APPENDIX K

Data Validation Report

K-1: *Data Validation Report,* EcoChem (2015)

K-2: *Data Validation Report,* EcoChem (2016)

APPENDIX K-1

Data Validation Report, EcoChem (2015)

DATA VALIDATION REPORT

2015 DUWAMISH MARINE CENTER

Prepared for:

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Approved for Release:

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PROJECT NARRATIVE

Basis for the Data Validation

This report summarizes the results of the summary level validation (Stage 2A) performed on soil, sediment, and ground water samples and the associated laboratory and field quality control samples for the Duwamish Marine Center project sampling. A complete list of samples is provided in the Sample Index.

Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington, Analytical Resources, Inc., Tukwila, Washington and ALS Environmental, Kelso, Washington. The analytical methods and EcoChem project chemists are listed in the following table:

ANALYSIS	METHOD OF ANALYSIS	PRIMARY REVIEW	SECONDARY REVIEW
Volatile Organic Compounds (VOC)	SW8260C	E. Clayton	C. Frans
Semivolatile Organic Compounds (SVOC)	SW8270D-SIM	A. Bodkin	
PCB Aroclors	SW8082	B. Frans	
2,3,7,8-TCDD	EPA 1613B	B. Frans	
Total Petroleum Hydrocarbons – Diesel Range	NWTPH-Dx	B. Frans	
Total Petroleum Hydrocarbons – Gasoline Range	NWTPH-Gx & NWVPH	B. Frans	
Total & Dissolved Metals & Mercury	SW6020A, EPA 200.8 SW7471B, EPA 1631E	E. Clayton	
Grain Size	ASTM D422		
Total Organic Carbon	9060		
Moisture	SM2540B		

The data were reviewed using guidance and quality control criteria documented in the analytical methods; Quality Assurance Project Plan Duwamish Marine Center, SoundEarth Strategies, Inc., May 13, 2013; USEPA National Functional Guidelines for Organic Data Review (EPA, 1999 & 2008); and USEPA National Functional Guidelines for Inorganic Data Review (EPA, 2010 & 2014).

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

Data qualifier definitions, reason codes, and validation criteria are included as APPENDIX A. A Qualified Data Summary Table is included in APPENDIX B. Data Validation Worksheets will be kept on file at EcoChem, Inc. A qualified laboratory electronic data deliverable (EDD) is also submitted with this report.

