ID: DCA4045 (
Analysis: TOC / PCBs

ST = 1130
2x8oz

Grab Number: C Water Depth: 10.0' Penetration/Sampled Depth: 10cm Time: 1012
Bioassay No

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	No sheen
gravel	gray	slight	Petroleum	
sand C M F 10%	black	moderate	other:	
silt clay 85%	brown X	strong		
organic matter 5%	brown surface	overwhelming		

Grab Number: A Water Depth: 10 Penetration/Sampled Depth: 10cm Time: 1015
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	No sheen
gravel	gray	slight	Petroleum	
sand C M F 10%	black	moderate	other:	
silt clay 45%	brown X	strong		
organic matter 5% wood chips	brown surface	overwhelming		

Grab Number: B Water Depth: 10 Penetration/Sampled Depth: 10cm Time: 1118
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	No sheen
gravel	gray	slight	Petroleum	
sand C M F 15%	black	moderate	other:	
silt clay 80%	brown X	strong		
organic matter 5%	brown surface	overwhelming		

Grab Number: D Water Depth: 10 Penetration/Sampled Depth: 10cm Time: 1121
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments: No sheen
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F 15%	black	moderate	other:	
silt clay 80%	brown X	strong		
organic matter 5%	brown surface	overwhelming		

Recorded by: S. Gray

E 10.0' 10cm 1124

m/f sand 5%
silt clay 90%
organic 5%

brown none light sheen

Figure C-1
Sample Collection Form

Collection Date: 6/6/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA1-Old

Sampling Crew: S. Gray / C. Owens
Sampling Vessel: MCDD 18' Sampling Method: Hand Core
Subcontractor(s): NA
Station Coordinates: N / Lat. Weather: Sunny, ~60°F
E / W / Long.
Datum: Zone:

Sample ID: PCA1-Old
Analysis: PCBs / TOC

Grab Number: 0-30cm Water Depth: 7.5' Penetration/Sampled Depth: 0-30cm Time: 1135
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay X	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: 30-60cm Water Depth: 7.5' Penetration/Sampled Depth: 30-60cm Time: 1130
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	
sand C M F ~60%	black	moderate	other:	
silt clay X ~40%	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: 60-90cm Water Depth: 7.5' Penetration/Sampled Depth: 60-90cm Time: 1200
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Refusal @ 85cm
gravel	gray X	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: _____ Water Depth: _____ Penetration/Sampled Depth: _____ Time: _____
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

Figure C-1
Sample Collection Form

Collection Date: 6/6/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA 1-02d

Sampling Crew: McDD 18', S. Gray, C. Owens
Sampling Vessel: —
Sampling Method: Hand Core
Subcontractor(s): —
Station Coordinates: N / Lat.
E / W / Long.
Weather: Sunny ~ 60°F
Datum: Zone:

Sample ID: PCA 1-02d
Analysis: PCBs / TOC

Grab Number: 0-30cm Water Depth: 10.8' Penetration/Sampled Depth: 0-30cm Time: 1300
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel 75% f. gravel	gray X	slight	Petroleum	
sand C M F 25%	black	moderate	other:	
silt clay	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: 30-60cm Water Depth: 10.8' Penetration/Sampled Depth: 30-60cm Time: 1340
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight X	Petroleum	
sand C M F	black	moderate	other:	
silt clay (very soft)	brown X	strong		
organic matter	brown surface	overwhelming	algae	

Grab Number: 60-90cm Water Depth: 10.8' Penetration/Sampled Depth: 60-90cm Time: 1315
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Collect on 6/7/12
gravel	gray	slight	Petroleum	Refusal @ 90cm
sand C M F (Dense)	black	moderate	other:	
silt clay	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: _____ Water Depth: _____ Penetration/Sampled Depth: _____ Time: _____
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

Figure C-1
Sample Collection Form

Collection Date: 6/13/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA2-01d

Sampling Crew: S. Gley, C. Owens
Sampling Vessel: MKD 18' Sampling Method: Hand Core
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Overcast, ~50°F
E / W / Long.
Datum: Zone:

Sample ID: PCA2-01d
Analysis: DCBs / TOC

Grab Number: 0-30cm Water Depth: 11.7' Penetration/Sampled Depth: 0-30cm Time: 0840
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	~~Dense~~
gravel	gray	slight	Petroleum	
sand C M F 40% loose	black	moderate	other:	
silt clay 60%	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: 30-60cm Water Depth: 11.7' Penetration/Sampled Depth: 30-60cm Time: 0915
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Split
gravel	gray	slight	Petroleum	
sand C M F 40% ~~m. dense~~	black	moderate	other:	
silt clay 60% ~~firm~~	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: 60-90cm Water Depth: 11.7' Penetration/Sampled Depth: 66-90cm Time: 0940
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Dup
gravel	gray X	slight	Petroleum	
sand C M F 40% m. dense	black	moderate	other:	
silt clay 60%	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: 90-120cm Water Depth: 11.7' Penetration/Sampled Depth: 90-120cm Time: 0955
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Refusal b/c
gravel	gray X	slight	Petroleum	Max EQ
sand C M F 40% m. dense	black	moderate	other:	Depth
silt clay 60%	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gley

Figure C-1
Sample Collection Form

Collection Date: 6/13/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA3-Old

Sampling Crew: S. Gray, M. Thomas
Sampling Vessel: MCDB 18' Sampling Method: Hand
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Sunny ~ 60° F
E / W / Long.
Datum: Zone:

Sample ID: PCA3-Old
Analysis:

Grab Number: 0-30cm Water Depth: 8.9' Penetration/Sampled Depth: ~~60-90cm~~ 0-30cm Time: 1035
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X	Petroleum	Heavy sheen
sand C M F (m. dense)	black	moderate	other:	Sample how
silt clay some wood	brown	strong		
organic matter debris	brown surface	overwhelming		

Grab Number: 30-60cm Water Depth: 8.9' Penetration/Sampled Depth: ~~60-90cm~~ 30-60cm Time: 1050
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	No sheen
gravel	gray X	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: ~~90-115c~~ 60-90cm Water Depth: 8.9' Penetration/Sampled Depth: 60-90cm Time: 1120
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: 90-115cm Water Depth: 8.9' Penetration/Sampled Depth: 90-115cm Time: 1135
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	Refusal
sand C M F	black	moderate	other:	@ 115cm
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

Figure C-1
Sample Collection Form

Collection Date: 6/12/12

Surface Sediment Field Sample Record

Date/Time Lab Drop Off:

Project Name: Lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA4-01d

Sampling Crew: S. Gray / M. Thomas

Sampling Vessel: MCDD 181 Sampling Method: Hand Core

Subcontractor(s): —

Station Coordinates: N / Lat. Weather: Sunny, ~60°F

E / W / Long.

Datum: Zone:

Sample ID: PCA4-01d

Analysis: PCBs / TOC

Grab Number: 0-30cm Water Depth: 9.9' Penetration/Sampled Depth: 0-30cm Time: 1250

Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	very soft, actual sample 0-30cm
gravel V. soft to 20cm	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: 30-60cm Water Depth: 9.9' Penetration/Sampled Depth: 30-60cm Time: 1305

Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray	slight	Petroleum	
sand C M F soso m.dense	black	moderate	other:	
silt clay soso	brown X	strong		
organic matter	brown surface	overwhelming		

Grab Number: 60-90cm Water Depth: 9.9' Penetration/Sampled Depth: 60-90cm Time: 1320

Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	
sand C M F m.dense	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: 90-120cm Water Depth: 9.9' Penetration/Sampled Depth: 90-120cm Time: 1345

Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	Refusal 120cm
gravel	gray X	slight	Petroleum	
sand C M F m.dense/dense	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

Figure C-1
Sample Collection Form

Collection Date: 6/14/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slip **Project No:** 1888-00 **Station ID:** PCA3-02d

Sampling Crew: S. Gray / M. Thorner
Sampling Vessel: McOD 181 Sampling Method: Hand Core
Subcontractor(s):
Station Coordinates: N / Lat. Weather:
E / W / Long.
Datum: Zone:

Sample ID: PCA3-02d
Analysis: PCBs / TOC

Grab Number: 0-30cm Water Depth: 11.4 Penetration/Sampled Depth: 030cm Time: 0935
Bioassay NA

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X ulsalc	Petroleum	
sand C M F	black	moderate	other:	
silt clay X soft	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: _____ Water Depth: _____ Penetration/Sampled Depth: _____ Time: _____
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	No Recovery
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	30-85cm
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: 85-115cm Water Depth: 11.4 Penetration/Sampled Depth: 85-115cm Time: 0940
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none X	H2S	
gravel	gray X	slight	Petroleum	Refusal @ Max
sand C M F 50%	black	moderate	other:	Eq Depth
silt clay 50%	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: _____ Water Depth: _____ Penetration/Sampled Depth: _____ Time: _____
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

Figure C-1
Sample Collection Form

Collection Date: 6/14/12
Date/Time Lab Drop Off:

Surface Sediment Field Sample Record

Project Name: lower Columbia Slough **Project No:** 1888-00 **Station ID:** PCA3-03d

Sampling Crew: S. Gray / M. Thoenes
Sampling Vessel: MCMD 181 Sampling Method: Hand Core
Subcontractor(s): —
Station Coordinates: N / Lat. Weather: Sunny - 55°D
E / W / Long.
Datum: Zone:

Sample ID: PCA3-03d
Analysis: PCBs / TOC

Grab Number: 0-30cm Water Depth: 12.7' Penetration/Sampled Depth: 0-30cm Time: 0830
Bioassay

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray X	slight X organic	Petroleum	
sand C M F V. soft	black	moderate	other:	
silt clay X	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: 30-60cm Water Depth: 12.7' Penetration/Sampled Depth: 0-30cm Time: 0900
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray ✓	slight ✓ organic	Petroleum	
sand C M F V. soft	black	moderate	other:	
silt clay X	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: 60-90 Water Depth: Penetration/Sampled Depth: Time:
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	3x Attempts
gravel	gray	slight	Petroleum	Sed too soft
sand C M F	black	moderate	other:	No Recovery
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Grab Number: Water Depth: Penetration/Sampled Depth: Time:
Chemistry

Sediment Type:	Sediment Color:	Sediment Odor:		Comments:
cobble	D.O.	none	H2S	
gravel	gray	slight	Petroleum	
sand C M F	black	moderate	other:	
silt clay	brown	strong		
organic matter	brown surface	overwhelming		

Recorded by: S. Gray

Figure C-1
Sample Collection Form

Appendix C

Laboratory Analytical Data and Quality Assurance Review

Appendix C — Laboratory Reports and Quality Assurance Review

1.0 Introduction

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for sediment samples collected for the Lower Columbia Slough Sediment Study in Portland, Oregon. The Lower Columbia Slough Sediment Study consisted of four distinct Priority Characterization Areas (PCAs), including: Priority Characterization Area #1, Pacific Meats Cleanup Site/City of Portland Outfall 60, Priority Characterization Area #2, City of Portland Outfall 61, Priority Characterization Area #3, Vicinity of City of Portland Outfall 62/62A, Wastech (ECSI #1271), City of Portland Outfall 63 at Vancouver Bridge, and City of Portland Outfall 64, and Priority Characterization Area #4, Downstream of City of Portland Outfall 65. Samples were collected between June 6 and June 14, 2012 by Ash Creek Associates, Inc. (Ash Creek). Laboratory analysis of sediment samples was performed by Pace Analytical of Seattle, Washington, a state-certified laboratory. Analysis of split samples was performed by ESC Lab Sciences of Mt. Juliet, Tennessee. Copies of analytical laboratory reports are included in this Appendix.

A separate review is conducted for each of the three separate laboratory reports. These include:

- Pace Analytical (Report Project No: 2512573);
- ESC Lab Sciences (Report No: L580755); and
- Pace Analytical (Report Project No: 2512599);

2.0 Analytical Program

The sediment samples collected during this investigation were analyzed for one or more of the following analyses (and associated methods):

- Polychlorinated Biphenyl's (PCBs; EPA Method 8082); and
- Total Organic Carbon (TOC; EPA Method 9060).

3.0 Quality Assurance Review

The following criteria were evaluated in the data quality review process for these samples:

- Holding times;
- Method blanks;
- Reporting limits;
- Surrogate recoveries;

- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries;
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries;
- Laboratory duplicate relative percent difference (RPD) ; and

4.0 Report Project No: 2512573

This section provides a laboratory analytical QA review for samples collected from the following Priority Characterization Areas:

- PCA1;
- PCA2;
- PCA3; and,
- PCA4.

4.1 Quality Assurance Review

- PCBs
  - Samples were analyzed within acceptable method hold times.
  - No analytes were detected in the method blanks.
  - The surrogate recovery of decachlorobiphenyl was outside of control limits for sample PCA2-01d (30 to 60 cm bml) due to matrix interference. Decachlorobiphenyl also exceeded the control limits for PCA1-02d (0 to 30 cm), PCA2-01d (0 to 30 cm bml), and PCA3-01s, however the results are not affected by the biased high recovery because the analytes were not detected above the reporting limit in the samples.
  - LCS were within control limits.
  - The reporting limits were raised for all samples with the exception of shallow composite samples from PCA1-05s and PCA4-04s. The reporting limits were raised because the laboratory could not use the initial sample weight for extraction due to the amount of water in the sediment sample.
  - MS/MSD were within control limits.
- TOC
  - Sample PCA4-04s was analyzed outside of the recognized method hold times.
  - No elevated reporting limits were identified.

- No analytes were detected in the method blanks.
- Surrogates were within acceptable control limits.
- LCS were within control limits.
- MS/MSD were within control limits.

In conclusion, the QA/QC review of Report Project No: 2512573 data indicated that overall QA objectives have been met, and the data are of adequate quality for use in this project.

5.0 Report Project No: L580755

This Section provides a laboratory analytical QA review for samples collected from the following Priority Characterization Areas:

- PCA1;
- PCA2; and
- PCA3.

5.1 Quality Assurance Review

The laboratory QA/QC indicated the following:

- PCBs
  - Samples were analyzed within acceptable method hold times.
  - No analytes were detected in the method blanks.
  - The surrogate recovery of decachlorobiphenyl exceeded the control limits for PCA2-01d (30 to 60 cm), however the results are not affected by the biased high recovery because the analytes were not detected above the reporting limit in the sample.
  - LCS were within control limits.
  - The reporting limits were raised for all samples with the exception of shallow composite samples from PCA1-05s and PCA4-04s. The reporting limits were raised because the laboratory could not use the initial sample weight for extraction due to the amount of water in the sediment sample.
  - MS/MSD were within control limits.
- TOC
  - Sample PCA4-04s was analyzed outside of the recognized method hold times.
  - No elevated reporting limits were identified.

- No analytes were detected in the method blanks.
- Surrogates were within acceptable control limits.
- LCS were within control limits.
- MS/MSD were within control limits.
- RPDs for one of the laboratory duplicates exceeded the control limits. The remaining two laboratory duplicates were within control limits.

In conclusion, the QA/QC review of Report Project No: L580755 data indicated that overall QA objectives have been met, and the data are of adequate quality for use in this project.

6.0 Report Project No: 2512599

This Section provides a laboratory analytical QA review for samples collected from the following Priority Characterization Areas:

- PCA3.

6.1 Quality Assurance Review

- PCBs
  - Samples were analyzed within acceptable method hold times.
  - No analytes were detected in the method blanks.
  - The surrogate recovery was within control limits.
  - LCS were within control limits.
  - The reporting limits were elevated for all of the samples. The reporting limits were elevated because the laboratory could not use the initial sample weight for extraction due to the amount of water in the sediment sample.
  - MS/MSD were within control limits.
- TOC
  - Samples were analyzed within acceptable method hold times.
  - No elevated reporting limits were identified.
  - No analytes were detected in the method blanks.
  - Surrogates were within acceptable control limits.
  - LCS were within control limits.

- MS/MSD were within control limits.

In conclusion, the QA/QC review of Report Project No: 2512599 data indicated that overall QA objectives have been met, and the data are of adequate quality for use in this project.

7.0 Conclusions

Reporting limits were elevated above typical method reporting limits in a number of the samples due to amount of water present in the samples requiring the laboratory to use a smaller proportion of the sample to complete the extraction. The elevated reporting limits have been noted, but do not affect the usability of the data.

The associated data tables have been flagged with data qualifiers as indicated in the sections above. These flags typically indicate when data have been biased or when they are considered estimated rather than quantifiable. In conclusion, the QA/QC review indicated that overall QA objectives have been met, and the data are of adequate quality for use in this project.

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

July 26, 2012

Adam Reese
Ash Creek Associates
3015 SW First Ave
Portland, OR 97201

RE: Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Dear Adam Reese:
Enclosed are the analytical results for sample(s) received by the laboratory on June 14, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Brian Boling, State of Oregon DEQ

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project:	ODEQ - Lower Columbia Slough
Pace Project No.:	2512573

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Arizona Certification #: AZ0770
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C555

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 11888
North Carolina Certification #: 503
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750

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Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2512573001	**PCA1-01s**	Solid	06/07/12 10:45	06/14/12 09:25
2512573002	**PCA1-02s**	Solid	06/07/12 11:10	06/14/12 09:25
2512573003	**PCA1-03s**	Solid	06/07/12 11:30	06/14/12 09:25
2512573004	**PCA1-04s**	Solid	06/07/12 12:00	06/14/12 09:25
2512573005	**PCA1-04s DUP**	Solid	06/07/12 12:00	06/14/12 09:25
2512573006	**PCA1-05s**	Solid	06/07/12 12:30	06/14/12 09:25
2512573007	**PCA1-01d (0-30)**	Solid	06/06/12 11:35	06/14/12 09:25
2512573008	**PCA1-01d (30-60)**	Solid	06/06/12 11:30	06/14/12 09:25
2512573009	**PCA1-01d (60-90)**	Solid	06/06/12 12:00	06/14/12 09:25
2512573010	**PCA1-02d (0-30)**	Solid	06/06/12 14:15	06/14/12 09:25
2512573011	**PCA1-02d (30-60)**	Solid	06/06/12 13:00	06/14/12 09:25
2512573012	**PCA1-02d (60-90)**	Solid	06/06/12 13:15	06/14/12 09:25
2512573013	**PCA2-01s**	Solid	06/07/12 13:40	06/14/12 09:25
2512573014	**PCA2-02s**	Solid	06/07/12 14:10	06/14/12 09:25
2512573016	**PCA2-01d (0-30)**	Solid	06/13/12 08:40	06/14/12 09:25
2512573017	**PCA2-01d (30-60)**	Solid	06/13/12 09:15	06/14/12 09:25
2512573018	**PCA2-01d (60-90)**	Solid	06/13/12 09:40	06/14/12 09:25
2512573019	**PCA2-01d (60-90) DUP**	Solid	06/13/12 09:40	06/14/12 09:25
2512573021	**PCA3-01s**	Solid	06/08/12 09:00	06/14/12 09:25
2512573022	**PCA3-02s**	Solid	06/09/12 10:00	06/14/12 09:25
2512573023	**PCA3-02s DUP**	Solid	06/09/12 10:00	06/14/12 09:25
2512573024	**PCA3-03s**	Solid	06/12/12 09:10	06/14/12 09:25
2512573025	**PCA3-04s**	Solid	06/08/12 11:10	06/14/12 09:25
2512573026	**PCA3-05s**	Solid	06/08/12 11:30	06/14/12 09:25
2512573027	**PCA3-06s**	Solid	06/08/12 12:00	06/14/12 09:25
2512573028	**PCA3-07s**	Solid	06/08/12 12:30	06/14/12 09:25
2512573029	**PCA3-08s**	Solid	06/08/12 13:15	06/14/12 09:25
2512573030	**PCA3-09s**	Solid	06/08/12 13:40	06/14/12 09:25
2512573032	**PCA3-01d (0-30)**	Solid	06/13/12 10:35	06/14/12 09:25
2512573033	**PCA3-01d (30-60)**	Solid	06/13/12 10:50	06/14/12 09:25
2512573034	**PCA3-01d (60-90)**	Solid	06/13/12 11:20	06/14/12 09:25
2512573036	**PCA4-01s**	Solid	06/12/12 09:55	06/14/12 09:25
2512573037	**PCA4-02s**	Solid	06/12/12 10:25	06/14/12 09:25
2512573038	**PCA4-03s**	Solid	06/12/12 11:00	06/14/12 09:25
2512573039	**PCA4-04s**	Solid	06/12/12 11:30	06/14/12 09:25
2512573040	**PCA4-01d (0-10)**	Solid	06/12/12 12:50	06/14/12 09:25
2512573041	**PCA4-01d (30-60)**	Solid	06/12/12 13:05	06/14/12 09:25

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Seattle, WA 98108
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SAMPLE SUMMARY

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2512573042	**PCA4-01d (60-90)**	Solid	06/12/12 13:20	06/14/12 09:25

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SAMPLE ANALYTE COUNT

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2512573001	**PCA1-01s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573002	**PCA1-02s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573003	**PCA1-03s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573004	**PCA1-04s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573005	**PCA1-04s DUP**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573006	**PCA1-05s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573007	**PCA1-01d (0-30)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573008	**PCA1-01d (30-60)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573009	**PCA1-01d (60-90)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573010	**PCA1-02d (0-30)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573011	**PCA1-02d (30-60)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573012	**PCA1-02d (60-90)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573013	**PCA2-01s**	EPA 8082	AY1	9	PASI-S