Sample Index
Duwamish Marine Center

SDG	Sample ID	Lab Sample ID	Dioxins	NWTPH-Gx	NWTPH-Dx	VOCs	SIM VOC	SVOCs	SIM SVOCs	PCBs	Total Metals/Hg	Dissolved Metals/Hg	Grain Size	Wet Chemistry
1509146	CB01-20150911	1509146-001		✓	✓	✓		✓	✓	✓	✓			✓
	CB03-20150911	1509146-002		✓	✓	✓		✓	✓	✓	✓			✓
	CB04-20150911	1509146-003		✓	✓	✓		✓	✓	✓	✓			✓
	CB05-20150911	1509146-004	✓	✓	✓	✓		✓	✓	✓	✓			✓
	CB12-20150911	1509146-005		✓	✓	✓		✓	✓	✓	✓			✓
1510258	MW16-10-20151019	1510258-003		✓	✓	✓		✓	✓	✓	✓			
	MW16-13-20151019	1510258-004		✓	✓	✓		✓	✓	✓	✓			
	MW16-15-20151019	1510258-005		✓				✓	✓	✓	✓			
	MW16-18-20151019	1510258-006		✓	✓	✓		✓	✓	✓	✓			
	MW12D-08-20151019	1510258-009		✓	✓	✓		✓	✓	✓	✓			
	MW12D-14-20151019	1510258-012		✓	✓	✓		✓	✓	✓	✓			
	MW12D-16-20151019	1510258-013		✓	✓	✓		✓	✓	✓	✓			
	MW05-06-20151019	1510258-017		✓	✓	✓		✓	✓	✓	✓			
	MW05-10-20151019	1510258-018		✓	✓	✓		✓	✓	✓	✓			
	MW05-13-20151019	1510258-019		✓	✓	✓		✓	✓	✓	✓			
1510280	MW12-06-20151020	1510280-002		✓	✓	✓		✓	✓	✓	✓			
	MW12-11-20151020	1510280-003		✓	✓	✓		✓	✓	✓	✓			
	MW12-16-20151020	1510280-004		✓	✓	✓		✓	✓	✓	✓			
	MW08-06-20151020	1510280-005		✓	✓	✓		✓	✓	✓	✓			
	MW08-08-20151020	1510280-006		✓	✓	✓		✓	✓	✓	✓			
	MW08-15-20151020	1510280-008		✓	✓	✓		✓	✓	✓	✓			
	MW11-06-20151020	1510280-010		✓	✓	✓		✓	✓	✓	✓			
	MW11-11-20151020	1510280-011		✓	✓	✓		✓	✓	✓	✓			
	MW11-16-20151020	1510280-012		✓	✓	✓		✓	✓	✓	✓			
	MW07-04-20151020	1510280-014		✓	✓	✓		✓	✓	✓	✓			
	MW07-08-20151020	1510280-015		✓	✓	✓		✓	✓	✓	✓			
	MW07-13-20151020	1510280-016		✓	✓	✓		✓	✓	✓	✓			
1510291	MW06-06-20151021	1510291-002		✓	✓	✓		✓	✓	✓	✓			
	MW06-11-20151021	1510291-003		✓	✓	✓		✓	✓	✓	✓			
	MW06-14-20151021	1510291-004		✓	✓	✓		✓	✓	✓	✓			
	MW15-06-20151021	1510291-006		✓	✓	✓		✓	✓	✓	✓			
	MW15-11-20151021	1510291-007		✓	✓	✓		✓	✓	✓	✓			
	MW15-15-20151021	1510291-008		✓	✓	✓		✓	✓	✓	✓			
	MW13-04-20151021	1510291-010		✓	✓	✓		✓	✓	✓	✓			
	MW13-10-20151021	1510291-011		✓	✓	✓		✓	✓	✓	✓			
	MW13-18-20151021	1510291-013		✓	✓	✓		✓	✓	✓	✓			
	MW14-06-20151021	1510291-016		✓	✓	✓		✓	✓	✓	✓			
	MW14-11-20151021	1510291-017		✓				✓	✓	✓	✓			
	MW14-13-20151021	1510291-018		✓	✓	✓		✓	✓	✓	✓			
	MW14-20-20151021	1510291-020		✓	✓	✓		✓	✓	✓	✓			
1510313	MW09-08-20151022	1510313-002		✓	✓	✓		✓	✓	✓	✓			
	MW09-13-20151022	1510313-003		✓	✓	✓		✓	✓	✓	✓			
	MW09-16-20151022	1510313-004		✓	✓	✓		✓	✓	✓	✓			
	MW09D-05-20151022	1510313-006		✓	✓	✓		✓	✓	✓	✓			

Sample Index
Duwamish Marine Center

SDG	Sample ID	Lab Sample ID	Dioxins	NWTPH-Gx	NWTPH-Dx	VOCs	SIM VOC	SVOCs	SIM SVOCs	PCBs	Total Metals/Hg	Dissolved Metals/Hg	Grain Size	Wet Chemistry
1510313	MW09D-14-20151022	1510313-008		✓	✓	✓		✓	✓	✓	✓			
	MW09D-18-20151022	1510313-009		✓	✓	✓		✓	✓	✓	✓			
	MW10D-06-20151022	1510313-014		✓	✓	✓		✓	✓	✓	✓			
	MW10D-13-20151022	1510313-015		✓	✓	✓		✓	✓	✓	✓			
	MW10D-18-20151022	1510313-016		✓	✓	✓		✓	✓	✓	✓			
	MW10-06-20151022	1510313-020		✓	✓	✓		✓	✓	✓	✓			
	MW10-16-20151022	1510313-022		✓	✓	✓		✓	✓	✓	✓			
	MW10-18-20151022	1510313-023		✓	✓	✓		✓	✓	✓	✓			
1512172	MW06-20151217	1512172-001		✓	✓	✓		✓		✓	✓	✓		✓
	MW07-20151217	1512172-002		✓	✓	✓		✓		✓	✓	✓		✓
	MW09-20151217	1512172-003		✓	✓	✓		✓		✓	✓	✓		✓
	MW09D-20151217	1512172-004		✓	✓	✓		✓		✓	✓	✓		✓
	MW10-20151217	1512172-005		✓	✓	✓		✓		✓	✓	✓		✓
	MW10D-20151217	1512172-006		✓	✓	✓		✓		✓	✓	✓		✓
	MW12-20151217	1512172-007		✓	✓	✓		✓		✓	✓	✓		✓
	MW12D-20151217	1512172-008		✓	✓	✓		✓		✓	✓	✓		✓
	MW15-20151217	1512172-009		✓	✓	✓		✓		✓	✓	✓		✓
1512220	MW08-20151221	1512220-001		✓	✓	✓		✓		✓	✓	✓		✓
	MW11-20151221	1512220-002		✓	✓	✓		✓		✓	✓	✓		✓
	MW13-20151221	1512220-003		✓	✓	✓		✓		✓	✓	✓		✓
	MW14-20151221	1512220-004		✓	✓	✓		✓		✓	✓	✓		✓
	MW16-20151221	1512220-005		✓	✓	✓		✓		✓	✓	✓		✓
	MWFD1-20151221	1512220-006		✓	✓	✓		✓		✓	✓	✓		✓
	MWFD2-20151221	1512220-007		✓	✓	✓		✓		✓	✓	✓		✓