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SAMPLE ANALYTE COUNT

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573014	**PCA2-02s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573016	**PCA2-01d (0-30)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573017	**PCA2-01d (30-60)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573018	**PCA2-01d (60-90)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573019	**PCA2-01d (60-90) DUP**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573021	**PCA3-01s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573022	**PCA3-02s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573023	**PCA3-02s DUP**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573024	**PCA3-03s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573025	**PCA3-04s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573026	**PCA3-05s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573027	**PCA3-06s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S

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SAMPLE ANALYTE COUNT

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9060 Modified	TJJ	4	PASI-G
2512573028	**PCA3-07s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573029	**PCA3-08s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573030	**PCA3-09s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573032	**PCA3-01d (0-30)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573033	**PCA3-01d (30-60)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573034	**PCA3-01d (60-90)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573036	**PCA4-01s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573037	**PCA4-02s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573038	**PCA4-03s**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573039	**PCA4-04s**	EPA 8082	AY1	9	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573040	**PCA4-01d (0-10)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573041	**PCA4-01d (30-60)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512573042	**PCA4-01d (60-90)**	EPA 8082	AY1	9	PASI-S

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SAMPLE ANALYTE COUNT

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G

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PROJECT NARRATIVE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Method: **EPA 8082**
Description: 8082 GCS PCB S
Client: State of Oregon DEQ
Date: July 26, 2012

General Information:
38 samples were analyzed for EPA 8082. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

QC Batch: OEXT/5670

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- PCA1-01d (0-30) (Lab ID: 2512573007)
- PCA1-01d (30-60) (Lab ID: 2512573008)
- PCA1-01d (60-90) (Lab ID: 2512573009)
- PCA1-01s (Lab ID: 2512573001)
- PCA1-02d (0-30) (Lab ID: 2512573010)
- PCA1-02d (30-60) (Lab ID: 2512573011)
- PCA1-02d (60-90) (Lab ID: 2512573012)
- PCA1-02s (Lab ID: 2512573002)
- PCA1-03s (Lab ID: 2512573003)
- PCA1-04s (Lab ID: 2512573004)
- PCA1-04s DUP (Lab ID: 2512573005)

QC Batch: OEXT/5684

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- PCA2-01d (0-30) (Lab ID: 2512573016)
- PCA2-01d (30-60) (Lab ID: 2512573017)
- PCA2-01d (60-90) (Lab ID: 2512573018)
- PCA2-01d (60-90) DUP (Lab ID: 2512573019)

QC Batch: OEXT/5670

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- PCA2-01s (Lab ID: 2512573013)
- PCA2-02s (Lab ID: 2512573014)

QC Batch: OEXT/5690

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- PCA3-01d (0-30) (Lab ID: 2512573032)
- PCA3-01d (30-60) (Lab ID: 2512573033)
- PCA3-01d (60-90) (Lab ID: 2512573034)

QC Batch: OEXT/5684

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- PCA3-01s (Lab ID: 2512573021)
- PCA3-02s (Lab ID: 2512573022)
- PCA3-02s DUP (Lab ID: 2512573023)

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PROJECT NARRATIVE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Method: **EPA 8082**
Description: 8082 GCS PCB S
Client: State of Oregon DEQ
Date: July 26, 2012

QC Batch: OEXT/5684

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- PCA3-03s (Lab ID: 2512573024)
- PCA3-04s (Lab ID: 2512573025)
- PCA3-05s (Lab ID: 2512573026)
- PCA3-06s (Lab ID: 2512573027)
- PCA3-07s (Lab ID: 2512573028)
- PCA3-08s (Lab ID: 2512573029)
- PCA3-09s (Lab ID: 2512573030)

QC Batch: OEXT/5690

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- PCA4-01d (0-10) (Lab ID: 2512573040)
- PCA4-01d (30-60) (Lab ID: 2512573041)
- PCA4-01d (60-90) (Lab ID: 2512573042)
- PCA4-01s (Lab ID: 2512573036)
- PCA4-02s (Lab ID: 2512573037)
- PCA4-03s (Lab ID: 2512573038)

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/5670

S3: Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- PCA1-02d (0-30) (Lab ID: 2512573010)
  - Decachlorobiphenyl (S)

QC Batch: OEXT/5684

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- MS (Lab ID: 120156)
  - Decachlorobiphenyl (S)
- MSD (Lab ID: 120157)
  - Decachlorobiphenyl (S)
- PCA2-01d (30-60) (Lab ID: 2512573017)
  - Decachlorobiphenyl (S)

S3: Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- PCA2-01d (0-30) (Lab ID: 2512573016)
  - Decachlorobiphenyl (S)

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PROJECT NARRATIVE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Method: **EPA 8082**
Description: 8082 GCS PCB S
Client: State of Oregon DEQ
Date: July 26, 2012

QC Batch: OEXT/5684

S3: Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- PCA3-01s (Lab ID: 2512573021)
  - Decachlorobiphenyl (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Method: **EPA 9060 Modified**
Description: Total Organic Carbon
Client: State of Oregon DEQ
Date: July 26, 2012

General Information:
38 samples were analyzed for EPA 9060 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H3: Sample was received outside the recognized method holding time.
- PCA4-04s (Lab ID: 2512573039)

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA1-01s **Lab ID: 2512573001** Collected: 06/07/12 10:45 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<38.4**	ug/kg	78.4	38.4	1	06/20/12 13:15	06/22/12 20:22	12674-11-2	
PCB-1221 (Aroclor 1221)	**<38.4**	ug/kg	78.4	38.4	1	06/20/12 13:15	06/22/12 20:22	11104-28-2	
PCB-1232 (Aroclor 1232)	**<38.4**	ug/kg	78.4	38.4	1	06/20/12 13:15	06/22/12 20:22	11141-16-5	
PCB-1242 (Aroclor 1242)	**<38.4**	ug/kg	78.4	38.4	1	06/20/12 13:15	06/22/12 20:22	53469-21-9	
PCB-1248 (Aroclor 1248)	**<38.4**	ug/kg	78.4	38.4	1	06/20/12 13:15	06/22/12 20:22	12672-29-6	
PCB-1254 (Aroclor 1254)	**<38.4**	ug/kg	78.4	38.4	1	06/20/12 13:15	06/22/12 20:22	11097-69-1	
PCB-1260 (Aroclor 1260)	**<38.4**	ug/kg	78.4	38.4	1	06/20/12 13:15	06/22/12 20:22	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	92	%	30-134		1	06/20/12 13:15	06/22/12 20:22	877-09-8	P1
Decachlorobiphenyl (S)	90	%	20-139		1	06/20/12 13:15	06/22/12 20:22	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**57.5**	%	0.10	0.10	1		06/20/12 14:19		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**5.7**	%			1		06/25/12 13:41		
Total Organic Carbon	**15500**	mg/kg	10000	2800	1		06/25/12 13:38	7440-44-0	
Total Organic Carbon	**16400**	mg/kg	10000	2800	1		06/25/12 13:41	7440-44-0	
Mean Total Organic Carbon	**15900**	mg/kg	10000	2800	1		06/25/12 13:41	7440-44-0	

Sample: PCA1-02s **Lab ID: 2512573002** Collected: 06/07/12 11:10 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<31.0**	ug/kg	63.2	31.0	1	06/20/12 13:15	06/22/12 20:41	12674-11-2	
PCB-1221 (Aroclor 1221)	**<31.0**	ug/kg	63.2	31.0	1	06/20/12 13:15	06/22/12 20:41	11104-28-2	
PCB-1232 (Aroclor 1232)	**<31.0**	ug/kg	63.2	31.0	1	06/20/12 13:15	06/22/12 20:41	11141-16-5	
PCB-1242 (Aroclor 1242)	**<31.0**	ug/kg	63.2	31.0	1	06/20/12 13:15	06/22/12 20:41	53469-21-9	
PCB-1248 (Aroclor 1248)	**<31.0**	ug/kg	63.2	31.0	1	06/20/12 13:15	06/22/12 20:41	12672-29-6	
PCB-1254 (Aroclor 1254)	**<31.0**	ug/kg	63.2	31.0	1	06/20/12 13:15	06/22/12 20:41	11097-69-1	
PCB-1260 (Aroclor 1260)	**<31.0**	ug/kg	63.2	31.0	1	06/20/12 13:15	06/22/12 20:41	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	88	%	30-134		1	06/20/12 13:15	06/22/12 20:41	877-09-8	P1
Decachlorobiphenyl (S)	91	%	20-139		1	06/20/12 13:15	06/22/12 20:41	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**47.9**	%	0.10	0.10	1		06/20/12 14:21		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**14.9**	%			1		06/25/12 14:29		
Total Organic Carbon	**20200**	mg/kg	10000	2800	1		06/25/12 14:27	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA1-02s **Lab ID: 2512573002** Collected: 06/07/12 11:10 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**23500**	mg/kg	11100	3110	1		06/25/12 14:29	7440-44-0	
Mean Total Organic Carbon	**21800**	mg/kg	10600	2960	1		06/25/12 14:29	7440-44-0	

Sample: PCA1-03s **Lab ID: 2512573003** Collected: 06/07/12 11:30 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<45.5**	ug/kg	92.8	45.5	1	06/20/12 13:15	06/22/12 21:01	12674-11-2	
PCB-1221 (Aroclor 1221)	**<45.5**	ug/kg	92.8	45.5	1	06/20/12 13:15	06/22/12 21:01	11104-28-2	
PCB-1232 (Aroclor 1232)	**<45.5**	ug/kg	92.8	45.5	1	06/20/12 13:15	06/22/12 21:01	11141-16-5	
PCB-1242 (Aroclor 1242)	**<45.5**	ug/kg	92.8	45.5	1	06/20/12 13:15	06/22/12 21:01	53469-21-9	
PCB-1248 (Aroclor 1248)	**<45.5**	ug/kg	92.8	45.5	1	06/20/12 13:15	06/22/12 21:01	12672-29-6	
PCB-1254 (Aroclor 1254)	**<45.5**	ug/kg	92.8	45.5	1	06/20/12 13:15	06/22/12 21:01	11097-69-1	
PCB-1260 (Aroclor 1260)	**<45.5**	ug/kg	92.8	45.5	1	06/20/12 13:15	06/22/12 21:01	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	88	%	30-134		1	06/20/12 13:15	06/22/12 21:01	877-09-8	P1
Decachlorobiphenyl (S)	86	%	20-139		1	06/20/12 13:15	06/22/12 21:01	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**63.7**	%	0.10	0.10	1		06/20/12 14:23		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**23.9**	%			1		06/25/12 14:52		
Total Organic Carbon	**25200**	mg/kg	10000	2800	1		06/25/12 14:49	7440-44-0	
Total Organic Carbon	**19800**	mg/kg	11100	3110	1		06/25/12 14:52	7440-44-0	
Mean Total Organic Carbon	**22500**	mg/kg	10600	2960	1		06/25/12 14:52	7440-44-0	

Sample: PCA1-04s **Lab ID: 2512573004** Collected: 06/07/12 12:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<45.7**	ug/kg	93.3	45.7	1	06/20/12 13:15	06/22/12 21:20	12674-11-2	
PCB-1221 (Aroclor 1221)	**<45.7**	ug/kg	93.3	45.7	1	06/20/12 13:15	06/22/12 21:20	11104-28-2	
PCB-1232 (Aroclor 1232)	**<45.7**	ug/kg	93.3	45.7	1	06/20/12 13:15	06/22/12 21:20	11141-16-5	
PCB-1242 (Aroclor 1242)	**<45.7**	ug/kg	93.3	45.7	1	06/20/12 13:15	06/22/12 21:20	53469-21-9	
PCB-1248 (Aroclor 1248)	**<45.7**	ug/kg	93.3	45.7	1	06/20/12 13:15	06/22/12 21:20	12672-29-6	
PCB-1254 (Aroclor 1254)	**<45.7**	ug/kg	93.3	45.7	1	06/20/12 13:15	06/22/12 21:20	11097-69-1	
PCB-1260 (Aroclor 1260)	**<45.7**	ug/kg	93.3	45.7	1	06/20/12 13:15	06/22/12 21:20	11096-82-5	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA1-04s **Lab ID: 2512573004** Collected: 06/07/12 12:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
Surrogates									
Tetrachloro-m-xylene (S)	81	%	30-134		1	06/20/12 13:15	06/22/12 21:20	877-09-8	P1
Decachlorobiphenyl (S)	75	%	20-139		1	06/20/12 13:15	06/22/12 21:20	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**64.3**	%	0.10	0.10	1		06/20/12 14:24		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**15.9**	%			1		06/25/12 15:04		
Total Organic Carbon	**25800**	mg/kg	11100	3110	1		06/25/12 15:02	7440-44-0	
Total Organic Carbon	**22000**	mg/kg	12500	3500	1		06/25/12 15:04	7440-44-0	
Mean Total Organic Carbon	**23900**	mg/kg	11800	3310	1		06/25/12 15:04	7440-44-0	

Sample: PCA1-04s DUP **Lab ID: 2512573005** Collected: 06/07/12 12:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<47.8**	ug/kg	97.6	47.8	1	06/20/12 13:15	06/22/12 22:18	12674-11-2	
PCB-1221 (Aroclor 1221)	**<47.8**	ug/kg	97.6	47.8	1	06/20/12 13:15	06/22/12 22:18	11104-28-2	
PCB-1232 (Aroclor 1232)	**<47.8**	ug/kg	97.6	47.8	1	06/20/12 13:15	06/22/12 22:18	11141-16-5	
PCB-1242 (Aroclor 1242)	**<47.8**	ug/kg	97.6	47.8	1	06/20/12 13:15	06/22/12 22:18	53469-21-9	
PCB-1248 (Aroclor 1248)	**<47.8**	ug/kg	97.6	47.8	1	06/20/12 13:15	06/22/12 22:18	12672-29-6	
PCB-1254 (Aroclor 1254)	**<47.8**	ug/kg	97.6	47.8	1	06/20/12 13:15	06/22/12 22:18	11097-69-1	
PCB-1260 (Aroclor 1260)	**<47.8**	ug/kg	97.6	47.8	1	06/20/12 13:15	06/22/12 22:18	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	85	%	30-134		1	06/20/12 13:15	06/22/12 22:18	877-09-8	P1
Decachlorobiphenyl (S)	81	%	20-139		1	06/20/12 13:15	06/22/12 22:18	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**66.0**	%	0.10	0.10	1		06/20/12 14:26		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**23.5**	%			1		06/25/12 15:10		
Total Organic Carbon	**27000**	mg/kg	7140	2000	1		06/25/12 15:07	7440-44-0	
Total Organic Carbon	**21300**	mg/kg	8330	2330	1		06/25/12 15:10	7440-44-0	
Mean Total Organic Carbon	**24100**	mg/kg	7740	2170	1		06/25/12 15:10	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA1-05s **Lab ID: 2512573006** Collected: 06/07/12 12:30 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<43.1**	ug/kg	88.0	43.1	1	06/21/12 17:10	06/23/12 02:49	12674-11-2	
PCB-1221 (Aroclor 1221)	**<43.1**	ug/kg	88.0	43.1	1	06/21/12 17:10	06/23/12 02:49	11104-28-2	
PCB-1232 (Aroclor 1232)	**<43.1**	ug/kg	88.0	43.1	1	06/21/12 17:10	06/23/12 02:49	11141-16-5	
PCB-1242 (Aroclor 1242)	**<43.1**	ug/kg	88.0	43.1	1	06/21/12 17:10	06/23/12 02:49	53469-21-9	
PCB-1248 (Aroclor 1248)	**<43.1**	ug/kg	88.0	43.1	1	06/21/12 17:10	06/23/12 02:49	12672-29-6	
PCB-1254 (Aroclor 1254)	**<43.1**	ug/kg	88.0	43.1	1	06/21/12 17:10	06/23/12 02:49	11097-69-1	
PCB-1260 (Aroclor 1260)	**<43.1**	ug/kg	88.0	43.1	1	06/21/12 17:10	06/23/12 02:49	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	83	%	30-134		1	06/21/12 17:10	06/23/12 02:49	877-09-8	
Decachlorobiphenyl (S)	89	%	20-139		1	06/21/12 17:10	06/23/12 02:49	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**62.2**	%	0.10	0.10	1		06/20/12 14:27		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**1.8**	%			1		07/05/12 15:10		
Total Organic Carbon	**33000**	mg/kg	20000	5600	1		07/05/12 15:08	7440-44-0	
Total Organic Carbon	**32400**	mg/kg	20000	5600	1		07/05/12 15:10	7440-44-0	
Mean Total Organic Carbon	**32700**	mg/kg	20000	5600	1		07/05/12 15:10	7440-44-0	

Sample: PCA1-01d (0-30) **Lab ID: 2512573007** Collected: 06/06/12 11:35 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<30.1**	ug/kg	61.5	30.1	1	06/20/12 13:15	06/22/12 22:37	12674-11-2	
PCB-1221 (Aroclor 1221)	**<30.1**	ug/kg	61.5	30.1	1	06/20/12 13:15	06/22/12 22:37	11104-28-2	
PCB-1232 (Aroclor 1232)	**<30.1**	ug/kg	61.5	30.1	1	06/20/12 13:15	06/22/12 22:37	11141-16-5	
PCB-1242 (Aroclor 1242)	**<30.1**	ug/kg	61.5	30.1	1	06/20/12 13:15	06/22/12 22:37	53469-21-9	
PCB-1248 (Aroclor 1248)	**<30.1**	ug/kg	61.5	30.1	1	06/20/12 13:15	06/22/12 22:37	12672-29-6	
PCB-1254 (Aroclor 1254)	**60.0J**	ug/kg	61.5	30.1	1	06/20/12 13:15	06/22/12 22:37	11097-69-1	
PCB-1260 (Aroclor 1260)	**<30.1**	ug/kg	61.5	30.1	1	06/20/12 13:15	06/22/12 22:37	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	72	%	30-134		1	06/20/12 13:15	06/22/12 22:37	877-09-8	P1
Decachlorobiphenyl (S)	80	%	20-139		1	06/20/12 13:15	06/22/12 22:37	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**45.4**	%	0.10	0.10	1		06/20/12 14:29		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**4.9**	%			1		06/25/12 15:15		
Total Organic Carbon	**12400**	mg/kg	11100	3110	1		06/25/12 15:13	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA1-01d (0-30) **Lab ID: 2512573007** Collected: 06/06/12 11:35 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**13000**	mg/kg	11100	3110	1		06/25/12 15:15	7440-44-0	
Mean Total Organic Carbon	**12700**	mg/kg	11100	3110	1		06/25/12 15:15	7440-44-0	

Sample: PCA1-01d (30-60) **Lab ID: 2512573008** Collected: 06/06/12 11:30 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<25.9**	ug/kg	52.9	25.9	1	06/20/12 13:15	06/22/12 22:57	12674-11-2	
PCB-1221 (Aroclor 1221)	**<25.9**	ug/kg	52.9	25.9	1	06/20/12 13:15	06/22/12 22:57	11104-28-2	
PCB-1232 (Aroclor 1232)	**<25.9**	ug/kg	52.9	25.9	1	06/20/12 13:15	06/22/12 22:57	11141-16-5	
PCB-1242 (Aroclor 1242)	**<25.9**	ug/kg	52.9	25.9	1	06/20/12 13:15	06/22/12 22:57	53469-21-9	
PCB-1248 (Aroclor 1248)	**<25.9**	ug/kg	52.9	25.9	1	06/20/12 13:15	06/22/12 22:57	12672-29-6	
PCB-1254 (Aroclor 1254)	**<25.9**	ug/kg	52.9	25.9	1	06/20/12 13:15	06/22/12 22:57	11097-69-1	
PCB-1260 (Aroclor 1260)	**<25.9**	ug/kg	52.9	25.9	1	06/20/12 13:15	06/22/12 22:57	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	67	%	30-134		1	06/20/12 13:15	06/22/12 22:57	877-09-8	P1
Decachlorobiphenyl (S)	87	%	20-139		1	06/20/12 13:15	06/22/12 22:57	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**38.1**	%	0.10	0.10	1		06/20/12 14:30		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**13.8**	%			1		06/25/12 15:21		
Total Organic Carbon	**18100**	mg/kg	7690	2150	1		06/25/12 15:18	7440-44-0	
Total Organic Carbon	**15700**	mg/kg	7140	2000	1		06/25/12 15:21	7440-44-0	
Mean Total Organic Carbon	**16900**	mg/kg	7420	2080	1		06/25/12 15:21	7440-44-0	