DATA VALIDATION REPORT
G-Logics, Inc. – 2015 Duwamish Marine Center
Volatile Organic Compounds - Method SW8260C

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1509146	5 Sediment	Stage 2A
1510258	9 Soil	Stage 2A
1510280	12 Soil	Stage 2A
1510291	12 Soil	Stage 2A
1510313	12 Soil	Stage 2A
1512172	9 Groundwater	Stage 2A
1512220	7 Groundwater	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

SDG 1509146: The collection date on the chain of custody (COC) did not match the EDD. The collection date entered by the laboratory was used to assess holding time.

SDGs 1510291 and 1510313: The method detection limit was greater than the reporting limit for bromodichloromethane.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Receipt, Preservation, and Holding Times	✓	Laboraotry Duplicates
2	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	✓	Target Analyte List
✓	Surrogate Compounds	1	Reporting Limits
1	Laboratory Control Samples (LCS)	✓	Reported Results
2	Matrix Spike (MS)		

✓Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

As stated in the validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C-6°C and samples must be analyzed within 14 days. For volatiles analysis, no action is taken if the cooler temperature is <10°C. If the cooler temperature is >10°C, associated sample results are estimated (J/UJ-1). The following exceptions were noted during validation:

SDG 15091476 and 1512172: The laboratory received the sample coolers at 9.2°C and 6.1°C. Although the temperatures were greater than the upper control limit, both were less than 10°C; no results were qualified.

SDG 1510258, 1510280, 1510291, 1510313: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

SDG 1510313: The container for MW10-16 was labeled MW10-15. The collection time was used to match the container to the parent sample listed on the COC.

Laboratory Blanks

To assess the impact of any blank contaminant on the reported sample results, an action level is established at five times (5x) the concentration reported in the blank. If a contaminant is reported in an associated field sample and the concentration is less than the action level, the result is qualified as not detected (U-7). No action is taken if the sample result is greater than the action level, or for non-detected results.

Laboratory blanks were analyzed at the appropriate frequency. Contaminant levels, associated samples, and action levels are documented in the data validation worksheets.

SDG 1509146: Methylene chloride was detected in the method blank. Associated samples results less than the action limit were qualified as not detected (U-7).

Field Blanks

Trip blanks were shipped to the field and accompanied samples from the field to the laboratory. Analyses of these trip blank samples was not requested, therefore data were not generated.

Field blanks were not submitted with this sampling event.

Laboratory Control Samples

Laboratory control samples (LCS) were analyzed at the required frequency of one per batch of 20 or fewer samples. With the exceptions noted below, all spike recoveries were within the laboratory control limits.

SDGs 1510280 and 1510291: The percent recoveries for 2-hexanone, acetone, vinyl chloride, and dichlorodifluoromethane (CFC-12) were greater than the upper control limits. The associated sample results were non-detect for these analytes; no data were qualified.

SDG 1512220: The percent recovery for chloromethane was greater than the upper control limit. The associated sample results were non-detect for this analyte; no data were qualified.

Matrix Spike

Matrix spike (MS) samples were analyzed at the appropriate frequency. When the MS %R value indicates a potential low bias, associated results are estimated (J/UJ-8L). Only the associated positive results are estimated (J-8H) if the %R value indicates a potential high bias. Qualifiers were only issued to the parent sample.

For some SDGs, a sample in the batch from another client was used as the parent sample for the matrix spike. No data were qualified based on results for these samples.

SDG 1510280: The MS analysis was performed using Sample MW07-08-20151020. The recoveries for several compounds were greater than the upper control limits. No positive results were detected in the parent sample; no qualification was required.