Sample: PCA1-01d (60-90) **Lab ID: 2512573009** Collected: 06/06/12 12:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<24.0**	ug/kg	49.0	24.0	1	06/20/12 13:15	06/22/12 23:16	12674-11-2	
PCB-1221 (Aroclor 1221)	**<24.0**	ug/kg	49.0	24.0	1	06/20/12 13:15	06/22/12 23:16	11104-28-2	
PCB-1232 (Aroclor 1232)	**<24.0**	ug/kg	49.0	24.0	1	06/20/12 13:15	06/22/12 23:16	11141-16-5	
PCB-1242 (Aroclor 1242)	**<24.0**	ug/kg	49.0	24.0	1	06/20/12 13:15	06/22/12 23:16	53469-21-9	
PCB-1248 (Aroclor 1248)	**<24.0**	ug/kg	49.0	24.0	1	06/20/12 13:15	06/22/12 23:16	12672-29-6	
PCB-1254 (Aroclor 1254)	**<24.0**	ug/kg	49.0	24.0	1	06/20/12 13:15	06/22/12 23:16	11097-69-1	
PCB-1260 (Aroclor 1260)	**<24.0**	ug/kg	49.0	24.0	1	06/20/12 13:15	06/22/12 23:16	11096-82-5	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA1-01d (60-90) **Lab ID: 2512573009** Collected: 06/06/12 12:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
Surrogates									
Tetrachloro-m-xylene (S)	88	%	30-134		1	06/20/12 13:15	06/22/12 23:16	877-09-8	P1
Decachlorobiphenyl (S)	92	%	20-139		1	06/20/12 13:15	06/22/12 23:16	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**32.1**	%	0.10	0.10	1		06/20/12 14:32		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**1.3**	%			1		06/25/12 15:29		
Total Organic Carbon	**3730**	mg/kg	2220	622	1		06/25/12 15:26	7440-44-0	
Total Organic Carbon	**3780**	mg/kg	2170	609	1		06/25/12 15:29	7440-44-0	
Mean Total Organic Carbon	**3750**	mg/kg	2200	615	1		06/25/12 15:29	7440-44-0	

Sample: PCA1-02d (0-30) **Lab ID: 2512573010** Collected: 06/06/12 14:15 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<28.3**	ug/kg	57.8	28.3	1	06/20/12 13:15	06/22/12 23:35	12674-11-2	
PCB-1221 (Aroclor 1221)	**<28.3**	ug/kg	57.8	28.3	1	06/20/12 13:15	06/22/12 23:35	11104-28-2	
PCB-1232 (Aroclor 1232)	**<28.3**	ug/kg	57.8	28.3	1	06/20/12 13:15	06/22/12 23:35	11141-16-5	
PCB-1242 (Aroclor 1242)	**<28.3**	ug/kg	57.8	28.3	1	06/20/12 13:15	06/22/12 23:35	53469-21-9	
PCB-1248 (Aroclor 1248)	**<28.3**	ug/kg	57.8	28.3	1	06/20/12 13:15	06/22/12 23:35	12672-29-6	
PCB-1254 (Aroclor 1254)	**<28.3**	ug/kg	57.8	28.3	1	06/20/12 13:15	06/22/12 23:35	11097-69-1	
PCB-1260 (Aroclor 1260)	**<28.3**	ug/kg	57.8	28.3	1	06/20/12 13:15	06/22/12 23:35	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	68	%	30-134		1	06/20/12 13:15	06/22/12 23:35	877-09-8	P1
Decachlorobiphenyl (S)	314	%	20-139		1	06/20/12 13:15	06/22/12 23:35	2051-24-3	S3
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**41.4**	%	0.10	0.10	1		06/20/12 14:34		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**18.0**	%			1		06/25/12 15:35		
Total Organic Carbon	**17200**	mg/kg	9090	2550	1		06/25/12 15:32	7440-44-0	
Total Organic Carbon	**14400**	mg/kg	8330	2330	1		06/25/12 15:35	7440-44-0	
Mean Total Organic Carbon	**15800**	mg/kg	8710	2440	1		06/25/12 15:35	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA1-02d (30-60) **Lab ID: 2512573011** Collected: 06/06/12 13:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<23.5**	ug/kg	47.9	23.5	1	06/20/12 13:15	06/22/12 23:55	12674-11-2	
PCB-1221 (Aroclor 1221)	**<23.5**	ug/kg	47.9	23.5	1	06/20/12 13:15	06/22/12 23:55	11104-28-2	
PCB-1232 (Aroclor 1232)	**<23.5**	ug/kg	47.9	23.5	1	06/20/12 13:15	06/22/12 23:55	11141-16-5	
PCB-1242 (Aroclor 1242)	**<23.5**	ug/kg	47.9	23.5	1	06/20/12 13:15	06/22/12 23:55	53469-21-9	
PCB-1248 (Aroclor 1248)	**<23.5**	ug/kg	47.9	23.5	1	06/20/12 13:15	06/22/12 23:55	12672-29-6	
PCB-1254 (Aroclor 1254)	**<23.5**	ug/kg	47.9	23.5	1	06/20/12 13:15	06/22/12 23:55	11097-69-1	
PCB-1260 (Aroclor 1260)	**<23.5**	ug/kg	47.9	23.5	1	06/20/12 13:15	06/22/12 23:55	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	78	%	30-134		1	06/20/12 13:15	06/22/12 23:55	877-09-8	P1
Decachlorobiphenyl (S)	90	%	20-139		1	06/20/12 13:15	06/22/12 23:55	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**29.4**	%	0.10	0.10	1		06/20/12 14:37		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**8.2**	%			1		06/25/12 15:40		
Total Organic Carbon	**13700**	mg/kg	4760	1330	1		06/25/12 15:37	7440-44-0	
Total Organic Carbon	**14900**	mg/kg	5000	1400	1		06/25/12 15:40	7440-44-0	
Mean Total Organic Carbon	**14300**	mg/kg	4880	1370	1		06/25/12 15:40	7440-44-0	

Sample: PCA1-02d (60-90) **Lab ID: 2512573012** Collected: 06/06/12 13:15 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<22.4**	ug/kg	45.8	22.4	1	06/20/12 13:15	06/23/12 00:14	12674-11-2	
PCB-1221 (Aroclor 1221)	**<22.4**	ug/kg	45.8	22.4	1	06/20/12 13:15	06/23/12 00:14	11104-28-2	
PCB-1232 (Aroclor 1232)	**<22.4**	ug/kg	45.8	22.4	1	06/20/12 13:15	06/23/12 00:14	11141-16-5	
PCB-1242 (Aroclor 1242)	**<22.4**	ug/kg	45.8	22.4	1	06/20/12 13:15	06/23/12 00:14	53469-21-9	
PCB-1248 (Aroclor 1248)	**<22.4**	ug/kg	45.8	22.4	1	06/20/12 13:15	06/23/12 00:14	12672-29-6	
PCB-1254 (Aroclor 1254)	**<22.4**	ug/kg	45.8	22.4	1	06/20/12 13:15	06/23/12 00:14	11097-69-1	
PCB-1260 (Aroclor 1260)	**<22.4**	ug/kg	45.8	22.4	1	06/20/12 13:15	06/23/12 00:14	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	73	%	30-134		1	06/20/12 13:15	06/23/12 00:14	877-09-8	P1
Decachlorobiphenyl (S)	82	%	20-139		1	06/20/12 13:15	06/23/12 00:14	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**26.5**	%	0.10	0.10	1		06/20/12 14:38		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**6.0**	%			1		06/25/12 15:46		
Total Organic Carbon	**12800**	mg/kg	5260	1470	1		06/25/12 15:43	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA1-02d (60-90) **Lab ID: 2512573012** Collected: 06/06/12 13:15 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**13600**	mg/kg	5880	1650	1		06/25/12 15:46	7440-44-0	
Mean Total Organic Carbon	**13200**	mg/kg	5570	1560	1		06/25/12 15:46	7440-44-0	

Sample: PCA2-01s **Lab ID: 2512573013** Collected: 06/07/12 13:40 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<47.3**	ug/kg	96.6	47.3	1	06/20/12 13:15	06/23/12 00:33	12674-11-2	
PCB-1221 (Aroclor 1221)	**<47.3**	ug/kg	96.6	47.3	1	06/20/12 13:15	06/23/12 00:33	11104-28-2	
PCB-1232 (Aroclor 1232)	**<47.3**	ug/kg	96.6	47.3	1	06/20/12 13:15	06/23/12 00:33	11141-16-5	
PCB-1242 (Aroclor 1242)	**<47.3**	ug/kg	96.6	47.3	1	06/20/12 13:15	06/23/12 00:33	53469-21-9	
PCB-1248 (Aroclor 1248)	**<47.3**	ug/kg	96.6	47.3	1	06/20/12 13:15	06/23/12 00:33	12672-29-6	
PCB-1254 (Aroclor 1254)	**<47.3**	ug/kg	96.6	47.3	1	06/20/12 13:15	06/23/12 00:33	11097-69-1	
PCB-1260 (Aroclor 1260)	**<47.3**	ug/kg	96.6	47.3	1	06/20/12 13:15	06/23/12 00:33	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	75	%	30-134		1	06/20/12 13:15	06/23/12 00:33	877-09-8	P1
Decachlorobiphenyl (S)	126	%	20-139		1	06/20/12 13:15	06/23/12 00:33	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**65.5**	%	0.10	0.10	1		06/20/12 14:40		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**37.7**	%			1		06/25/12 15:53		
Total Organic Carbon	**38400**	mg/kg	8330	2330	1		06/25/12 15:50	7440-44-0	
Total Organic Carbon	**26200**	mg/kg	11100	3110	1		06/25/12 15:53	7440-44-0	
Mean Total Organic Carbon	**32300**	mg/kg	9720	2720	1		06/25/12 15:53	7440-44-0	

Sample: PCA2-02s **Lab ID: 2512573014** Collected: 06/07/12 14:10 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<36.8**	ug/kg	75.2	36.8	1	06/20/12 13:15	06/23/12 00:53	12674-11-2	
PCB-1221 (Aroclor 1221)	**<36.8**	ug/kg	75.2	36.8	1	06/20/12 13:15	06/23/12 00:53	11104-28-2	
PCB-1232 (Aroclor 1232)	**<36.8**	ug/kg	75.2	36.8	1	06/20/12 13:15	06/23/12 00:53	11141-16-5	
PCB-1242 (Aroclor 1242)	**<36.8**	ug/kg	75.2	36.8	1	06/20/12 13:15	06/23/12 00:53	53469-21-9	
PCB-1248 (Aroclor 1248)	**<36.8**	ug/kg	75.2	36.8	1	06/20/12 13:15	06/23/12 00:53	12672-29-6	
PCB-1254 (Aroclor 1254)	**<36.8**	ug/kg	75.2	36.8	1	06/20/12 13:15	06/23/12 00:53	11097-69-1	
PCB-1260 (Aroclor 1260)	**<36.8**	ug/kg	75.2	36.8	1	06/20/12 13:15	06/23/12 00:53	11096-82-5	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA2-02s **Lab ID: 2512573014** Collected: 06/07/12 14:10 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
Surrogates									
Tetrachloro-m-xylene (S)	78	%	30-134		1	06/20/12 13:15	06/23/12 00:53	877-09-8	P1
Decachlorobiphenyl (S)	75	%	20-139		1	06/20/12 13:15	06/23/12 00:53	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**55.3**	%	0.10	0.10	1		06/20/12 14:41		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**3.5**	%			1		06/29/12 08:54		
Total Organic Carbon	**22900**	mg/kg	10000	2800	1		06/29/12 08:45	7440-44-0	
Total Organic Carbon	**22100**	mg/kg	11100	3110	1		06/29/12 08:54	7440-44-0	
Mean Total Organic Carbon	**22500**	mg/kg	10600	2960	1		06/29/12 08:54	7440-44-0	

Sample: PCA2-01d (0-30) **Lab ID: 2512573016** Collected: 06/13/12 08:40 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<29.5**	ug/kg	60.1	29.5	1	06/22/12 15:25	06/25/12 20:41	12674-11-2	
PCB-1221 (Aroclor 1221)	**<29.5**	ug/kg	60.1	29.5	1	06/22/12 15:25	06/25/12 20:41	11104-28-2	
PCB-1232 (Aroclor 1232)	**<29.5**	ug/kg	60.1	29.5	1	06/22/12 15:25	06/25/12 20:41	11141-16-5	
PCB-1242 (Aroclor 1242)	**<29.5**	ug/kg	60.1	29.5	1	06/22/12 15:25	06/25/12 20:41	53469-21-9	
PCB-1248 (Aroclor 1248)	**<29.5**	ug/kg	60.1	29.5	1	06/22/12 15:25	06/25/12 20:41	12672-29-6	
PCB-1254 (Aroclor 1254)	**<29.5**	ug/kg	60.1	29.5	1	06/22/12 15:25	06/25/12 20:41	11097-69-1	
PCB-1260 (Aroclor 1260)	**<29.5**	ug/kg	60.1	29.5	1	06/22/12 15:25	06/25/12 20:41	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	78	%	30-134		1	06/22/12 15:25	06/25/12 20:41	877-09-8	P1
Decachlorobiphenyl (S)	607	%	20-139		1	06/22/12 15:25	06/25/12 20:41	2051-24-3	S3
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**44.5**	%	0.10	0.10	1		06/20/12 14:45		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**13.0**	%			1		06/29/12 09:13		
Total Organic Carbon	**18900**	mg/kg	7690	2150	1		06/29/12 09:05	7440-44-0	
Total Organic Carbon	**16600**	mg/kg	8330	2330	1		06/29/12 09:13	7440-44-0	
Mean Total Organic Carbon	**17700**	mg/kg	8010	2240	1		06/29/12 09:13	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA2-01d (30-60) **Lab ID: 2512573017** Collected: 06/13/12 09:15 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/25/12 21:00	12674-11-2	
PCB-1221 (Aroclor 1221)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/25/12 21:00	11104-28-2	
PCB-1232 (Aroclor 1232)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/25/12 21:00	11141-16-5	
PCB-1242 (Aroclor 1242)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/25/12 21:00	53469-21-9	
PCB-1248 (Aroclor 1248)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/25/12 21:00	12672-29-6	
PCB-1254 (Aroclor 1254)	**131**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/25/12 21:00	11097-69-1	
PCB-1260 (Aroclor 1260)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/25/12 21:00	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	65	%	30-134		1	06/22/12 15:25	06/25/12 21:00	877-09-8	P1
Decachlorobiphenyl (S)	266	%	20-139		1	06/22/12 15:25	06/25/12 21:00	2051-24-3	S2
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**50.4**	%	0.10	0.10	1		06/20/12 14:46		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**4.2**	%			1		06/29/12 09:22		
Total Organic Carbon	**28700**	mg/kg	10000	2800	1		06/29/12 09:19	7440-44-0	
Total Organic Carbon	**29900**	mg/kg	12500	3500	1		06/29/12 09:22	7440-44-0	
Mean Total Organic Carbon	**29300**	mg/kg	11200	3150	1		06/29/12 09:22	7440-44-0	

Sample: PCA2-01d (60-90) **Lab ID: 2512573018** Collected: 06/13/12 09:40 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<36.4**	ug/kg	74.2	36.4	1	06/22/12 15:25	06/25/12 21:58	12674-11-2	
PCB-1221 (Aroclor 1221)	**<36.4**	ug/kg	74.2	36.4	1	06/22/12 15:25	06/25/12 21:58	11104-28-2	
PCB-1232 (Aroclor 1232)	**<36.4**	ug/kg	74.2	36.4	1	06/22/12 15:25	06/25/12 21:58	11141-16-5	
PCB-1242 (Aroclor 1242)	**<36.4**	ug/kg	74.2	36.4	1	06/22/12 15:25	06/25/12 21:58	53469-21-9	
PCB-1248 (Aroclor 1248)	**<36.4**	ug/kg	74.2	36.4	1	06/22/12 15:25	06/25/12 21:58	12672-29-6	
PCB-1254 (Aroclor 1254)	**<36.4**	ug/kg	74.2	36.4	1	06/22/12 15:25	06/25/12 21:58	11097-69-1	
PCB-1260 (Aroclor 1260)	**<36.4**	ug/kg	74.2	36.4	1	06/22/12 15:25	06/25/12 21:58	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	66	%	30-134		1	06/22/12 15:25	06/25/12 21:58	877-09-8	P1
Decachlorobiphenyl (S)	94	%	20-139		1	06/22/12 15:25	06/25/12 21:58	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**54.8**	%	0.10	0.10	1		06/20/12 14:47		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**7.3**	%			1		06/29/12 09:29		
Total Organic Carbon	**66100**	mg/kg	12500	3500	1		06/29/12 09:26	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA2-01d (60-90) **Lab ID: 2512573018** Collected: 06/13/12 09:40 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**61500**	mg/kg	11100	3110	1		06/29/12 09:29	7440-44-0	
Mean Total Organic Carbon	**63800**	mg/kg	11800	3310	1		06/29/12 09:29	7440-44-0	

Sample: PCA2-01d (60-90) DUP **Lab ID: 2512573019** Collected: 06/13/12 09:40 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<35.1**	ug/kg	71.6	35.1	1	06/22/12 15:25	06/25/12 22:17	12674-11-2	
PCB-1221 (Aroclor 1221)	**<35.1**	ug/kg	71.6	35.1	1	06/22/12 15:25	06/25/12 22:17	11104-28-2	
PCB-1232 (Aroclor 1232)	**<35.1**	ug/kg	71.6	35.1	1	06/22/12 15:25	06/25/12 22:17	11141-16-5	
PCB-1242 (Aroclor 1242)	**<35.1**	ug/kg	71.6	35.1	1	06/22/12 15:25	06/25/12 22:17	53469-21-9	
PCB-1248 (Aroclor 1248)	**<35.1**	ug/kg	71.6	35.1	1	06/22/12 15:25	06/25/12 22:17	12672-29-6	
PCB-1254 (Aroclor 1254)	**<35.1**	ug/kg	71.6	35.1	1	06/22/12 15:25	06/25/12 22:17	11097-69-1	
PCB-1260 (Aroclor 1260)	**<35.1**	ug/kg	71.6	35.1	1	06/22/12 15:25	06/25/12 22:17	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	63	%	30-134		1	06/22/12 15:25	06/25/12 22:17	877-09-8	P1
Decachlorobiphenyl (S)	111	%	20-139		1	06/22/12 15:25	06/25/12 22:17	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**54.9**	%	0.10	0.10	1		06/20/12 14:48		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**10.1**	%			1		06/29/12 09:38		
Total Organic Carbon	**39300**	mg/kg	10000	2800	1		06/29/12 09:33	7440-44-0	
Total Organic Carbon	**43500**	mg/kg	9090	2550	1		06/29/12 09:38	7440-44-0	
Mean Total Organic Carbon	**41400**	mg/kg	9550	2670	1		06/29/12 09:38	7440-44-0	

Sample: PCA3-01s **Lab ID: 2512573021** Collected: 06/08/12 09:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<47.2**	ug/kg	96.3	47.2	1	06/22/12 15:25	06/25/12 23:35	12674-11-2	
PCB-1221 (Aroclor 1221)	**<47.2**	ug/kg	96.3	47.2	1	06/22/12 15:25	06/25/12 23:35	11104-28-2	
PCB-1232 (Aroclor 1232)	**<47.2**	ug/kg	96.3	47.2	1	06/22/12 15:25	06/25/12 23:35	11141-16-5	
PCB-1242 (Aroclor 1242)	**<47.2**	ug/kg	96.3	47.2	1	06/22/12 15:25	06/25/12 23:35	53469-21-9	
PCB-1248 (Aroclor 1248)	**<47.2**	ug/kg	96.3	47.2	1	06/22/12 15:25	06/25/12 23:35	12672-29-6	
PCB-1254 (Aroclor 1254)	**<47.2**	ug/kg	96.3	47.2	1	06/22/12 15:25	06/25/12 23:35	11097-69-1	
PCB-1260 (Aroclor 1260)	**<47.2**	ug/kg	96.3	47.2	1	06/22/12 15:25	06/25/12 23:35	11096-82-5	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA3-01s **Lab ID: 2512573021** Collected: 06/08/12 09:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
Surrogates									
Tetrachloro-m-xylene (S)	68	%	30-134		1	06/22/12 15:25	06/25/12 23:35	877-09-8	P1
Decachlorobiphenyl (S)	144	%	20-139		1	06/22/12 15:25	06/25/12 23:35	2051-24-3	S3
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**65.2**	%	0.10	0.10	1		06/20/12 15:18		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**22.2**	%			1		06/29/12 09:46		
Total Organic Carbon	**28200**	mg/kg	9090	2550	1		06/29/12 09:41	7440-44-0	
Total Organic Carbon	**22600**	mg/kg	9090	2550	1		06/29/12 09:46	7440-44-0	
Mean Total Organic Carbon	**25400**	mg/kg	9090	2550	1		06/29/12 09:46	7440-44-0	

Sample: PCA3-02s **Lab ID: 2512573022** Collected: 06/09/12 10:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<32.3**	ug/kg	65.9	32.3	1	06/22/12 15:25	06/25/12 23:54	12674-11-2	
PCB-1221 (Aroclor 1221)	**<32.3**	ug/kg	65.9	32.3	1	06/22/12 15:25	06/25/12 23:54	11104-28-2	
PCB-1232 (Aroclor 1232)	**<32.3**	ug/kg	65.9	32.3	1	06/22/12 15:25	06/25/12 23:54	11141-16-5	
PCB-1242 (Aroclor 1242)	**<32.3**	ug/kg	65.9	32.3	1	06/22/12 15:25	06/25/12 23:54	53469-21-9	
PCB-1248 (Aroclor 1248)	**<32.3**	ug/kg	65.9	32.3	1	06/22/12 15:25	06/25/12 23:54	12672-29-6	
PCB-1254 (Aroclor 1254)	**<32.3**	ug/kg	65.9	32.3	1	06/22/12 15:25	06/25/12 23:54	11097-69-1	
PCB-1260 (Aroclor 1260)	**<32.3**	ug/kg	65.9	32.3	1	06/22/12 15:25	06/25/12 23:54	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	77	%	30-134		1	06/22/12 15:25	06/25/12 23:54	877-09-8	P1
Decachlorobiphenyl (S)	99	%	20-139		1	06/22/12 15:25	06/25/12 23:54	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**49.4**	%	0.10	0.10	1		06/20/12 15:20		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**13.2**	%			1		06/29/12 09:52		
Total Organic Carbon	**14600**	mg/kg	8330	2330	1		06/29/12 09:49	7440-44-0	
Total Organic Carbon	**12800**	mg/kg	9090	2550	1		06/29/12 09:52	7440-44-0	
Mean Total Organic Carbon	**13700**	mg/kg	8710	2440	1		06/29/12 09:52	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA3-02s DUP **Lab ID: 2512573023** Collected: 06/09/12 10:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<32.5**	ug/kg	66.4	32.5	1	06/22/12 15:25	06/26/12 00:13	12674-11-2	
PCB-1221 (Aroclor 1221)	**<32.5**	ug/kg	66.4	32.5	1	06/22/12 15:25	06/26/12 00:13	11104-28-2	
PCB-1232 (Aroclor 1232)	**<32.5**	ug/kg	66.4	32.5	1	06/22/12 15:25	06/26/12 00:13	11141-16-5	
PCB-1242 (Aroclor 1242)	**<32.5**	ug/kg	66.4	32.5	1	06/22/12 15:25	06/26/12 00:13	53469-21-9	
PCB-1248 (Aroclor 1248)	**<32.5**	ug/kg	66.4	32.5	1	06/22/12 15:25	06/26/12 00:13	12672-29-6	
PCB-1254 (Aroclor 1254)	**<32.5**	ug/kg	66.4	32.5	1	06/22/12 15:25	06/26/12 00:13	11097-69-1	
PCB-1260 (Aroclor 1260)	**<32.5**	ug/kg	66.4	32.5	1	06/22/12 15:25	06/26/12 00:13	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	90	%	30-134		1	06/22/12 15:25	06/26/12 00:13	877-09-8	P1
Decachlorobiphenyl (S)	89	%	20-139		1	06/22/12 15:25	06/26/12 00:13	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**49.5**	%	0.10	0.10	1		06/20/12 15:29		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**10.9**	%			1		06/29/12 10:32		
Total Organic Carbon	**14500**	mg/kg	14300	4000	1		06/29/12 10:29	7440-44-0	
Total Organic Carbon	**16200**	mg/kg	14300	4000	1		06/29/12 10:32	7440-44-0	
Mean Total Organic Carbon	**15300**	mg/kg	14300	4000	1		06/29/12 10:32	7440-44-0	

Sample: PCA3-03s **Lab ID: 2512573024** Collected: 06/12/12 09:10 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<34.3**	ug/kg	70.0	34.3	1	06/22/12 15:25	06/26/12 00:32	12674-11-2	
PCB-1221 (Aroclor 1221)	**<34.3**	ug/kg	70.0	34.3	1	06/22/12 15:25	06/26/12 00:32	11104-28-2	
PCB-1232 (Aroclor 1232)	**<34.3**	ug/kg	70.0	34.3	1	06/22/12 15:25	06/26/12 00:32	11141-16-5	
PCB-1242 (Aroclor 1242)	**<34.3**	ug/kg	70.0	34.3	1	06/22/12 15:25	06/26/12 00:32	53469-21-9	
PCB-1248 (Aroclor 1248)	**<34.3**	ug/kg	70.0	34.3	1	06/22/12 15:25	06/26/12 00:32	12672-29-6	
PCB-1254 (Aroclor 1254)	**<34.3**	ug/kg	70.0	34.3	1	06/22/12 15:25	06/26/12 00:32	11097-69-1	
PCB-1260 (Aroclor 1260)	**<34.3**	ug/kg	70.0	34.3	1	06/22/12 15:25	06/26/12 00:32	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	86	%	30-134		1	06/22/12 15:25	06/26/12 00:32	877-09-8	P1
Decachlorobiphenyl (S)	86	%	20-139		1	06/22/12 15:25	06/26/12 00:32	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**52.1**	%	0.10	0.10	1		06/20/12 15:33		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**22.9**	%			1		06/29/12 10:52		
Total Organic Carbon	**31800**	mg/kg	12500	3500	1		06/29/12 10:50	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA3-03s **Lab ID: 2512573024** Collected: 06/12/12 09:10 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**25300**	mg/kg	12500	3500	1		06/29/12 10:52	7440-44-0	
Mean Total Organic Carbon	**28500**	mg/kg	12500	3500	1		06/29/12 10:52	7440-44-0	

Sample: PCA3-04s **Lab ID: 2512573025** Collected: 06/08/12 11:10 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<47.8**	ug/kg	97.5	47.8	1	06/22/12 15:25	06/26/12 00:52	12674-11-2	
PCB-1221 (Aroclor 1221)	**<47.8**	ug/kg	97.5	47.8	1	06/22/12 15:25	06/26/12 00:52	11104-28-2	
PCB-1232 (Aroclor 1232)	**<47.8**	ug/kg	97.5	47.8	1	06/22/12 15:25	06/26/12 00:52	11141-16-5	
PCB-1242 (Aroclor 1242)	**<47.8**	ug/kg	97.5	47.8	1	06/22/12 15:25	06/26/12 00:52	53469-21-9	
PCB-1248 (Aroclor 1248)	**<47.8**	ug/kg	97.5	47.8	1	06/22/12 15:25	06/26/12 00:52	12672-29-6	
PCB-1254 (Aroclor 1254)	**<47.8**	ug/kg	97.5	47.8	1	06/22/12 15:25	06/26/12 00:52	11097-69-1	
PCB-1260 (Aroclor 1260)	**<47.8**	ug/kg	97.5	47.8	1	06/22/12 15:25	06/26/12 00:52	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	71	%	30-134		1	06/22/12 15:25	06/26/12 00:52	877-09-8	P1
Decachlorobiphenyl (S)	101	%	20-139		1	06/22/12 15:25	06/26/12 00:52	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**66.4**	%	0.10	0.10	1		06/20/12 15:35		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**14.5**	%			1		06/29/12 11:21		
Total Organic Carbon	**23900**	mg/kg	6670	1870	1		06/29/12 11:17	7440-44-0	
Total Organic Carbon	**20700**	mg/kg	6250	1750	1		06/29/12 11:21	7440-44-0	
Mean Total Organic Carbon	**22300**	mg/kg	6460	1810	1		06/29/12 11:21	7440-44-0	

Sample: PCA3-05s **Lab ID: 2512573026** Collected: 06/08/12 11:30 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<45.5**	ug/kg	92.9	45.5	1	06/22/12 15:25	06/26/12 01:11	12674-11-2	
PCB-1221 (Aroclor 1221)	**<45.5**	ug/kg	92.9	45.5	1	06/22/12 15:25	06/26/12 01:11	11104-28-2	
PCB-1232 (Aroclor 1232)	**<45.5**	ug/kg	92.9	45.5	1	06/22/12 15:25	06/26/12 01:11	11141-16-5	
PCB-1242 (Aroclor 1242)	**<45.5**	ug/kg	92.9	45.5	1	06/22/12 15:25	06/26/12 01:11	53469-21-9	
PCB-1248 (Aroclor 1248)	**<45.5**	ug/kg	92.9	45.5	1	06/22/12 15:25	06/26/12 01:11	12672-29-6	
PCB-1254 (Aroclor 1254)	**<45.5**	ug/kg	92.9	45.5	1	06/22/12 15:25	06/26/12 01:11	11097-69-1	
PCB-1260 (Aroclor 1260)	**<45.5**	ug/kg	92.9	45.5	1	06/22/12 15:25	06/26/12 01:11	11096-82-5	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA3-05s **Lab ID: 2512573026** Collected: 06/08/12 11:30 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
Surrogates									
Tetrachloro-m-xylene (S)	85	%	30-134		1	06/22/12 15:25	06/26/12 01:11	877-09-8	P1
Decachlorobiphenyl (S)	88	%	20-139		1	06/22/12 15:25	06/26/12 01:11	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**63.6**	%	0.10	0.10	1		06/20/12 15:36		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**23.1**	%			1		06/29/12 12:11		
Total Organic Carbon	**28200**	mg/kg	14300	4000	1		06/29/12 11:31	7440-44-0	
Total Organic Carbon	**22400**	mg/kg	16700	4670	1		06/29/12 12:11	7440-44-0	
Mean Total Organic Carbon	**25300**	mg/kg	15500	4330	1		06/29/12 12:11	7440-44-0	

Sample: PCA3-06s **Lab ID: 2512573027** Collected: 06/08/12 12:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<40.8**	ug/kg	83.3	40.8	1	06/22/12 15:25	06/26/12 01:30	12674-11-2	
PCB-1221 (Aroclor 1221)	**<40.8**	ug/kg	83.3	40.8	1	06/22/12 15:25	06/26/12 01:30	11104-28-2	
PCB-1232 (Aroclor 1232)	**<40.8**	ug/kg	83.3	40.8	1	06/22/12 15:25	06/26/12 01:30	11141-16-5	
PCB-1242 (Aroclor 1242)	**<40.8**	ug/kg	83.3	40.8	1	06/22/12 15:25	06/26/12 01:30	53469-21-9	
PCB-1248 (Aroclor 1248)	**<40.8**	ug/kg	83.3	40.8	1	06/22/12 15:25	06/26/12 01:30	12672-29-6	
PCB-1254 (Aroclor 1254)	**<40.8**	ug/kg	83.3	40.8	1	06/22/12 15:25	06/26/12 01:30	11097-69-1	
PCB-1260 (Aroclor 1260)	**<40.8**	ug/kg	83.3	40.8	1	06/22/12 15:25	06/26/12 01:30	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	66	%	30-134		1	06/22/12 15:25	06/26/12 01:30	877-09-8	P1
Decachlorobiphenyl (S)	74	%	20-139		1	06/22/12 15:25	06/26/12 01:30	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**59.5**	%	0.10	0.10	1		06/20/12 15:37		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**34.0**	%			1		06/29/12 12:18		
Total Organic Carbon	**29700**	mg/kg	9090	2550	1		06/29/12 12:15	7440-44-0	
Total Organic Carbon	**21000**	mg/kg	10000	2800	1		06/29/12 12:18	7440-44-0	
Mean Total Organic Carbon	**25400**	mg/kg	9550	2670	1		06/29/12 12:18	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA3-07s **Lab ID: 2512573028** Collected: 06/08/12 12:30 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/26/12 01:50	12674-11-2	
PCB-1221 (Aroclor 1221)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/26/12 01:50	11104-28-2	
PCB-1232 (Aroclor 1232)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/26/12 01:50	11141-16-5	
PCB-1242 (Aroclor 1242)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/26/12 01:50	53469-21-9	
PCB-1248 (Aroclor 1248)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/26/12 01:50	12672-29-6	
PCB-1254 (Aroclor 1254)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/26/12 01:50	11097-69-1	
PCB-1260 (Aroclor 1260)	**<33.2**	ug/kg	67.7	33.2	1	06/22/12 15:25	06/26/12 01:50	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	68	%	30-134		1	06/22/12 15:25	06/26/12 01:50	877-09-8	P1
Decachlorobiphenyl (S)	61	%	20-139		1	06/22/12 15:25	06/26/12 01:50	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**50.8**	%	0.10	0.10	1		06/20/12 15:39		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**16.0**	%			1		06/29/12 12:28		
Total Organic Carbon	**10100**	mg/kg	7140	2000	1		06/29/12 12:21	7440-44-0	
Total Organic Carbon	**11800**	mg/kg	7140	2000	1		06/29/12 12:28	7440-44-0	
Mean Total Organic Carbon	**10900**	mg/kg	7140	2000	1		06/29/12 12:28	7440-44-0	

Sample: PCA3-08s **Lab ID: 2512573029** Collected: 06/08/12 13:15 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<41.4**	ug/kg	84.6	41.4	1	06/22/12 15:25	06/26/12 02:09	12674-11-2	
PCB-1221 (Aroclor 1221)	**<41.4**	ug/kg	84.6	41.4	1	06/22/12 15:25	06/26/12 02:09	11104-28-2	
PCB-1232 (Aroclor 1232)	**<41.4**	ug/kg	84.6	41.4	1	06/22/12 15:25	06/26/12 02:09	11141-16-5	
PCB-1242 (Aroclor 1242)	**<41.4**	ug/kg	84.6	41.4	1	06/22/12 15:25	06/26/12 02:09	53469-21-9	
PCB-1248 (Aroclor 1248)	**<41.4**	ug/kg	84.6	41.4	1	06/22/12 15:25	06/26/12 02:09	12672-29-6	
PCB-1254 (Aroclor 1254)	**<41.4**	ug/kg	84.6	41.4	1	06/22/12 15:25	06/26/12 02:09	11097-69-1	
PCB-1260 (Aroclor 1260)	**<41.4**	ug/kg	84.6	41.4	1	06/22/12 15:25	06/26/12 02:09	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	70	%	30-134		1	06/22/12 15:25	06/26/12 02:09	877-09-8	P1
Decachlorobiphenyl (S)	66	%	20-139		1	06/22/12 15:25	06/26/12 02:09	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**60.7**	%	0.10	0.10	1		06/20/12 15:39		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**10.7**	%			1		06/29/12 12:37		
Total Organic Carbon	**21600**	mg/kg	5880	1650	1		06/29/12 12:34	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA3-08s **Lab ID: 2512573029** Collected: 06/08/12 13:15 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**19400**	mg/kg	5260	1470	1		06/29/12 12:37	7440-44-0	
Mean Total Organic Carbon	**20500**	mg/kg	5570	1560	1		06/29/12 12:37	7440-44-0	

Sample: PCA3-09s **Lab ID: 2512573030** Collected: 06/08/12 13:40 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<42.1**	ug/kg	86.0	42.1	1	06/22/12 15:25	06/26/12 03:07	12674-11-2	
PCB-1221 (Aroclor 1221)	**<42.1**	ug/kg	86.0	42.1	1	06/22/12 15:25	06/26/12 03:07	11104-28-2	
PCB-1232 (Aroclor 1232)	**<42.1**	ug/kg	86.0	42.1	1	06/22/12 15:25	06/26/12 03:07	11141-16-5	
PCB-1242 (Aroclor 1242)	**<42.1**	ug/kg	86.0	42.1	1	06/22/12 15:25	06/26/12 03:07	53469-21-9	
PCB-1248 (Aroclor 1248)	**<42.1**	ug/kg	86.0	42.1	1	06/22/12 15:25	06/26/12 03:07	12672-29-6	
PCB-1254 (Aroclor 1254)	**<42.1**	ug/kg	86.0	42.1	1	06/22/12 15:25	06/26/12 03:07	11097-69-1	
PCB-1260 (Aroclor 1260)	**<42.1**	ug/kg	86.0	42.1	1	06/22/12 15:25	06/26/12 03:07	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	53	%	30-134		1	06/22/12 15:25	06/26/12 03:07	877-09-8	P1
Decachlorobiphenyl (S)	48	%	20-139		1	06/22/12 15:25	06/26/12 03:07	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**61.6**	%	0.10	0.10	1		06/20/12 15:41		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**16.5**	%			1		06/29/12 12:54		
Total Organic Carbon	**26300**	mg/kg	9090	2550	1		06/29/12 12:45	7440-44-0	
Total Organic Carbon	**22300**	mg/kg	7690	2150	1		06/29/12 12:54	7440-44-0	
Mean Total Organic Carbon	**24300**	mg/kg	8390	2350	1		06/29/12 12:54	7440-44-0	

Sample: PCA3-01d (0-30) **Lab ID: 2512573032** Collected: 06/13/12 10:35 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<26.5**	ug/kg	54.0	26.5	1	06/26/12 12:55	06/28/12 17:32	12674-11-2	
PCB-1221 (Aroclor 1221)	**<26.5**	ug/kg	54.0	26.5	1	06/26/12 12:55	06/28/12 17:32	11104-28-2	
PCB-1232 (Aroclor 1232)	**<26.5**	ug/kg	54.0	26.5	1	06/26/12 12:55	06/28/12 17:32	11141-16-5	
PCB-1242 (Aroclor 1242)	**<26.5**	ug/kg	54.0	26.5	1	06/26/12 12:55	06/28/12 17:32	53469-21-9	
PCB-1248 (Aroclor 1248)	**<26.5**	ug/kg	54.0	26.5	1	06/26/12 12:55	06/28/12 17:32	12672-29-6	
PCB-1254 (Aroclor 1254)	**118**	ug/kg	54.0	26.5	1	06/26/12 12:55	06/28/12 17:32	11097-69-1	
PCB-1260 (Aroclor 1260)	**<26.5**	ug/kg	54.0	26.5	1	06/26/12 12:55	06/28/12 17:32	11096-82-5	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA3-01d (0-30) **Lab ID: 2512573032** Collected: 06/13/12 10:35 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
Surrogates									
Tetrachloro-m-xylene (S)	86	%	30-134		1	06/26/12 12:55	06/28/12 17:32	877-09-8	P1
Decachlorobiphenyl (S)	102	%	20-139		1	06/26/12 12:55	06/28/12 17:32	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**37.2**	%	0.10	0.10	1		06/20/12 15:44		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**11.1**	%			1		07/02/12 10:26		
Total Organic Carbon	**4160**	mg/kg	2130	596	1		07/02/12 10:21	7440-44-0	
Total Organic Carbon	**3720**	mg/kg	2080	583	1		07/02/12 10:26	7440-44-0	
Mean Total Organic Carbon	**3940**	mg/kg	2110	590	1		07/02/12 10:26	7440-44-0	

Sample: PCA3-01d (30-60) **Lab ID: 2512573033** Collected: 06/13/12 10:50 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<24.2**	ug/kg	49.3	24.2	1	06/26/12 12:55	06/28/12 18:10	12674-11-2	
PCB-1221 (Aroclor 1221)	**<24.2**	ug/kg	49.3	24.2	1	06/26/12 12:55	06/28/12 18:10	11104-28-2	
PCB-1232 (Aroclor 1232)	**<24.2**	ug/kg	49.3	24.2	1	06/26/12 12:55	06/28/12 18:10	11141-16-5	
PCB-1242 (Aroclor 1242)	**<24.2**	ug/kg	49.3	24.2	1	06/26/12 12:55	06/28/12 18:10	53469-21-9	
PCB-1248 (Aroclor 1248)	**<24.2**	ug/kg	49.3	24.2	1	06/26/12 12:55	06/28/12 18:10	12672-29-6	
PCB-1254 (Aroclor 1254)	**<24.2**	ug/kg	49.3	24.2	1	06/26/12 12:55	06/28/12 18:10	11097-69-1	
PCB-1260 (Aroclor 1260)	**<24.2**	ug/kg	49.3	24.2	1	06/26/12 12:55	06/28/12 18:10	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	91	%	30-134		1	06/26/12 12:55	06/28/12 18:10	877-09-8	P1
Decachlorobiphenyl (S)	110	%	20-139		1	06/26/12 12:55	06/28/12 18:10	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**31.9**	%	0.10	0.10	1		06/20/12 15:45		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**1.3**	%			1		06/29/12 13:10		
Total Organic Carbon	**1240**	mg/kg	1050	295	1		06/29/12 13:05	7440-44-0	
Total Organic Carbon	**1260**	mg/kg	990	277	1		06/29/12 13:10	7440-44-0	
Mean Total Organic Carbon	**1250**	mg/kg	1020	286	1		06/29/12 13:10	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA3-01d (60-90) **Lab ID: 2512573034** Collected: 06/13/12 11:20 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<11.1**	ug/kg	22.7	11.1	1	06/26/12 12:55	06/28/12 19:27	12674-11-2	
PCB-1221 (Aroclor 1221)	**<11.1**	ug/kg	22.7	11.1	1	06/26/12 12:55	06/28/12 19:27	11104-28-2	
PCB-1232 (Aroclor 1232)	**<11.1**	ug/kg	22.7	11.1	1	06/26/12 12:55	06/28/12 19:27	11141-16-5	
PCB-1242 (Aroclor 1242)	**<11.1**	ug/kg	22.7	11.1	1	06/26/12 12:55	06/28/12 19:27	53469-21-9	
PCB-1248 (Aroclor 1248)	**<11.1**	ug/kg	22.7	11.1	1	06/26/12 12:55	06/28/12 19:27	12672-29-6	
PCB-1254 (Aroclor 1254)	**<11.1**	ug/kg	22.7	11.1	1	06/26/12 12:55	06/28/12 19:27	11097-69-1	
PCB-1260 (Aroclor 1260)	**<11.1**	ug/kg	22.7	11.1	1	06/26/12 12:55	06/28/12 19:27	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	89	%	30-134		1	06/26/12 12:55	06/28/12 19:27	877-09-8	P1
Decachlorobiphenyl (S)	105	%	20-139		1	06/26/12 12:55	06/28/12 19:27	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**26.0**	%	0.10	0.10	1		06/20/12 15:46		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**7.7**	%			1		06/29/12 13:16		
Total Organic Carbon	**684**	mg/kg	538	151	1		06/29/12 13:13	7440-44-0	
Total Organic Carbon	**739**	mg/kg	524	147	1		06/29/12 13:16	7440-44-0	
Mean Total Organic Carbon	**712**	mg/kg	531	149	1		06/29/12 13:16	7440-44-0	