SDG 1510313: The MS analysis was performed using Sample MW10-18-20151022. The recoveries for bromomethane, chloroethane, trichlorofluoromethane, and dichlorodifluoromethane (CFC-12) were greater than the upper control limits. No positive results were detected in the parent sample; no qualification was required.

SDG 1512220: The MS analysis was performed using Sample MWFD1-20151221. The percent recovery for dichlorodifluoromethane (CFC-12) was greater than the upper control limit. No positive result was detected in the parent sample; no qualification was required. The carbon tetrachloride recovery was less than the lower control limit; the detection limit for the parent sample was estimated (UJ-8L).

Field Duplicates

For water samples, the RPD control limit is 25% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1512220: Samples MW08-20151221 & MWFD1-20151221 and MW11-20151221 & MWFD2-20151221 were identified as field duplicate sets. All acceptance criteria were met.

Target Analyte List

The QAPP/SAP did not specify a target analyte list.

Reporting Limits

The target reporting limits for samples were adjusted for sample size, moisture content, and required dilutions. No data were qualified.

Reported Results

No anomalies were noted during validation for evaluated results.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable as demonstrated by the surrogate, laboratory control sample (LCS) and matrix spike (MS) recovery values. Precision was also acceptable as demonstrated by the field duplicate values.

Detection limits were elevated due to method blank contamination and results were estimated based on one matrix spike recovery outlier.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2015 Duwamish Marine Center
Semivolatile Organic Compounds - Method SW8270D
Polynuclear Aromatic Hydrocarbons - Method SW8270D-SIM

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level	SVOC	PAH
1509146	5 Sediment	Stage 2A	✓	✓
1510258	10 Soil	Stage 2A	✓	✓
1510280	12 Soil	Stage 2A	✓	✓
1510291	13 Soil	Stage 2A	✓	✓
1510313	12 Soil	Stage 2A	✓	✓
1512172	9 Water	Stage 2A	✓	
1512220	7 Water	Stage 2A	✓	

DATA PACKAGE COMPLETENESS

With the exceptions noted below, the laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

SDG 1509146, 1510258, 1510280, 1510313: The laboratory PDF data package and electronic data deliverable (EDD) were missing the results for several analytes in the quality control (QC) samples. The laboratory was contacted and resubmitted the data package and EDD with the missing information.

SDG 1510291: The laboratory PDF data package and electronic data deliverable (EDD) were missing the results for several analytes in the quality control (QC) samples. The laboratory was contacted and resubmitted the data package and EDD, however, the missing data was still not included in the EDD. The QC samples were evaluated based on the PDF.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

TECHNICAL DATA VALIDATION

1	Sample Preservation and Holding Times	2	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)
2	Laboratory Blanks	2	Field Duplicates
1	Field Blanks	1	Target Analyte List
2	Surrogate Compounds	✓	Reporting Limits
2	Laboratory Control Samples (LCS)	2	Reported Results
2	Laboratory Duplicates (DUP)		

✓Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Preservation and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C - 6°C and be extracted within 7 days for aqueous samples and 14 days for soil samples. Sample extracts must be analyzed within 40 days of extraction. The following exceptions were noted during validation:

SDG 1509146: The laboratory received the cooler at a temperature of 9.2°C. The semivolatile organic compounds determined by this method are stable at this temperature; no results qualified.

SDGs 1510258, 1510280, 1510291, 1510313 and 1512172: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

SDG 1510280: Although only method SW8270 was requested on the COC, the samples were analyzed by both full scan and SIM.

Method Blanks

To assess the impact of any blank contaminant on the reported sample results, an action level is established at five times (5x) the concentration reported in the blank. If a contaminant is reported in an associated field sample and the concentration is less than the action level, the result is qualified as not detected (U-7). No action is taken if the sample result is greater than the action level, or for non-detected results.

Laboratory blanks were analyzed at the appropriate frequency. Contaminant levels, associated samples, and action levels are documented in the data validation worksheets.

SDG 1512172: Bis(2-ethylhexyl)adipate was detected in the method blank. A positive result for this compound in Sample MW12D-20151217 was detected at a concentration less than the action level and was qualified as not detected (U-7) at the reported concentration.

Field Blanks

Field blanks were not submitted with these SDGs.

Surrogate Compounds

For full scan analysis (8270D), the surrogate compounds 2,4,6-tribromophenol, 2-fluorobiphenyl, nitrobenzene-d5, phenol-d6, and terphenyl-d14, were added to all field and batch QC samples. For selected ion monitoring (SIM) analysis (8270D-SIM), the surrogate compounds terphenyl-d14 and 2-fluorobiphenyl were added to all field and batch QC samples.