Sample: PCA4-01s **Lab ID: 2512573036** Collected: 06/12/12 09:55 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<34.1**	ug/kg	69.5	34.1	1	06/26/12 12:55	06/28/12 22:40	12674-11-2	
PCB-1221 (Aroclor 1221)	**<34.1**	ug/kg	69.5	34.1	1	06/26/12 12:55	06/28/12 22:40	11104-28-2	
PCB-1232 (Aroclor 1232)	**<34.1**	ug/kg	69.5	34.1	1	06/26/12 12:55	06/28/12 22:40	11141-16-5	
PCB-1242 (Aroclor 1242)	**<34.1**	ug/kg	69.5	34.1	1	06/26/12 12:55	06/28/12 22:40	53469-21-9	
PCB-1248 (Aroclor 1248)	**<34.1**	ug/kg	69.5	34.1	1	06/26/12 12:55	06/28/12 22:40	12672-29-6	
PCB-1254 (Aroclor 1254)	**<34.1**	ug/kg	69.5	34.1	1	06/26/12 12:55	06/28/12 22:40	11097-69-1	
PCB-1260 (Aroclor 1260)	**<34.1**	ug/kg	69.5	34.1	1	06/26/12 12:55	06/28/12 22:40	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	65	%	30-134		1	06/26/12 12:55	06/28/12 22:40	877-09-8	P1
Decachlorobiphenyl (S)	67	%	20-139		1	06/26/12 12:55	06/28/12 22:40	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**52.6**	%	0.10	0.10	1		06/20/12 15:48		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**21.3**	%			1		06/29/12 13:24		
Total Organic Carbon	**31700**	mg/kg	11100	3110	1		06/29/12 13:19	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA4-01s **Lab ID: 2512573036** Collected: 06/12/12 09:55 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**25600**	mg/kg	12500	3500	1		06/29/12 13:24	7440-44-0	
Mean Total Organic Carbon	**28600**	mg/kg	11800	3310	1		06/29/12 13:24	7440-44-0	

Sample: PCA4-02s **Lab ID: 2512573037** Collected: 06/12/12 10:25 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<30.9**	ug/kg	63.0	30.9	1	06/26/12 12:55	06/28/12 23:19	12674-11-2	
PCB-1221 (Aroclor 1221)	**<30.9**	ug/kg	63.0	30.9	1	06/26/12 12:55	06/28/12 23:19	11104-28-2	
PCB-1232 (Aroclor 1232)	**<30.9**	ug/kg	63.0	30.9	1	06/26/12 12:55	06/28/12 23:19	11141-16-5	
PCB-1242 (Aroclor 1242)	**<30.9**	ug/kg	63.0	30.9	1	06/26/12 12:55	06/28/12 23:19	53469-21-9	
PCB-1248 (Aroclor 1248)	**<30.9**	ug/kg	63.0	30.9	1	06/26/12 12:55	06/28/12 23:19	12672-29-6	
PCB-1254 (Aroclor 1254)	**79.2**	ug/kg	63.0	30.9	1	06/26/12 12:55	06/28/12 23:19	11097-69-1	
PCB-1260 (Aroclor 1260)	**<30.9**	ug/kg	63.0	30.9	1	06/26/12 12:55	06/28/12 23:19	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	77	%	30-134		1	06/26/12 12:55	06/28/12 23:19	877-09-8	P1
Decachlorobiphenyl (S)	77	%	20-139		1	06/26/12 12:55	06/28/12 23:19	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**46.4**	%	0.10	0.10	1		06/20/12 15:50		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**12.3**	%			1		07/02/12 09:45		
Total Organic Carbon	**18400**	mg/kg	11100	3110	1		07/02/12 09:42	7440-44-0	
Total Organic Carbon	**16300**	mg/kg	14300	4000	1		07/02/12 09:45	7440-44-0	
Mean Total Organic Carbon	**17400**	mg/kg	12700	3560	1		07/02/12 09:45	7440-44-0	

Sample: PCA4-03s **Lab ID: 2512573038** Collected: 06/12/12 11:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<33.9**	ug/kg	69.1	33.9	1	06/26/12 12:55	06/28/12 23:58	12674-11-2	
PCB-1221 (Aroclor 1221)	**<33.9**	ug/kg	69.1	33.9	1	06/26/12 12:55	06/28/12 23:58	11104-28-2	
PCB-1232 (Aroclor 1232)	**<33.9**	ug/kg	69.1	33.9	1	06/26/12 12:55	06/28/12 23:58	11141-16-5	
PCB-1242 (Aroclor 1242)	**<33.9**	ug/kg	69.1	33.9	1	06/26/12 12:55	06/28/12 23:58	53469-21-9	
PCB-1248 (Aroclor 1248)	**<33.9**	ug/kg	69.1	33.9	1	06/26/12 12:55	06/28/12 23:58	12672-29-6	
PCB-1254 (Aroclor 1254)	**111**	ug/kg	69.1	33.9	1	06/26/12 12:55	06/28/12 23:58	11097-69-1	
PCB-1260 (Aroclor 1260)	**<33.9**	ug/kg	69.1	33.9	1	06/26/12 12:55	06/28/12 23:58	11096-82-5	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA4-03s **Lab ID: 2512573038** Collected: 06/12/12 11:00 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
Surrogates									
Tetrachloro-m-xylene (S)	63	%	30-134		1	06/26/12 12:55	06/28/12 23:58	877-09-8	P1
Decachlorobiphenyl (S)	59	%	20-139		1	06/26/12 12:55	06/28/12 23:58	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**52.3**	%	0.10	0.10	1		06/20/12 15:51		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**13.6**	%			1		07/02/12 09:51		
Total Organic Carbon	**23400**	mg/kg	10000	2800	1		07/02/12 09:48	7440-44-0	
Total Organic Carbon	**20400**	mg/kg	9090	2550	1		07/02/12 09:51	7440-44-0	
Mean Total Organic Carbon	**21900**	mg/kg	9550	2670	1		07/02/12 09:51	7440-44-0	

Sample: PCA4-04s **Lab ID: 2512573039** Collected: 06/12/12 11:30 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<16.3**	ug/kg	33.2	16.3	1	06/26/12 12:55	06/29/12 00:36	12674-11-2	
PCB-1221 (Aroclor 1221)	**<16.3**	ug/kg	33.2	16.3	1	06/26/12 12:55	06/29/12 00:36	11104-28-2	
PCB-1232 (Aroclor 1232)	**<16.3**	ug/kg	33.2	16.3	1	06/26/12 12:55	06/29/12 00:36	11141-16-5	
PCB-1242 (Aroclor 1242)	**<16.3**	ug/kg	33.2	16.3	1	06/26/12 12:55	06/29/12 00:36	53469-21-9	
PCB-1248 (Aroclor 1248)	**<16.3**	ug/kg	33.2	16.3	1	06/26/12 12:55	06/29/12 00:36	12672-29-6	
PCB-1254 (Aroclor 1254)	**<16.3**	ug/kg	33.2	16.3	1	06/26/12 12:55	06/29/12 00:36	11097-69-1	
PCB-1260 (Aroclor 1260)	**<16.3**	ug/kg	33.2	16.3	1	06/26/12 12:55	06/29/12 00:36	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	85	%	30-134		1	06/26/12 12:55	06/29/12 00:36	877-09-8	
Decachlorobiphenyl (S)	92	%	20-139		1	06/26/12 12:55	06/29/12 00:36	2051-24-3	
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**20.0**	%			1		07/25/12 13:58		
Total Organic Carbon	**12100**	mg/kg	4760	1330	1		07/25/12 13:55	7440-44-0	
Total Organic Carbon	**14800**	mg/kg	4550	1270	1		07/25/12 13:58	7440-44-0	
Mean Total Organic Carbon	**13400**	mg/kg	4650	1300	1		07/25/12 13:58	7440-44-0	H3

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA4-01d (0-10) **Lab ID: 2512573040** Collected: 06/12/12 12:50 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<32.7**	ug/kg	66.8	32.7	1	06/26/12 12:55	06/29/12 01:53	12674-11-2	
PCB-1221 (Aroclor 1221)	**<32.7**	ug/kg	66.8	32.7	1	06/26/12 12:55	06/29/12 01:53	11104-28-2	
PCB-1232 (Aroclor 1232)	**<32.7**	ug/kg	66.8	32.7	1	06/26/12 12:55	06/29/12 01:53	11141-16-5	
PCB-1242 (Aroclor 1242)	**<32.7**	ug/kg	66.8	32.7	1	06/26/12 12:55	06/29/12 01:53	53469-21-9	
PCB-1248 (Aroclor 1248)	**<32.7**	ug/kg	66.8	32.7	1	06/26/12 12:55	06/29/12 01:53	12672-29-6	
PCB-1254 (Aroclor 1254)	**<32.7**	ug/kg	66.8	32.7	1	06/26/12 12:55	06/29/12 01:53	11097-69-1	
PCB-1260 (Aroclor 1260)	**<32.7**	ug/kg	66.8	32.7	1	06/26/12 12:55	06/29/12 01:53	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	86	%	30-134		1	06/26/12 12:55	06/29/12 01:53	877-09-8	P1
Decachlorobiphenyl (S)	94	%	20-139		1	06/26/12 12:55	06/29/12 01:53	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**49.7**	%	0.10	0.10	1		06/20/12 15:54		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**1.8**	%			1		07/02/12 09:56		
Total Organic Carbon	**24400**	mg/kg	9090	2550	1		07/02/12 09:54	7440-44-0	
Total Organic Carbon	**24000**	mg/kg	7690	2150	1		07/02/12 09:56	7440-44-0	
Mean Total Organic Carbon	**24200**	mg/kg	8390	2350	1		07/02/12 09:56	7440-44-0	

Sample: PCA4-01d (30-60) **Lab ID: 2512573041** Collected: 06/12/12 13:05 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<32.3**	ug/kg	65.9	32.3	1	06/26/12 12:55	06/29/12 02:32	12674-11-2	
PCB-1221 (Aroclor 1221)	**<32.3**	ug/kg	65.9	32.3	1	06/26/12 12:55	06/29/12 02:32	11104-28-2	
PCB-1232 (Aroclor 1232)	**<32.3**	ug/kg	65.9	32.3	1	06/26/12 12:55	06/29/12 02:32	11141-16-5	
PCB-1242 (Aroclor 1242)	**<32.3**	ug/kg	65.9	32.3	1	06/26/12 12:55	06/29/12 02:32	53469-21-9	
PCB-1248 (Aroclor 1248)	**<32.3**	ug/kg	65.9	32.3	1	06/26/12 12:55	06/29/12 02:32	12672-29-6	
PCB-1254 (Aroclor 1254)	**<32.3**	ug/kg	65.9	32.3	1	06/26/12 12:55	06/29/12 02:32	11097-69-1	
PCB-1260 (Aroclor 1260)	**<32.3**	ug/kg	65.9	32.3	1	06/26/12 12:55	06/29/12 02:32	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	62	%	30-134		1	06/26/12 12:55	06/29/12 02:32	877-09-8	P1
Decachlorobiphenyl (S)	76	%	20-139		1	06/26/12 12:55	06/29/12 02:32	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**49.9**	%	0.10	0.10	1		06/20/12 15:56		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**37.2**	%			1		07/02/12 10:03		
Total Organic Carbon	**29600**	mg/kg	5880	1650	1		07/02/12 09:59	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Sample: PCA4-01d (30-60) **Lab ID: 2512573041** Collected: 06/12/12 13:05 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**20300**	mg/kg	7690	2150	1		07/02/12 10:03	7440-44-0	
Mean Total Organic Carbon	**24900**	mg/kg	6790	1900	1		07/02/12 10:03	7440-44-0	

Sample: PCA4-01d (60-90) **Lab ID: 2512573042** Collected: 06/12/12 13:20 Received: 06/14/12 09:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<26.0**	ug/kg	53.1	26.0	1	06/26/12 12:55	06/29/12 03:11	12674-11-2	
PCB-1221 (Aroclor 1221)	**<26.0**	ug/kg	53.1	26.0	1	06/26/12 12:55	06/29/12 03:11	11104-28-2	
PCB-1232 (Aroclor 1232)	**<26.0**	ug/kg	53.1	26.0	1	06/26/12 12:55	06/29/12 03:11	11141-16-5	
PCB-1242 (Aroclor 1242)	**<26.0**	ug/kg	53.1	26.0	1	06/26/12 12:55	06/29/12 03:11	53469-21-9	
PCB-1248 (Aroclor 1248)	**<26.0**	ug/kg	53.1	26.0	1	06/26/12 12:55	06/29/12 03:11	12672-29-6	
PCB-1254 (Aroclor 1254)	**<26.0**	ug/kg	53.1	26.0	1	06/26/12 12:55	06/29/12 03:11	11097-69-1	
PCB-1260 (Aroclor 1260)	**<26.0**	ug/kg	53.1	26.0	1	06/26/12 12:55	06/29/12 03:11	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	64	%	30-134		1	06/26/12 12:55	06/29/12 03:11	877-09-8	P1
Decachlorobiphenyl (S)	84	%	20-139		1	06/26/12 12:55	06/29/12 03:11	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**37.7**	%	0.10	0.10	1		06/20/12 15:59		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**31.7**	%			1		07/02/12 10:11		
Total Organic Carbon	**8480**	mg/kg	8330	2330	1		07/02/12 10:07	7440-44-0	
Total Organic Carbon	**11700**	mg/kg	6670	1870	1		07/02/12 10:11	7440-44-0	
Mean Total Organic Carbon	**10100**	mg/kg	7500	2100	1		07/02/12 10:11	7440-44-0	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: OEXT/5670 Analysis Method: EPA 8082
QC Batch Method: EPA 3546 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 2512573001, 2512573002, 2512573003, 2512573004, 2512573005, 2512573007, 2512573008, 2512573009, 2512573010, 2512573011, 2512573012, 2512573013, 2512573014

METHOD BLANK: 119695 Matrix: Solid
Associated Lab Samples: 2512573001, 2512573002, 2512573003, 2512573004, 2512573005, 2512573007, 2512573008, 2512573009, 2512573010, 2512573011, 2512573012, 2512573013, 2512573014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<8.3	17.0	06/22/12 18:46	
PCB-1221 (Aroclor 1221)	ug/kg	<8.3	17.0	06/22/12 18:46	
PCB-1232 (Aroclor 1232)	ug/kg	<8.3	17.0	06/22/12 18:46	
PCB-1242 (Aroclor 1242)	ug/kg	<8.3	17.0	06/22/12 18:46	
PCB-1248 (Aroclor 1248)	ug/kg	<8.3	17.0	06/22/12 18:46	
PCB-1254 (Aroclor 1254)	ug/kg	<8.3	17.0	06/22/12 18:46	
PCB-1260 (Aroclor 1260)	ug/kg	<8.3	17.0	06/22/12 18:46	
Decachlorobiphenyl (S)	%	97	20-139	06/22/12 18:46	
Tetrachloro-m-xylene (S)	%	92	30-134	06/22/12 18:46	

LABORATORY CONTROL SAMPLE: 119696

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	167	153	92	57-118	
PCB-1260 (Aroclor 1260)	ug/kg	167	189	113	60-138	
Decachlorobiphenyl (S)	%			101	20-139	
Tetrachloro-m-xylene (S)	%			92	30-134	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 119697 119698

Parameter	Units	2512569002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	ND	230	230	216	210	94	91	25-130	3	24	
PCB-1260 (Aroclor 1260)	ug/kg	ND	230	230	263	260	114	113	24-138	1	28	
Decachlorobiphenyl (S)	%						95	98	20-139			
Tetrachloro-m-xylene (S)	%						96	92	30-134			

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: OEXT/5681 | Analysis Method: EPA 8082
QC Batch Method: EPA 3546 | Analysis Description: 8082 GCS PCB
Associated Lab Samples: 2512573006

METHOD BLANK: 120044 | Matrix: Solid
Associated Lab Samples: 2512573006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<8.3	17.0	06/23/12 02:10	
PCB-1221 (Aroclor 1221)	ug/kg	<8.3	17.0	06/23/12 02:10	
PCB-1232 (Aroclor 1232)	ug/kg	<8.3	17.0	06/23/12 02:10	
PCB-1242 (Aroclor 1242)	ug/kg	<8.3	17.0	06/23/12 02:10	
PCB-1248 (Aroclor 1248)	ug/kg	<8.3	17.0	06/23/12 02:10	
PCB-1254 (Aroclor 1254)	ug/kg	<8.3	17.0	06/23/12 02:10	
PCB-1260 (Aroclor 1260)	ug/kg	<8.3	17.0	06/23/12 02:10	
Decachlorobiphenyl (S)	%	88	20-139	06/23/12 02:10	
Tetrachloro-m-xylene (S)	%	87	30-134	06/23/12 02:10	

LABORATORY CONTROL SAMPLE: 120045

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	167	145	87	57-118	
PCB-1260 (Aroclor 1260)	ug/kg	167	160	96	60-138	
Decachlorobiphenyl (S)	%			92	20-139	
Tetrachloro-m-xylene (S)	%			93	30-134	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 120046 120047

Parameter	Units	2512573006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	<43.1	852	868	623	644	73	74	25-130	3	24	
PCB-1260 (Aroclor 1260)	ug/kg	<43.1	852	868	664	667	78	77	24-138	.4	28	
Decachlorobiphenyl (S)	%						76	76	20-139			
Tetrachloro-m-xylene (S)	%						84	84	30-134			

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: OEXT/5684 Analysis Method: EPA 8082
QC Batch Method: EPA 3546 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 2512573016, 2512573017, 2512573018, 2512573019, 2512573021, 2512573022, 2512573023, 2512573024, 2512573025, 2512573026, 2512573027, 2512573028, 2512573029, 2512573030

METHOD BLANK: 120154 Matrix: Solid
Associated Lab Samples: 2512573016, 2512573017, 2512573018, 2512573019, 2512573021, 2512573022, 2512573023, 2512573024, 2512573025, 2512573026, 2512573027, 2512573028, 2512573029, 2512573030

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<8.3	17.0	06/25/12 20:02	
PCB-1221 (Aroclor 1221)	ug/kg	<8.3	17.0	06/25/12 20:02	
PCB-1232 (Aroclor 1232)	ug/kg	<8.3	17.0	06/25/12 20:02	
PCB-1242 (Aroclor 1242)	ug/kg	<8.3	17.0	06/25/12 20:02	
PCB-1248 (Aroclor 1248)	ug/kg	<8.3	17.0	06/25/12 20:02	
PCB-1254 (Aroclor 1254)	ug/kg	<8.3	17.0	06/25/12 20:02	
PCB-1260 (Aroclor 1260)	ug/kg	<8.3	17.0	06/25/12 20:02	
Decachlorobiphenyl (S)	%	111	20-139	06/25/12 20:02	
Tetrachloro-m-xylene (S)	%	98	30-134	06/25/12 20:02	

LABORATORY CONTROL SAMPLE: 120155

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	167	157	94	57-118	
PCB-1260 (Aroclor 1260)	ug/kg	167	195	117	60-138	
Decachlorobiphenyl (S)	%			111	20-139	
Tetrachloro-m-xylene (S)	%			101	30-134	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 120156 120157

Parameter	Units	2512573017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	<33.2	663	645	773	627	117	97	25-130	21	24	
PCB-1260 (Aroclor 1260)	ug/kg	<33.2	663	645	728	654	110	101	24-138	11	28	
Decachlorobiphenyl (S)	%						671	357	20-139			S2
Tetrachloro-m-xylene (S)	%						67	63	30-134			P1

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: OEXT/5690 Analysis Method: EPA 8082
QC Batch Method: EPA 3546 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 2512573032, 2512573033, 2512573034, 2512573036, 2512573037, 2512573038, 2512573039, 2512573040, 2512573041, 2512573042

METHOD BLANK: 120378 Matrix: Solid
Associated Lab Samples: 2512573032, 2512573033, 2512573034, 2512573036, 2512573037, 2512573038, 2512573039, 2512573040, 2512573041, 2512573042

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1221 (Aroclor 1221)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1232 (Aroclor 1232)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1242 (Aroclor 1242)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1248 (Aroclor 1248)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1254 (Aroclor 1254)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1260 (Aroclor 1260)	ug/kg	<8.3	17.0	06/28/12 16:15	
Decachlorobiphenyl (S)	%	105	20-139	06/28/12 16:15	
Tetrachloro-m-xylene (S)	%	97	30-134	06/28/12 16:15	

LABORATORY CONTROL SAMPLE: 120379

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	167	159	95	57-118	
PCB-1260 (Aroclor 1260)	ug/kg	167	196	118	60-138	
Decachlorobiphenyl (S)	%			103	20-139	
Tetrachloro-m-xylene (S)	%			94	30-134	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 120443 120444

Parameter	Units	2512573034 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	<11.1	222	223	192	191	87	86	25-130	.9	24	
PCB-1260 (Aroclor 1260)	ug/kg	<11.1	222	223	253	251	114	113	24-138	.7	28	
Decachlorobiphenyl (S)	%						99	99	20-139			
Tetrachloro-m-xylene (S)	%						84	83	30-134			

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: PMST/2078 | Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 | Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 2512573001, 2512573002, 2512573003, 2512573004, 2512573005, 2512573006, 2512573007, 2512573008, 2512573009, 2512573010, 2512573011, 2512573012, 2512573013, 2512573014, 2512573016, 2512573017, 2512573018, 2512573019

SAMPLE DUPLICATE: 119733

Parameter	Units	2512573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	57.5	57.3	.4	30	

SAMPLE DUPLICATE: 119734

Parameter	Units	2512573002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	47.9	48.4	1	30	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: PMST/2079 | Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 | Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 2512573021, 2512573022, 2512573023, 2512573024, 2512573025, 2512573026, 2512573027, 2512573028, 2512573029, 2512573030, 2512573032, 2512573033, 2512573034, 2512573036, 2512573037, 2512573038, 2512573040

SAMPLE DUPLICATE: 119737

Parameter	Units	2512573021 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	65.2	65.2	0	30	

SAMPLE DUPLICATE: 119738

Parameter	Units	2512573022 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	49.4	49.0	.8	30	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: PMST/2080
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 2512573041, 2512573042

SAMPLE DUPLICATE: 119739

Parameter	Units	2512573041 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	49.9	49.7	.3	30	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: WETA/12914 Analysis Method: EPA 9060 Modified
QC Batch Method: EPA 9060 Modified Analysis Description: 9060 TOC Average
Associated Lab Samples: 2512573001, 2512573002, 2512573003, 2512573004, 2512573005, 2512573007, 2512573008, 2512573009, 2512573010, 2512573011, 2512573012, 2512573013, 2512573014, 2512573016, 2512573017, 2512573018, 2512573019, 2512573021, 2512573022

METHOD BLANK: 626272 Matrix: Solid
Associated Lab Samples: 2512573001, 2512573002, 2512573003, 2512573004, 2512573005, 2512573007, 2512573008, 2512573009, 2512573010, 2512573011, 2512573012, 2512573013, 2512573014, 2512573016, 2512573017, 2512573018, 2512573019, 2512573021, 2512573022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mean Total Organic Carbon	mg/kg	ND	250	06/25/12 13:25	

LABORATORY CONTROL SAMPLE: 626273

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mean Total Organic Carbon	mg/kg	1000	1020	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 626274 626275

Parameter	Units	2512573001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/kg	15900	18200	20000	36200	37400	112	107	50-150	3	30	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 626276 626277

Parameter	Units	2512573002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/kg	21800	20000	19100	46200	44800	122	120	50-150	3	30	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: WETA/13002 Analysis Method: EPA 9060 Modified
QC Batch Method: EPA 9060 Modified Analysis Description: 9060 TOC Average
Associated Lab Samples: 2512573023, 2512573024, 2512573025, 2512573026, 2512573027, 2512573028, 2512573029, 2512573030, 2512573032, 2512573033, 2512573034, 2512573036, 2512573037, 2512573038, 2512573040, 2512573041, 2512573042

METHOD BLANK: 628984 Matrix: Solid
Associated Lab Samples: 2512573023, 2512573024, 2512573025, 2512573026, 2512573027, 2512573028, 2512573029, 2512573030, 2512573032, 2512573033, 2512573034, 2512573036, 2512573037, 2512573038, 2512573040, 2512573041, 2512573042

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mean Total Organic Carbon	mg/kg	ND	250	06/29/12 10:21	

LABORATORY CONTROL SAMPLE: 628985

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mean Total Organic Carbon	mg/kg	1000	1020	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 628986 628987

Parameter	Units	2512573023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/kg	15300	23600	26800	40200	39500	106	90	50-150	2	30	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 628988 628989

Parameter	Units	2512573024 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/kg	28500	26800	31000	53300	63900	93	114	50-150	18	30	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: WETA/13078 | Analysis Method: EPA 9060 Modified
QC Batch Method: EPA 9060 Modified | Analysis Description: 9060 TOC Average
Associated Lab Samples: 2512573006

METHOD BLANK: 631419 | Matrix: Solid
Associated Lab Samples: 2512573006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mean Total Organic Carbon	mg/kg	ND	250	07/05/12 14:54	

LABORATORY CONTROL SAMPLE: 631420

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mean Total Organic Carbon	mg/kg	1000	1020	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 631421 631422

Parameter	Units	10196637001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/kg	28700	23600	25400	46800	49000	76	80	50-150	5	30	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

QC Batch: WETA/13373 | Analysis Method: EPA 9060 Modified
QC Batch Method: EPA 9060 Modified | Analysis Description: 9060 TOC Average
Associated Lab Samples: 2512573039

METHOD BLANK: 641650 | Matrix: Solid
Associated Lab Samples: 2512573039

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mean Total Organic Carbon	mg/kg	<70.0	250	07/25/12 13:30	

LABORATORY CONTROL SAMPLE: 641651

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mean Total Organic Carbon	mg/kg	1000	968	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 641652 641653

Parameter	Units	4063604001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/kg	3640	2550	2740	6170	6680	99	111	50-150	8	30	

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940 South Harney
Seattle, WA 98108
(206)767-5060

QUALIFIERS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-S	Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: WETA/12914
[WB] Results reported on dry weight basis per cited method.

Batch: WETA/12915
[WB] Results reported on dry weight basis per cited method.

Batch: WETA/13002
[WB] Results reported on dry weight basis per cited method.

Batch: WETA/13003
[WB] Results reported on dry weight basis per cited method.

Batch: WETA/13078
[WB] Results reported on dry weight basis per cited method.

Batch: WETA/13079
[WB] Results reported on dry weight basis per cited method.

Batch: WETA/13373
[WB] Results reported on dry weight basis per cited method.

Batch: WETA/13374
[WB] Results reported on dry weight basis per cited method.

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QUALIFIERS

Project:	ODEQ - Lower Columbia Slough
Pace Project No.:	2512573

ANALYTE QUALIFIERS

H3	Sample was received outside the recognized method holding time.
P1	Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
S3	Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2512573001	**PCA1-01s**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573002	**PCA1-02s**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573003	**PCA1-03s**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573004	**PCA1-04s**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573005	**PCA1-04s DUP**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573006	**PCA1-05s**	EPA 3546	OEXT/5681	EPA 8082	GCSV/3631
2512573007	**PCA1-01d (0-30)**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573008	**PCA1-01d (30-60)**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573009	**PCA1-01d (60-90)**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573010	**PCA1-02d (0-30)**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573011	**PCA1-02d (30-60)**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573012	**PCA1-02d (60-90)**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573013	**PCA2-01s**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573014	**PCA2-02s**	EPA 3546	OEXT/5670	EPA 8082	GCSV/3630
2512573016	**PCA2-01d (0-30)**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573017	**PCA2-01d (30-60)**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573018	**PCA2-01d (60-90)**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573019	**PCA2-01d (60-90) DUP**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573021	**PCA3-01s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573022	**PCA3-02s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573023	**PCA3-02s DUP**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573024	**PCA3-03s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573025	**PCA3-04s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573026	**PCA3-05s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573027	**PCA3-06s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573028	**PCA3-07s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573029	**PCA3-08s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573030	**PCA3-09s**	EPA 3546	OEXT/5684	EPA 8082	GCSV/3634
2512573032	**PCA3-01d (0-30)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573033	**PCA3-01d (30-60)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573034	**PCA3-01d (60-90)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573036	**PCA4-01s**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573037	**PCA4-02s**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573038	**PCA4-03s**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573039	**PCA4-04s**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573040	**PCA4-01d (0-10)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573041	**PCA4-01d (30-60)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573042	**PCA4-01d (60-90)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512573001	**PCA1-01s**	ASTM D2974-87	PMST/2078		
2512573002	**PCA1-02s**	ASTM D2974-87	PMST/2078		
2512573003	**PCA1-03s**	ASTM D2974-87	PMST/2078		
2512573004	**PCA1-04s**	ASTM D2974-87	PMST/2078		
2512573005	**PCA1-04s DUP**	ASTM D2974-87	PMST/2078		
2512573006	**PCA1-05s**	ASTM D2974-87	PMST/2078		
2512573007	**PCA1-01d (0-30)**	ASTM D2974-87	PMST/2078		
2512573008	**PCA1-01d (30-60)**	ASTM D2974-87	PMST/2078		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2512573009	**PCA1-01d (60-90)**	ASTM D2974-87	PMST/2078		
2512573010	**PCA1-02d (0-30)**	ASTM D2974-87	PMST/2078		
2512573011	**PCA1-02d (30-60)**	ASTM D2974-87	PMST/2078		
2512573012	**PCA1-02d (60-90)**	ASTM D2974-87	PMST/2078		
2512573013	**PCA2-01s**	ASTM D2974-87	PMST/2078		
2512573014	**PCA2-02s**	ASTM D2974-87	PMST/2078		
2512573016	**PCA2-01d (0-30)**	ASTM D2974-87	PMST/2078		
2512573017	**PCA2-01d (30-60)**	ASTM D2974-87	PMST/2078		
2512573018	**PCA2-01d (60-90)**	ASTM D2974-87	PMST/2078		
2512573019	**PCA2-01d (60-90) DUP**	ASTM D2974-87	PMST/2078		
2512573021	**PCA3-01s**	ASTM D2974-87	PMST/2079		
2512573022	**PCA3-02s**	ASTM D2974-87	PMST/2079		
2512573023	**PCA3-02s DUP**	ASTM D2974-87	PMST/2079		
2512573024	**PCA3-03s**	ASTM D2974-87	PMST/2079		
2512573025	**PCA3-04s**	ASTM D2974-87	PMST/2079		
2512573026	**PCA3-05s**	ASTM D2974-87	PMST/2079		
2512573027	**PCA3-06s**	ASTM D2974-87	PMST/2079		
2512573028	**PCA3-07s**	ASTM D2974-87	PMST/2079		
2512573029	**PCA3-08s**	ASTM D2974-87	PMST/2079		
2512573030	**PCA3-09s**	ASTM D2974-87	PMST/2079		
2512573032	**PCA3-01d (0-30)**	ASTM D2974-87	PMST/2079		
2512573033	**PCA3-01d (30-60)**	ASTM D2974-87	PMST/2079		
2512573034	**PCA3-01d (60-90)**	ASTM D2974-87	PMST/2079		
2512573036	**PCA4-01s**	ASTM D2974-87	PMST/2079		
2512573037	**PCA4-02s**	ASTM D2974-87	PMST/2079		
2512573038	**PCA4-03s**	ASTM D2974-87	PMST/2079		
2512573040	**PCA4-01d (0-10)**	ASTM D2974-87	PMST/2079		
2512573041	**PCA4-01d (30-60)**	ASTM D2974-87	PMST/2080		
2512573042	**PCA4-01d (60-90)**	ASTM D2974-87	PMST/2080		
2512573001	**PCA1-01s**	EPA 9060 Modified	WETA/12914		
2512573001	**PCA1-01s**	EPA 9060 Modified	WETA/12915		
2512573002	**PCA1-02s**	EPA 9060 Modified	WETA/12914		
2512573002	**PCA1-02s**	EPA 9060 Modified	WETA/12915		
2512573003	**PCA1-03s**	EPA 9060 Modified	WETA/12914		
2512573003	**PCA1-03s**	EPA 9060 Modified	WETA/12915		
2512573004	**PCA1-04s**	EPA 9060 Modified	WETA/12914		
2512573004	**PCA1-04s**	EPA 9060 Modified	WETA/12915		
2512573005	**PCA1-04s DUP**	EPA 9060 Modified	WETA/12914		
2512573005	**PCA1-04s DUP**	EPA 9060 Modified	WETA/12915		
2512573006	**PCA1-05s**	EPA 9060 Modified	WETA/13078		
2512573006	**PCA1-05s**	EPA 9060 Modified	WETA/13079		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2512573007	**PCA1-01d (0-30)**	EPA 9060 Modified	WETA/12914		
2512573007	**PCA1-01d (0-30)**	EPA 9060 Modified	WETA/12915		
2512573008	**PCA1-01d (30-60)**	EPA 9060 Modified	WETA/12914		
2512573008	**PCA1-01d (30-60)**	EPA 9060 Modified	WETA/12915		
2512573009	**PCA1-01d (60-90)**	EPA 9060 Modified	WETA/12914		
2512573009	**PCA1-01d (60-90)**	EPA 9060 Modified	WETA/12915		
2512573010	**PCA1-02d (0-30)**	EPA 9060 Modified	WETA/12914		
2512573010	**PCA1-02d (0-30)**	EPA 9060 Modified	WETA/12915		
2512573011	**PCA1-02d (30-60)**	EPA 9060 Modified	WETA/12914		
2512573011	**PCA1-02d (30-60)**	EPA 9060 Modified	WETA/12915		
2512573012	**PCA1-02d (60-90)**	EPA 9060 Modified	WETA/12914		
2512573012	**PCA1-02d (60-90)**	EPA 9060 Modified	WETA/12915		
2512573013	**PCA2-01s**	EPA 9060 Modified	WETA/12914		
2512573013	**PCA2-01s**	EPA 9060 Modified	WETA/12915		
2512573014	**PCA2-02s**	EPA 9060 Modified	WETA/12914		
2512573014	**PCA2-02s**	EPA 9060 Modified	WETA/12915		
2512573016	**PCA2-01d (0-30)**	EPA 9060 Modified	WETA/12914		
2512573016	**PCA2-01d (0-30)**	EPA 9060 Modified	WETA/12915		
2512573017	**PCA2-01d (30-60)**	EPA 9060 Modified	WETA/12914		
2512573017	**PCA2-01d (30-60)**	EPA 9060 Modified	WETA/12915		
2512573018	**PCA2-01d (60-90)**	EPA 9060 Modified	WETA/12914		
2512573018	**PCA2-01d (60-90)**	EPA 9060 Modified	WETA/12915		
2512573019	**PCA2-01d (60-90) DUP**	EPA 9060 Modified	WETA/12914		
2512573019	**PCA2-01d (60-90) DUP**	EPA 9060 Modified	WETA/12915		
2512573021	**PCA3-01s**	EPA 9060 Modified	WETA/12914		
2512573021	**PCA3-01s**	EPA 9060 Modified	WETA/12915		
2512573022	**PCA3-02s**	EPA 9060 Modified	WETA/12914		
2512573022	**PCA3-02s**	EPA 9060 Modified	WETA/12915		
2512573023	**PCA3-02s DUP**	EPA 9060 Modified	WETA/13002		
2512573023	**PCA3-02s DUP**	EPA 9060 Modified	WETA/13003		
2512573024	**PCA3-03s**	EPA 9060 Modified	WETA/13002		
2512573024	**PCA3-03s**	EPA 9060 Modified	WETA/13003		
2512573025	**PCA3-04s**	EPA 9060 Modified	WETA/13002		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512573

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2512573025	**PCA3-04s**	EPA 9060 Modified	WETA/13003		
2512573026	**PCA3-05s**	EPA 9060 Modified	WETA/13002		
2512573026	**PCA3-05s**	EPA 9060 Modified	WETA/13003		
2512573027	**PCA3-06s**	EPA 9060 Modified	WETA/13002		
2512573027	**PCA3-06s**	EPA 9060 Modified	WETA/13003		
2512573028	**PCA3-07s**	EPA 9060 Modified	WETA/13002		
2512573028	**PCA3-07s**	EPA 9060 Modified	WETA/13003		
2512573029	**PCA3-08s**	EPA 9060 Modified	WETA/13002		
2512573029	**PCA3-08s**	EPA 9060 Modified	WETA/13003		
2512573030	**PCA3-09s**	EPA 9060 Modified	WETA/13002		
2512573030	**PCA3-09s**	EPA 9060 Modified	WETA/13003		
2512573032	**PCA3-01d (0-30)**	EPA 9060 Modified	WETA/13002		
2512573032	**PCA3-01d (0-30)**	EPA 9060 Modified	WETA/13003		
2512573033	**PCA3-01d (30-60)**	EPA 9060 Modified	WETA/13002		
2512573033	**PCA3-01d (30-60)**	EPA 9060 Modified	WETA/13003		
2512573034	**PCA3-01d (60-90)**	EPA 9060 Modified	WETA/13002		
2512573034	**PCA3-01d (60-90)**	EPA 9060 Modified	WETA/13003		
2512573036	**PCA4-01s**	EPA 9060 Modified	WETA/13002		
2512573036	**PCA4-01s**	EPA 9060 Modified	WETA/13003		
2512573037	**PCA4-02s**	EPA 9060 Modified	WETA/13002		
2512573037	**PCA4-02s**	EPA 9060 Modified	WETA/13003		
2512573038	**PCA4-03s**	EPA 9060 Modified	WETA/13002		
2512573038	**PCA4-03s**	EPA 9060 Modified	WETA/13003		
2512573039	**PCA4-04s**	EPA 9060 Modified	WETA/13373		
2512573039	**PCA4-04s**	EPA 9060 Modified	WETA/13374		
2512573040	**PCA4-01d (0-10)**	EPA 9060 Modified	WETA/13002		
2512573040	**PCA4-01d (0-10)**	EPA 9060 Modified	WETA/13003		
2512573041	**PCA4-01d (30-60)**	EPA 9060 Modified	WETA/13002		
2512573041	**PCA4-01d (30-60)**	EPA 9060 Modified	WETA/13003		
2512573042	**PCA4-01d (60-90)**	EPA 9060 Modified	WETA/13002		
2512573042	**PCA4-01d (60-90)**	EPA 9060 Modified	WETA/13003		

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State of Oregon Chain of Custody

2512573

Agency, Authorized Purchaser or Agent: ODEQ	Contract Laboratory Name:	Lab Selection Criteria:	Turn Around Time:
Send Lab Report To: Pace Analytical Address: 940 South Harney St. Seattle, WA 98108 Tel. #: 206-767-5060 E-mail:	Lab Batch #: Invoice To: Address: ODEQ, Attn. Jennifer Sutter 2020 SW 4th Ave, Portland, OR 97201 503-229-6148	☐ Proximity (if TAT < 48 hrs) ☐ Prior work on same project ☒ Cost (for anticipated analyses) ☐ Other labs disqualified or unable to perform requested services ☐ Emergency work	☒ 10 days (std.) ☐ 5 days ☐ 72 hours ☐ 48 hours ☐ 24 hours ☐ Other _____

Project Name: ODEQ – Lower Columbia Slough
Project #: TO# 57-08-32, 1888-00
Sampler Name: S. Gray

Sample ID#	Collection Date/Time	Matrix	Number of Contain-ers	TOC (EPA 9060)	PCBs (EPA 8082)									Comments
Sample Preservative				Non	Non									
PCA4-01s	6-12-12 / 0955	S	2	X	X									
PCA4-02s	6-12-12 / 1025	S	2	X	X									
PCA4-03s	6-12-12 / 1100	S	2	X	X									
PCA4-04s	6-12-12 / 1130	S	2											Hold
PCA4-01d (0-10)	6-12-12 / 1250	S	2	X	X									
PCA4-01d (30-60)	6-12-12 / 1305	S	2	X	X									
PCA4-01d (60-90)	6-12-12 / 1320	S	2	X	X									
PCA4-01d (90-120)	6-12-12 / 1345	S	1											Hold

Notes: Please hold archive remaining volume for potential follow up.

Relinquished By: Sam Gray	Agency/Agent: DEQ/Ash Creek	Received By: Kurt Stringfield	Agency/Agent: Pace
Signature:	Time & Date: 6/7/12 / 1400	Signature:	Time & Date: 6/14/12 0925
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [ ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

State of Oregon Chain of Custody

2512573

Agency, Authorized Purchaser or Agent: ODEQ	Contract Laboratory Name:	Lab Selection Criteria:	Turn Around Time:
Send Lab Report To: Pace Analytical Address: 940 South Harney St. Seattle, WA 98108 Tel. #: 206-767-5060 E-mail:	Lab Batch #: Invoice To: Address: ODEQ, Attn. Jennifer Sutter 2020 SW 4th Ave, Portland, OR 97201 503-229-6148	☐ Proximity (if TAT < 48 hrs) ☐ Prior work on same project ☒ Cost (for anticipated analyses) ☐ Other labs disqualified or unable to perform requested services ☐ Emergency work	☒ 10 days (std.) ☐ 5 days ☐ 72 hours ☐ 48 hours ☐ 24 hours ☐ Other _____

Project Name: ODEQ – Lower Columbia Slough
Project #: TO# 57-08-32, 1888-00
Sampler Name: S. Gray

Sample ID#	Collection Date/Time	Matrix	Number of Contain-ers	TOC (EPA 9060)	PCBs (EPA 8082)									Comments
				Sample Preservative: Non	Non									
PCA1-01s	6-7-12 / 1045	S	2	X	X									
PCA1-02s	6-7-12 / 1110	S	2	X	X									
PCA1-03s	6-7-12 / 1130	S	2	X	X									
PCA1-04s	6-7-12 / 1200	S	2	X	X									
PCA1-04s DUP	6-7-12 / 1200	S	1	X	X									
PCA1-05s	6-7-12 / 1230	S	2											Hold
PCA1-01d (0-30)	6-6-12 / 1135	S	2	X	X									
PCA1-01d (30-60)	6-6-12 / 1130	S	2	X	X									
PCA1-01d (60-90)	6-6-12 / 1200	S	2	X	X									
PCA1-02d (0-30)	6-6-12 / 1415	S	2	X	X									
PCA1-02d (30-60)	6-6-12 / 1300	S	2	X	X									
PCA1-02d (60-90)	6-7-12 / 1315	S	1	X	X									

Notes: Please hold/archive remaining volume for potential follow up

Relinquished By: Sam Gray	Agency/Agent: Ash Creek/DEQ	Received By: Kurt Stringfield	Agency/Agent: Pace
Signature:	Time & Date: 6-13-12 / 1400	Signature:	Time & Date: 6/14/12 0925
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [ ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

State of Oregon Chain of Custody

2512573

Agency, Authorized Purchaser or Agent: ODEQ	**Contract Laboratory Name:**	**Lab Selection Criteria:**	**Turn Around Time:**
Send Lab Report To: Pace Analytical Address: 940 South Harney St. Seattle, WA 98108 Tel. #: 206-767-5060 E-mail:	**Lab Batch #:** **Invoice To:** Address: ODEQ, Attn. Jennifer Sutter 2020 SW 4th Ave, Portland, OR 97201 503-229-6148	☐ Proximity (if TAT < 48 hrs) ☐ Prior work on same project ☒ Cost (for anticipated analyses) ☐ Other labs disqualified or unable to perform requested services ☐ Emergency work	☒ 10 days (std.) ☐ 5 days ☐ 72 hours ☐ 48 hours ☐ 24 hours ☐ Other

Project Name: ODEQ – Lower Columbia Slough
Project #: TO# 57-08-32, 1888-00
Sampler Name: S. Gray

Sample ID#	Collection Date/Time	Matrix	Number of Contain-ers	TOC (EPA 9060)	PCBs (EPA 8082)									Comments
Sample Preservative				Non	Non									
PCA2-01s	6-7-12 / 1340	S	2	X	X									
PCA2-02s	6-7-12 / 1410	S	2	X	X									
PCA2-03s	6-7-12 / 1445	S	2	X	X									
PCA2-01d (0-30)	6-13-12 / 0840	S	2	X	X									
PCA2-01d (30-60)	6-13-12 / 0915	S	2	X	X									
PCA2-01d (60-90)	6-13-12 / 0940	S	2	X	X									
PCA2-01d (60-90) DUP	6-13-12 / 0940	S	2	X	X									~~Hold~~
PCA2-01d (90-120)	6-13-12 / 0955	S	2											Hold

Notes: Please hold/archive remaining volume for potential follow up.

Relinquished By: Sam Gray	Agency/Agent: DEQ/Ash Creek	Received By: Kurt Springfield / Pace	Agency/Agent:
Signature:	Time & Date: 6-13-12 / 1400	Signature:	Time & Date: 6/14/12 0945
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [illegible]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

State of Oregon Chain of Custody

2512573

Agency, Authorized Purchaser or Agent: ODEQ	**Contract Laboratory Name:**	**Lab Selection Criteria:** ☐ Proximity (if TAT < 48 hrs) ☐ Prior work on same project ☒ Cost (for anticipated analyses) ☐ Other labs disqualified or unable to perform requested services ☐ Emergency work	**Turn Around Time:** ☒ 10 days (std.) ☐ 5 days ☐ 72 hours ☐ 48 hours ☐ 24 hours ☐ Other
Send Lab Report To: Pace Analytical Address: 940 South Harney St. Seattle, WA 98108 Tel. #: 206-767-5060 E-mail:	**Lab Batch #:** **Invoice To:** Address: ODEQ, Attn. Jennifer Sutter 2020 SW 4th Ave, Portland, OR 97201 503-229-6148		

Project Name: ODEQ – Lower Columbia Slough
Project #: TO# 57-08-32, 1888-00
Sampler Name: S. Gray

Sample ID#	Collection Date/Time	Matrix	Number of Contain-ers	TOC (EPA 9060)	PCBs (EPA 8082)									Comments
				Sample Preservative: Non	Non									
				Requested Analyses										
PCA3-01s	6-8-12 / 0900	S	2	X	X									
PCA3-02s	6-9-12 / 1000	S	2	X	X									
PCA3-02s DUP	6-9-12 / 1000	S	1	X	X									
PCA3-03s	6-12-12 / 0910	S	2	X	X									
PCA3-04s	6-8-12 / 1110	S	2	X	X									
PCA3-05s	6-8-12 / 1130	S	2	X	X									
PCA3-06s	6-8-12 / 1200	S	2	X	X									
PCA3-07s	6-8-12 / 1230	S	2	X	X									
PCA3-08s	6-8-12 / 1315	S	2	X	X									
PCA3-09s	6-8-12 / 1340	S	2	X	X									
PCA3-10s	6-8-12 / 0930	S	2											Hold

Notes: Please Hold/Archive remaining volume for potential follow up.

Relinquished By: Sam Gray	Agency/Agent: DEQ / Ashlock	Received By: Kurt Stringfield	Agency/Agent: Pace
Signature:	Time & Date: 6-13-12 / 1400	Signature:	Time & Date: 6/14/12 0925
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [ ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

State of Oregon Chain of Custody

2512573

Agency, Authorized Purchaser or Agent: ODEQ	Contract Laboratory Name:	Lab Selection Criteria:	Turn Around Time:
Send Lab Report To: Pace Analytical Address: 940 South Harney St. Seattle, WA 98108 Tel. #: 206-767-5060 E-mail:	Lab Batch #: Invoice To: Address: ODEQ, Attn. Jennifer Sutter 2020 SW 4th Ave, Portland, OR 97201 503-229-6148	☐ Proximity (if TAT < 48 hrs) ☐ Prior work on same project ☒ Cost (for anticipated analyses) ☐ Other labs disqualified or unable to perform requested services ☐ Emergency work	☒ 10 days (std.) ☐ 5 days ☐ 72 hours ☐ 48 hours ☐ 24 hours ☐ Other

Project Name: ODEQ – Lower Columbia Slough
Project #: TO# 57-08-32, 1888-00
Sampler Name: S. Gray

Sample ID#	Collection Date/Time	Matrix	Number of Contain-ers	TOC (EPA 9060)	PCBs (EPA 8082)									Comments
				Sample Preservative: Non	Non									
PCA3-01d (0-30)	6-13-12 / 1035	S	2	X	X									
PCA3-01d (30-60)	6-13-12 / 1050	S	2	X	X									
PCA3-01d (60-90)	6-13-12 / 1120	S	2	X	X									
PCA3-01d (90-115)	6-13-12 / 1135	S	1											Hold

Notes: Please hold/archive remaining volumes for potential follow up.

Relinquished By: Sam Gray	Agency/Agent: DEQ/Ash Creek	Received By: Kurt Stringfield	Agency/Agent: Pace
Signature:	Time & Date: 6/13/12 1400	Signature:	Time & Date: 6/14/12 0925
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [ ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Sample Container Count

2512573

Pace Analytical

CLIENT: Ash Creek / ODEQ

COC PAGE 1 of 5

COC ID#

Trip Blank(s) Provided? Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG				Comments
1									2										
2									↓										
3																			
4																			
5									1										
6									2										
7										2									
8										↓									
9																			
10																			
11										↓									
12										1									

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	!	Wipe/Swab	U	Summa Can

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Sample Container Count

CLIENT: Ash Creek / ODEQ

2512573

Pace Analytical

COC PAGE 2 of 5

COC ID# _____

Trip Blank(s) Provided? Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG				Comments
1									2										
2									↓										
3																			
4										2									
5										↓									
6																			
7																			
8																			
9																			
10																			
11																			
12																			

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

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Sample Container Count

CLIENT: Ash Creek/ODEQ

2512573

Pace Analytical

COC PAGE 3 of 5

COC ID#

Trip Blank(s) Provided? Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG				Comments
1									2										
2									↓										
3									|										
4									2										
5									|										
6									|										
7									|										
8									|										
9									|										
10									|										
11									↓										
12																			

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

F-SEA-C-014-rev.01, 10Nov2011

Sample Container Count

CLIENT: Ash Creek / ODEQ

COC PAGE 4 of 5

COC ID#

2512573

Trip Blank(s) Provided? Y / N

Pace Analytical

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG				Comments
1										2									
2										↓									
3										↓									
4										1									
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

F-SEA-C-014-rev.01, 10Nov2011

Sample Container Count

CLIENT: Ash Creek / ODEQ

2512573

Pace Analytical

COC PAGE 5 of 5

COC ID# _____

Trip Blank(s) Provided? Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG				Comments
1									2										
2									↓										
3																			
4									↓										
5										2									
6										↓									
7										↓									
8										1									
9																			
10																			
11																			
12																			

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

F-SEA-C-014-rev.01, 10Nov2011

Sample Condition Upon Receipt

Pace Analytical

Client Name: Ash Creek/ODEQ Project # 2512573

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

Tracking #: 1375701

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 132013 or 101731952 or 226099 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.3, 0.2, 2.1 Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C

Date and Initials of person examining contents: 6/14/12 b

				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.
Follow Up / Hold Analysis Requested:	☑ Yes	☐ No	☐ N/A	8. Several samples have holds requested.
Sufficient Volume:	☐ Yes	☑ No	☐ N/A	9. Several samples require sub-sampling due
Correct Containers Used:	☑ Yes	☐ No	☐ N/A	10. to insufficient containers rec'd.
-Pace Containers Used:	☑ Yes	☐ No	☐ N/A	
Containers Intact:	☑ Yes	☐ No	☐ N/A	11.
Filtered volume received for Dissolved tests	☐ Yes	☐ No	☑ N/A	12.
Sample Labels match COC:	☑ Yes	☐ No	☐ N/A	13.
-Includes date/time/ID/Analysis Matrix: SL				
All containers needing preservation have been checked.	☐ Yes	☐ No	☑ N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, coliform, TOC, O&G	☐ Yes	☐ No	☑ N/A	Initial when completed ✓ / Lot # of added preservative
Samples checked for dechlorination:	☐ Yes	☐ No	☑ N/A	15.
Headspace in VOA Vials (>6mm):	☐ Yes	☐ No	☑ N/A	16.
Trip Blanks Present:	☐ Yes	☐ No	☑ N/A	17.
Trip Blank Custody Seals Present	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Creation Date: _____				

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: 6/14

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

Dan Gossett - Added analyses

From: Dan Gossett
To: Adam Reese
Date: 6/20/2012 3:17 PM
Subject: Added analyses

Hi Adam,

Per your request I took PCA1-05s off hold and is being ran for PCB and TOC, put PCA2-03s on hold and all PCB's are extract and hold

Thanks

Dan Gossett
Pace Analytical, Seattle
Project Manager
(206) 957-2429
dan.gossett@pacelabs.com

Dan Gossett - RE: Final Report - Columbia Slough

From: Adam Reese <AReese@AshCreekAssociates.com>
To: Dan Gossett <Dan.Gossett@pacelabs.com>
Date: 7/9/2012 12:22 PM
Subject: RE: Final Report - Columbia Slough

Dan,

Could you please run held sample PCA4-04s for PCBs and TOC?

Thanks,

Adam

Adam Reese, R.G.
Project Geologist
Ash Creek Associates
A Division of Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201
O) 503-924-4704 x109 M) 503-502-2726

Ash Creek Associates is now a Division of Apex Companies, LLC. Click here to learn more about Apex.

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From: Dan Gossett [mailto:Dan.Gossett@pacelabs.com]
Sent: Friday, July 06, 2012 4:45 PM
To: Adam Reese
Subject: Final Report - Columbia Slough

Hi Adam,

The final TOC just finished up, so attached is your final report.

Thanks, have a great weekend

Dan Gossett
Pace Analytical, Seattle

Project Manager
(206) 957-2429
dan.gossett@pacelabs.com

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For more information please visit http://www.symanteccloud.com

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

July 05, 2012

Adam Reese
Ash Creek Associates
3015 SW First Ave
Portland, OR 97201

RE: Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Dear Adam Reese:
Enclosed are the analytical results for sample(s) received by the laboratory on June 16, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Brian Boling, State of Oregon DEQ

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project:	ODEQ - Lower Columbia Slough
Pace Project No.:	2512599

Washington Certification IDs
940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Arizona Certification #: AZ0770
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C555

Green Bay Certification IDs
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 11888
North Carolina Certification #: 503
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750

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SAMPLE SUMMARY

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2512599001	**PCA3-03d (0-30)**	Solid	06/14/12 08:30	06/16/12 12:30
2512599002	**PCA3-03d (30-60)**	Solid	06/14/12 09:00	06/16/12 12:30
2512599003	**PCA3-02d (0-30)**	Solid	06/14/12 09:25	06/16/12 12:30
2512599004	**PCA3-02d (85-115)**	Solid	06/14/12 09:40	06/16/12 12:30

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SAMPLE ANALYTE COUNT

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2512599001	**PCA3-03d (0-30)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512599002	**PCA3-03d (30-60)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512599003	**PCA3-02d (0-30)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G
2512599004	**PCA3-02d (85-115)**	EPA 8082	AY1	9	PASI-S
		ASTM D2974-87	RAB	1	PASI-S
		EPA 9060 Modified	TJJ	4	PASI-G

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PROJECT NARRATIVE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Method: **EPA 8082**
Description: 8082 GCS PCB S
Client: State of Oregon DEQ
Date: July 05, 2012

General Information:
4 samples were analyzed for EPA 8082. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

QC Batch: OEXT/5690

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- PCA3-02d (0-30) (Lab ID: 2512599003)
- PCA3-02d (85-115) (Lab ID: 2512599004)
- PCA3-03d (0-30) (Lab ID: 2512599001)
- PCA3-03d (30-60) (Lab ID: 2512599002)

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Method: **EPA 9060 Modified**
Description: Total Organic Carbon
Client: State of Oregon DEQ
Date: July 05, 2012

General Information:
4 samples were analyzed for EPA 9060 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Sample: PCA3-03d (0-30) **Lab ID: 2512599001** Collected: 06/14/12 08:30 Received: 06/16/12 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<47.2**	ug/kg	96.4	47.2	1	06/26/12 12:55	06/29/12 05:07	12674-11-2	
PCB-1221 (Aroclor 1221)	**<47.2**	ug/kg	96.4	47.2	1	06/26/12 12:55	06/29/12 05:07	11104-28-2	
PCB-1232 (Aroclor 1232)	**<47.2**	ug/kg	96.4	47.2	1	06/26/12 12:55	06/29/12 05:07	11141-16-5	
PCB-1242 (Aroclor 1242)	**<47.2**	ug/kg	96.4	47.2	1	06/26/12 12:55	06/29/12 05:07	53469-21-9	
PCB-1248 (Aroclor 1248)	**<47.2**	ug/kg	96.4	47.2	1	06/26/12 12:55	06/29/12 05:07	12672-29-6	
PCB-1254 (Aroclor 1254)	**<47.2**	ug/kg	96.4	47.2	1	06/26/12 12:55	06/29/12 05:07	11097-69-1	
PCB-1260 (Aroclor 1260)	**<47.2**	ug/kg	96.4	47.2	1	06/26/12 12:55	06/29/12 05:07	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	72	%	30-134		1	06/26/12 12:55	06/29/12 05:07	877-09-8	P1
Decachlorobiphenyl (S)	61	%	20-139		1	06/26/12 12:55	06/29/12 05:07	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**65.3**	%	0.10	0.10	1		06/19/12 15:33		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**22.7**	%			1		07/02/12 13:09		
Total Organic Carbon	**16800**	mg/kg	16700	4670	1		07/02/12 13:06	7440-44-0	
Total Organic Carbon	**21100**	mg/kg	14300	4000	1		07/02/12 13:09	7440-44-0	
Mean Total Organic Carbon	**18900**	mg/kg	15500	4330	1		07/02/12 13:09	7440-44-0	

Sample: PCA3-03d (30-60) **Lab ID: 2512599002** Collected: 06/14/12 09:00 Received: 06/16/12 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<41.5**	ug/kg	84.6	41.5	1	06/26/12 12:55	06/29/12 05:45	12674-11-2	
PCB-1221 (Aroclor 1221)	**<41.5**	ug/kg	84.6	41.5	1	06/26/12 12:55	06/29/12 05:45	11104-28-2	
PCB-1232 (Aroclor 1232)	**<41.5**	ug/kg	84.6	41.5	1	06/26/12 12:55	06/29/12 05:45	11141-16-5	
PCB-1242 (Aroclor 1242)	**<41.5**	ug/kg	84.6	41.5	1	06/26/12 12:55	06/29/12 05:45	53469-21-9	
PCB-1248 (Aroclor 1248)	**<41.5**	ug/kg	84.6	41.5	1	06/26/12 12:55	06/29/12 05:45	12672-29-6	
PCB-1254 (Aroclor 1254)	**<41.5**	ug/kg	84.6	41.5	1	06/26/12 12:55	06/29/12 05:45	11097-69-1	
PCB-1260 (Aroclor 1260)	**<41.5**	ug/kg	84.6	41.5	1	06/26/12 12:55	06/29/12 05:45	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	68	%	30-134		1	06/26/12 12:55	06/29/12 05:45	877-09-8	P1
Decachlorobiphenyl (S)	83	%	20-139		1	06/26/12 12:55	06/29/12 05:45	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**60.6**	%	0.10	0.10	1		06/19/12 15:37		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**12.5**	%			1		07/02/12 13:51		
Total Organic Carbon	**19500**	mg/kg	14300	4000	1		07/02/12 13:45	7440-44-0	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Sample: PCA3-03d (30-60) **Lab ID: 2512599002** Collected: 06/14/12 09:00 Received: 06/16/12 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
Total Organic Carbon	**22100**	mg/kg	11100	3110	1		07/02/12 13:51	7440-44-0	
Mean Total Organic Carbon	**20800**	mg/kg	12700	3560	1		07/02/12 13:51	7440-44-0	

Sample: PCA3-02d (0-30) **Lab ID: 2512599003** Collected: 06/14/12 09:25 Received: 06/16/12 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<43.9**	ug/kg	89.6	43.9	1	06/26/12 12:55	06/29/12 06:24	12674-11-2	
PCB-1221 (Aroclor 1221)	**<43.9**	ug/kg	89.6	43.9	1	06/26/12 12:55	06/29/12 06:24	11104-28-2	
PCB-1232 (Aroclor 1232)	**<43.9**	ug/kg	89.6	43.9	1	06/26/12 12:55	06/29/12 06:24	11141-16-5	
PCB-1242 (Aroclor 1242)	**<43.9**	ug/kg	89.6	43.9	1	06/26/12 12:55	06/29/12 06:24	53469-21-9	
PCB-1248 (Aroclor 1248)	**<43.9**	ug/kg	89.6	43.9	1	06/26/12 12:55	06/29/12 06:24	12672-29-6	
PCB-1254 (Aroclor 1254)	**<43.9**	ug/kg	89.6	43.9	1	06/26/12 12:55	06/29/12 06:24	11097-69-1	
PCB-1260 (Aroclor 1260)	**<43.9**	ug/kg	89.6	43.9	1	06/26/12 12:55	06/29/12 06:24	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	67	%	30-134		1	06/26/12 12:55	06/29/12 06:24	877-09-8	P1
Decachlorobiphenyl (S)	57	%	20-139		1	06/26/12 12:55	06/29/12 06:24	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**63.2**	%	0.10	0.10	1		06/19/12 15:38		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**30.4**	%			1		07/02/12 13:57		
Total Organic Carbon	**24000**	mg/kg	9090	2550	1		07/02/12 13:55	7440-44-0	
Total Organic Carbon	**17700**	mg/kg	11100	3110	1		07/02/12 13:57	7440-44-0	
Mean Total Organic Carbon	**20800**	mg/kg	10100	2830	1		07/02/12 13:57	7440-44-0	

Sample: PCA3-02d (85-115) **Lab ID: 2512599004** Collected: 06/14/12 09:40 Received: 06/16/12 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
PCB-1016 (Aroclor 1016)	**<43.5**	ug/kg	88.8	43.5	1	06/26/12 12:55	06/29/12 07:02	12674-11-2	
PCB-1221 (Aroclor 1221)	**<43.5**	ug/kg	88.8	43.5	1	06/26/12 12:55	06/29/12 07:02	11104-28-2	
PCB-1232 (Aroclor 1232)	**<43.5**	ug/kg	88.8	43.5	1	06/26/12 12:55	06/29/12 07:02	11141-16-5	
PCB-1242 (Aroclor 1242)	**<43.5**	ug/kg	88.8	43.5	1	06/26/12 12:55	06/29/12 07:02	53469-21-9	
PCB-1248 (Aroclor 1248)	**<43.5**	ug/kg	88.8	43.5	1	06/26/12 12:55	06/29/12 07:02	12672-29-6	
PCB-1254 (Aroclor 1254)	**<43.5**	ug/kg	88.8	43.5	1	06/26/12 12:55	06/29/12 07:02	11097-69-1	
PCB-1260 (Aroclor 1260)	**<43.5**	ug/kg	88.8	43.5	1	06/26/12 12:55	06/29/12 07:02	11096-82-5	

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ANALYTICAL RESULTS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Sample: PCA3-02d (85-115) **Lab ID: 2512599004** Collected: 06/14/12 09:40 Received: 06/16/12 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB S	Analytical Method: EPA 8082 Preparation Method: EPA 3546								
Surrogates									
Tetrachloro-m-xylene (S)	62	%	30-134		1	06/26/12 12:55	06/29/12 07:02	877-09-8	P1
Decachlorobiphenyl (S)	71	%	20-139		1	06/26/12 12:55	06/29/12 07:02	2051-24-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**63.2**	%	0.10	0.10	1		06/19/12 15:40		
Total Organic Carbon	Analytical Method: EPA 9060 Modified								
RPD%	**3.4**	%			1		07/02/12 14:04		
Total Organic Carbon	**22100**	mg/kg	12500	3500	1		07/02/12 14:01	7440-44-0	
Total Organic Carbon	**21400**	mg/kg	11100	3110	1		07/02/12 14:04	7440-44-0	
Mean Total Organic Carbon	**21800**	mg/kg	11800	3310	1		07/02/12 14:04	7440-44-0	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

QC Batch: OEXT/5690 Analysis Method: EPA 8082
QC Batch Method: EPA 3546 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 2512599001, 2512599002, 2512599003, 2512599004

METHOD BLANK: 120378 Matrix: Solid
Associated Lab Samples: 2512599001, 2512599002, 2512599003, 2512599004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1221 (Aroclor 1221)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1232 (Aroclor 1232)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1242 (Aroclor 1242)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1248 (Aroclor 1248)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1254 (Aroclor 1254)	ug/kg	<8.3	17.0	06/28/12 16:15	
PCB-1260 (Aroclor 1260)	ug/kg	<8.3	17.0	06/28/12 16:15	
Decachlorobiphenyl (S)	%	105	20-139	06/28/12 16:15	
Tetrachloro-m-xylene (S)	%	97	30-134	06/28/12 16:15	

LABORATORY CONTROL SAMPLE: 120379

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	167	159	95	57-118	
PCB-1260 (Aroclor 1260)	ug/kg	167	196	118	60-138	
Decachlorobiphenyl (S)	%			103	20-139	
Tetrachloro-m-xylene (S)	%			94	30-134	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 120443 120444

Parameter	Units	2512573034 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	<11.1	222	223	192	191	87	86	25-130	.9	24	
PCB-1260 (Aroclor 1260)	ug/kg	<11.1	222	223	253	251	114	113	24-138	.7	28	
Decachlorobiphenyl (S)	%						99	99	20-139			
Tetrachloro-m-xylene (S)	%						84	83	30-134			

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

QC Batch: PMST/2077 | Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 | Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 2512599001, 2512599002, 2512599003, 2512599004

SAMPLE DUPLICATE: 119626

Parameter	Units	2512599001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	65.3	65.2	.2	30	

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QUALITY CONTROL DATA

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

QC Batch: WETA/13024 | Analysis Method: EPA 9060 Modified
QC Batch Method: EPA 9060 Modified | Analysis Description: 9060 TOC Average
Associated Lab Samples: 2512599001, 2512599002, 2512599003, 2512599004

METHOD BLANK: 630240 | Matrix: Solid
Associated Lab Samples: 2512599001, 2512599002, 2512599003, 2512599004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mean Total Organic Carbon	mg/kg	ND	250	07/02/12 10:47	

LABORATORY CONTROL SAMPLE: 630241

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mean Total Organic Carbon	mg/kg	1000	988	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 630242 630243

Parameter	Units	2512599001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/kg	18900	23600	31000	47000	53200	119	111	50-150	12	30	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 630244 630245

Parameter	Units	10195872001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/kg	12300	21100	19100	40300	39800	133	144	50-150	1	30	

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QUALIFIERS

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay
PASI-S	Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: WETA/13024

[WB] Results reported on dry weight basis per cited method.

Batch: WETA/13025

[WB] Results reported on dry weight basis per cited method.

ANALYTE QUALIFIERS

P1 Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ODEQ - Lower Columbia Slough
Pace Project No.: 2512599

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2512599001	**PCA3-03d (0-30)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512599002	**PCA3-03d (30-60)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512599003	**PCA3-02d (0-30)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512599004	**PCA3-02d (85-115)**	EPA 3546	OEXT/5690	EPA 8082	GCSV/3643
2512599001	**PCA3-03d (0-30)**	ASTM D2974-87	PMST/2077		
2512599002	**PCA3-03d (30-60)**	ASTM D2974-87	PMST/2077		
2512599003	**PCA3-02d (0-30)**	ASTM D2974-87	PMST/2077		
2512599004	**PCA3-02d (85-115)**	ASTM D2974-87	PMST/2077		
2512599001	**PCA3-03d (0-30)**	EPA 9060 Modified	WETA/13024		
2512599001	**PCA3-03d (0-30)**	EPA 9060 Modified	WETA/13025		
2512599002	**PCA3-03d (30-60)**	EPA 9060 Modified	WETA/13024		
2512599002	**PCA3-03d (30-60)**	EPA 9060 Modified	WETA/13025		
2512599003	**PCA3-02d (0-30)**	EPA 9060 Modified	WETA/13024		
2512599003	**PCA3-02d (0-30)**	EPA 9060 Modified	WETA/13025		
2512599004	**PCA3-02d (85-115)**	EPA 9060 Modified	WETA/13024		
2512599004	**PCA3-02d (85-115)**	EPA 9060 Modified	WETA/13025		

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State of Oregon Chain of Custody

2512599

Agency, Authorized Purchaser or Agent: ODEQ	Contract Laboratory Name:	Lab Selection Criteria:	Turn Around Time:
Send Lab Report To: Pace Analytical Address: 940 South Harney St. Seattle, WA 98108 Tel. #: 206-767-5060 E-mail:	Lab Batch #: Invoice To: Address: ODEQ, Attn. Jennifer Sutter 2020 SW 4th Ave, Portland, OR 97201 503-229-6148	☐ Proximity (if TAT < 48 hrs) ☐ Prior work on same project ☒ Cost (for anticipated analyses) ☐ Other labs disqualified or unable to perform requested services ☐ Emergency work	☒ 10 days (std.) ☐ 5 days ☐ 72 hours ☐ 48 hours ☐ 24 hours ☐ Other _____

Project Name: ODEQ – Lower Columbia Slough
Project #: TO# 57-08-32, 1888-00
Sampler Name: S. Gray

Sample ID#	Collection Date/Time	Matrix	Number of Contain-ers	TOC (EPA 9060)	PCBs (EPA 8082)									Comments
				Sample Preservative										
				Non	Non									
				Requested Analyses										
PCA3-03d (0-30)														
~~PCA-03d (0-30)~~ MT	6-14-12 / 0830	S	2	X	X									
PCA3-03d (30-60)	6-14-12 / 0900	S	2	X	X									
PCA3-02d (0-30)	6-14-12 / 0925	S	2	X	X									
PCA3-02d (85-115)	6-14-12 / 0940	S	2	X	X									

Notes: Please hold/archive remaining volume for potential follow up

Relinquished By: Matt Thoenes	Agency/Agent: Ash Creek Associates	Received By:	Agency/Agent: Pace
Signature:	Time & Date: 6/15/12 1000	Signature: Kurt Stringfield	Time & Date: 6/16/12 1230
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # [ ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Sample Container Count

CLIENT: ODEQ / Ash Creek

2512599

Pace Analytical

COC PAGE 1 of 1

COC ID#

Trip Blank(s) Provided? Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG				Comments
1										2									
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

F-SEA-C-014-rev.01, 10Nov2011

Sample Condition Upon Receipt

Pace Analytical

Client Name: ODEQ/Ash Creek Project # 2512599

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

Tracking #: 1373700

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 132013 or 101731952 or 226099 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C

Date and Initials of person examining contents: 6/16/12 b

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.
Follow Up / Hold Analysis Requested:	☐Yes	☐No	☑N/A	8.
Sufficient Volume:	☑Yes	☐No	☐N/A	9.
Correct Containers Used:	☑Yes	☐No	☐N/A	10.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	11.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	12.
Sample Labels match COC:	☑Yes	☐No	☐N/A	13.
-Includes date/time/ID/Analysis Matrix: SL				
All containers needing preservation have been checked.	☐Yes	☐No	☑N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☑N/A	
Exceptions: VOA, coliform, TOC, O&G	☐Yes	☐No	☑N/A	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	15.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	16.
Trip Blanks Present:	☐Yes	☐No	☑N/A	17.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Creation Date:				

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: 6/18

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

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Tax I.D. 62-0814289

Est. 1970

Brian Boling
Oregon Dept. of Env. Quality - ODEQ
3150 NW 229th St., Suite 150
Hillsboro, OR 97124

Report Summary

Friday June 22, 2012

Report Number: L580755
Samples Received: 06/16/12
Client Project: 57-08-32 1888-00

Description: Lower Columbia Slough

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Alan Harvill

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Brian Boling
Oregon Dept. of Env. Quality - ODEQ
3150 NW 229th St., Suite 150
Hillsboro, OR 97124

June 22,2012

ESC Sample # : L580755-01

Date Received : June 16, 2012
Description : Lower Columbia Slough

Site ID :

Sample ID : PCA1-03S

Project # : 57-08-32 1888-00

Collected By : S. Gray
Collection Date : 06/07/12 11:30

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	35.8	0.0330	0.100	%		2540G	06/19/12	1
Polychlorinated Biphenyls								
PCB 1016	U	0.0065	0.047	mg/kg		8082	06/20/12	1
PCB 1221	U	0.0054	0.047	mg/kg		8082	06/20/12	1
PCB 1232	U	0.0042	0.047	mg/kg		8082	06/20/12	1
PCB 1242	U	0.0032	0.047	mg/kg		8082	06/20/12	1
PCB 1248	U	0.0032	0.047	mg/kg		8082	06/20/12	1
PCB 1254	U	0.0047	0.047	mg/kg		8082	06/20/12	1
PCB 1260	U	0.0049	0.047	mg/kg		8082	06/20/12	1
PCBs Surrogates								
Decachlorobiphenyl	47.2			% Rec.		8082	06/20/12	1
Tetrachloro-m-xylene	57.8			% Rec.		8082	06/20/12	1

Results listed are dry weight basis.
U = ND (Not Detected)
MDL = Minimum Detection Limit = LOD = TRRP SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
Note:
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Reported: 06/22/12 09:32 Printed: 06/22/12 09:33

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REPORT OF ANALYSIS

Brian Boling
Oregon Dept. of Env. Quality - ODEQ
3150 NW 229th St., Suite 150
Hillsboro, OR 97124

June 22,2012

ESC Sample # : L580755-02

Date Received : June 16, 2012
Description : Lower Columbia Slough

Site ID :

Sample ID : PCA3-04S

Project # : 57-08-32 1888-00

Collected By : S. Gray
Collection Date : 06/08/12 11:10

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	37.5	0.0330	0.100	%		2540G	06/21/12	1
Polychlorinated Biphenyls								
PCB 1016	U	0.0065	0.045	mg/kg		8082	06/20/12	1
PCB 1221	U	0.0054	0.045	mg/kg		8082	06/20/12	1
PCB 1232	U	0.0042	0.045	mg/kg		8082	06/20/12	1
PCB 1242	U	0.0032	0.045	mg/kg		8082	06/20/12	1
PCB 1248	U	0.0032	0.045	mg/kg		8082	06/20/12	1
PCB 1254	U	0.0047	0.045	mg/kg		8082	06/20/12	1
PCB 1260	U	0.0049	0.045	mg/kg		8082	06/20/12	1
PCBs Surrogates								
Decachlorobiphenyl	63.7			% Rec.		8082	06/20/12	1
Tetrachloro-m-xylene	71.8			% Rec.		8082	06/20/12	1

Results listed are dry weight basis.
U = ND (Not Detected)
MDL = Minimum Detection Limit = LOD = TRRP SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Brian Boling
Oregon Dept. of Env. Quality - ODEQ
3150 NW 229th St., Suite 150
Hillsboro, OR 97124

June 22, 2012

ESC Sample # : L580755-03

Date Received : June 16, 2012
Description : Lower Columbia Slough

Site ID :

Sample ID : PCA2-01D (30-60)

Project # : 57-08-32 1888-00

Collected By : S. Gray
Collection Date : 06/13/12 09:15

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	50.6	0.0330	0.100	%		2540G	06/21/12	1
Polychlorinated Biphenyls								
PCB 1016	U	0.0065	0.034	mg/kg		8082	06/20/12	1
PCB 1221	U	0.0054	0.034	mg/kg		8082	06/20/12	1
PCB 1232	U	0.0042	0.034	mg/kg		8082	06/20/12	1
PCB 1242	U	0.0032	0.034	mg/kg		8082	06/20/12	1
PCB 1248	U	0.0032	0.034	mg/kg		8082	06/20/12	1
PCB 1254	U	0.0047	0.034	mg/kg		8082	06/20/12	1
PCB 1260	U	0.0049	0.034	mg/kg		8082	06/20/12	1
PCBs Surrogates								
Decachlorobiphenyl	161.			% Rec.	J1	8082	06/20/12	1
Tetrachloro-m-xylene	108.			% Rec.		8082	06/20/12	1

Results listed are dry weight basis.
U = ND (Not Detected)
MDL = Minimum Detection Limit = LOD = TRRP SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
Note:
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REPORT OF ANALYSIS

Brian Boling
Oregon Dept. of Env. Quality - ODEQ
3150 NW 229th St., Suite 150
Hillsboro, OR 97124

June 22, 2012

ESC Sample # : L580755-04

Date Received : June 16, 2012
Description : Lower Columbia Slough

Site ID :

Sample ID : PCA1-02D (0-30)

Project # : 57-08-32 1888-00

Collected By : S. Gray
Collection Date : 06/06/12 13:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	69.3	0.100	%	2540G	06/19/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Brian Boling
Oregon Dept. of Env. Quality - ODEQ
3150 NW 229th St., Suite 150
Hillsboro, OR 97124

June 22, 2012

ESC Sample # : L580755-05

Site ID :

Project # : 57-08-32 1888-00

Date Received : June 16, 2012
Description : Lower Columbia Slough

Sample ID : PCA1-03S

Collected By : S. Gray
Collection Date : 06/07/12 11:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TOC (Total Organic Carbon)	19000	3.3	10.	mg/kg		USDA LO	06/22/12	1

U = ND (Not Detected)
MDL = Minimum Detection Limit = LOD = TRRP SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
Note:
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Reported: 06/22/12 09:32 Printed: 06/22/12 09:33

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REPORT OF ANALYSIS

Brian Boling
Oregon Dept. of Env. Quality - ODEQ
3150 NW 229th St., Suite 150
Hillsboro, OR 97124

June 22, 2012

ESC Sample # : L580755-06

Date Received : June 16, 2012
Description : Lower Columbia Slough

Site ID :

Sample ID : PCA3-04S

Project # : 57-08-32 1888-00

Collected By : S. Gray
Collection Date : 06/08/12 11:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TOC (Total Organic Carbon)	20000	3.3	10.	mg/kg		USDA LO	06/22/12	1

U = ND (Not Detected)
MDL = Minimum Detection Limit = LOD = TRRP SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
Note:
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REPORT OF ANALYSIS

Brian Boling
Oregon Dept. of Env. Quality - ODEQ
3150 NW 229th St., Suite 150
Hillsboro, OR 97124

June 22, 2012

ESC Sample # : L580755-07

Site ID :

Project # : 57-08-32 1888-00

Date Received : June 16, 2012
Description : Lower Columbia Slough

Sample ID : PCA2-01D (30-60)

Collected By : S. Gray
Collection Date : 06/13/12 09:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TOC (Total Organic Carbon)	22000	3.3	10.	mg/kg		USDA LO	06/22/12	1

U = ND (Not Detected)
MDL = Minimum Detection Limit = LOD = TRRP SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
Note:
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.
Reported: 06/22/12 09:32 Printed: 06/22/12 09:33

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L580755-03	WG598514	SAMP	Decachlorobiphenyl	R2219773	J1

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
06/22/12 at 09:33:27

TSR Signing Reports: 358
R5 - Desired TAT

Clients MUST use the State of Oregon COCs for all work. Create an NCF for any samples received on ESC COCs.

Sample: L580755-01 Account: OREGONDEQ Received: 06/16/12 09:00 Due Date: 06/22/12 00:00 RPT Date: 06/22/12 09:32

Sample: L580755-02 Account: OREGONDEQ Received: 06/16/12 09:00 Due Date: 06/22/12 00:00 RPT Date: 06/22/12 09:32

Sample: L580755-03 Account: OREGONDEQ Received: 06/16/12 09:00 Due Date: 06/22/12 00:00 RPT Date: 06/22/12 09:32

Sample: L580755-04 Account: OREGONDEQ Received: 06/16/12 09:00 Due Date: 06/22/12 00:00 RPT Date: 06/22/12 09:32
Extract/Hold for SV8082
Sample: L580755-05 Account: OREGONDEQ Received: 06/16/12 09:00 Due Date: 06/22/12 00:00 RPT Date: 06/22/12 09:32
Use container from -01
Sample: L580755-06 Account: OREGONDEQ Received: 06/16/12 09:00 Due Date: 06/22/12 00:00 RPT Date: 06/22/12 09:32
Use container from -02
Sample: L580755-07 Account: OREGONDEQ Received: 06/16/12 09:00 Due Date: 06/22/12 00:00 RPT Date: 06/22/12 09:32
Use container from -03

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Oregon Dept. of Env. Quality - ODEQ
Brian Boling
3150 NW 229th St., Suite 150

Hillsboro, OR 97124

Quality Assurance Report
Level II

L580755

June 22, 2012

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Total Solids	< .1	%			WG598485	06/19/12 07:45
Total Solids	< .1	%			WG598478	06/19/12 07:03
PCB 1016	< .017	mg/kg			WG598514	06/20/12 13:06
PCB 1221	< .017	mg/kg			WG598514	06/20/12 13:06
PCB 1232	< .017	mg/kg			WG598514	06/20/12 13:06
PCB 1242	< .017	mg/kg			WG598514	06/20/12 13:06
PCB 1248	< .017	mg/kg			WG598514	06/20/12 13:06
PCB 1254	< .017	mg/kg			WG598514	06/20/12 13:06
PCB 1260	< .017	mg/kg			WG598514	06/20/12 13:06
Decachlorobiphenyl		% Rec.	104.3	18.9-115.8	WG598514	06/20/12 13:06
Tetrachloro-m-xylene		% Rec.	105.3	31.8-115.7	WG598514	06/20/12 13:06
Total Solids	< .1	%			WG598628	06/21/12 09:46
TOC (Total Organic Carbon)	< 10	mg/kg			WG598733	06/22/12 08:52

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Total Solids	%	90.0	89.9	0.557	5	L580856-02	WG598485
Total Solids	%	68.0	72.8	6.55*	5	L580839-01	WG598478
Total Solids	%	87.0	86.9	0.0124	5	L580783-03	WG598628
TOC (Total Organic Carbon)	mg/kg	22000	22000	0	20	L580755-07	WG598733

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Total Solids	%	50	50.0	100.	85-115	WG598485
Total Solids	%	50	50.0	100.	85-115	WG598478
PCB 1016	mg/kg	.167	0.167	100.	64-120	WG598514
PCB 1260	mg/kg	.167	0.172	103.	72-130	WG598514
Decachlorobiphenyl				105.8	18.9-115.8	WG598514
Tetrachloro-m-xylene				107.0	31.8-115.7	WG598514
Total Solids	%	50	50.0	99.9	85-115	WG598628
TOC (Total Organic Carbon)	mg/kg	2600	2600	100.	50-150	WG598733

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Est. 1970

Oregon Dept. of Env. Quality - ODEQ
Brian Boling
3150 NW 229th St., Suite 150

Hillsboro, OR 97124

Quality Assurance Report
Level II

L580755

June 22, 2012

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
PCB 1016	mg/kg	0.181	0.167	108.	64-120	7.81	20	WG598514
PCB 1260	mg/kg	0.181	0.172	108.	72-130	5.01	20	WG598514
Decachlorobiphenyl				108.8	18.9-115.8			WG598514
Tetrachloro-m-xylene				108.9	31.8-115.7			WG598514
TOC (Total Organic Carbon)	mg/kg	2700	2600	104.	50-150	3.77	20	WG598733

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
PCB 1016	mg/kg	0.109	0	.167	65.3	10-165	L580614-15	WG598514
PCB 1260	mg/kg	0.109	0	.167	65.1	10-175	L580614-15	WG598514
Decachlorobiphenyl					104.8	18.9-115.8		WG598514
Tetrachloro-m-xylene					106.8	31.8-115.7		WG598514

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
PCB 1016	mg/kg	0.110	0.109	65.9	10-165	0.963	33	L580614-15	WG598514
PCB 1260	mg/kg	0.111	0.109	66.4	10-175	1.85	23	L580614-15	WG598514
Decachlorobiphenyl				106.9	18.9-115.8				WG598514
Tetrachloro-m-xylene				106.4	31.8-115.7				WG598514

Batch number /Run number / Sample number cross reference

WG598485: R2217225: L580755-01
WG598478: R2217229: L580755-04
WG598514: R2219773: L580755-01 02 03
WG598628: R2221054: L580755-02 03
WG598733: R2222273: L580755-05 06 07

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.