When one or more acid surrogate percent recovery (%R) values or two or more base/neutral surrogate %R values are below the control limits and indicate a potential low bias, associated results for the affected fraction are estimated (J/UJ-13L).

When one or more acid surrogate %R values or two or more base/neutral surrogate %R values are greater than the control limit and indicate a potential high bias, only the positive results in a fraction for a sample are estimated (J-13H).

If there is one surrogate outlier in a fraction that is less than 10% recovery, the reporting limits for that fraction are rejected (R-13L) and the detections are estimated (J-13L).

Qualifiers are not applied to QC samples or when a sample is analyzed at a dilution factor of 10x or greater. With the exceptions noted below, all surrogate spike recoveries were within the laboratory control limits.

SDG 1509146: For Sample CB01-20150910, the %R value for nitrobenzene-d5 was less than the lower control limit at 8.6%, indicating a potential very low bias. There were no positive results for base-neutral compounds in the sample. Reporting limits for all full scan base-neutral compounds were rejected (R-13L).

SDG 1512172: The acid surrogate compound, 2,4,6-tribromophenol was not recovered in Samples MW10-20151217, MW10D-20151217, MW12-20151217, MW12D-20151217, and MW15-20151217, indicating a potential very low bias. Because there were no detections of acid compounds in these samples, the reporting limits for all acid compounds were rejected (R-13L).

SDG 1512220: For Sample MW11-20151221, the %R value for 2,4,6-tribromophenol was less than the lower control limit at 17%, indicating a potential low bias. All reporting limits for the acid compounds in this sample were estimated (UJ-13L).

Laboratory Control Samples

Laboratory control samples (LCS) were analyzed at the required frequency of one per batch of 20 or fewer samples. When the LCS %R value indicates a potential low bias, associated results are estimated (J/UJ-10L). Only the associated positive results are estimated (J-10H) if the %R value indicates a potential high bias. Qualifiers were issued to all samples in an extraction batch. If there is an outlier

that is less than 10% recovery, the reporting limits for that fraction are rejected (R-13L) and the detections are estimated (J-13L).

SDG 1510280, 1510291: The %R value for benzoic acid was less than the lower control limit for the LCS in batch 12187. There were no positive results for this compound in the associated samples. All reporting limits were estimated (UJ-10L).

SDG 1512172, 1510313: Benzyl alcohol was not recovered in the LCS and was not detected the associated samples. All reporting limits for benzyl alcohol were rejected (R-10L).

SDG 1512220: The %R values for 2,4-dimethylphenol, 4-nitrophenol, and benzyl alcohol were less than 10%. There were no positive results for these compounds in the associated samples except for one detection of 2,4-dimehtylphenol in sample MW16-20151221 that was estimated (J-10L). All reporting limits for the non-detected analytes were rejected (R-10L).

Laboratory Duplicates

For water samples, the laboratory RPD control limit is 35% for results greater than 5x the RL. For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. With the exception noted below, all sample duplicate analyses were within the laboratory control limits.

For some SDGs, a sample in the batch from another client was used as the parent sample for the duplicate. No data were qualified based on results for these samples.

SDG 1510280: The laboratory duplicate analyses were performed using a sample from another SDG (batch QC) and Sample MW11-11-20151020. For the batch QC, laboratory precision was acceptable. For Sample MW11-11-20151020, the parent sample exhibited low concentrations of three analytes and non-detects for all other target PAH analytes. The duplicate analysis exhibited significant positive concentrations for all but three analytes that were not detected. The laboratory was contacted and indicated that they reanalyzed the sample and duplicate with similar results. It is suspected that there may have been a misidentification of sample extracts during analysis. Because this data is from October 2015, there was no additional action the laboratory could take to investigate the cause of the difference in the results. All results with positive detections in the duplicate sample were estimated (J/UJ-9) in the parent sample.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the appropriate frequency. No action is taken unless both the MS and MSD %R values are outside the control limits for MS/MSD %R outliers. Precision is evaluated using the RPD values calculated between the MS and MSD results. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample. Qualifiers were only issued to the parent sample.

When the MS/MSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8L). Only the associated positive results are estimated (J-8H) if the %R values indicate a potential high bias. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty.

For some SDGs, a sample in the batch from another client was used as the parent sample for the matrix spikes. No data were qualified based on results for these samples.

SDG 1510258: For this SDG, the laboratory extracted an MS, but not an MSD. The MS analyses were performed using Sample MW16-13-20151019. The %R values for 1-methylnaphthalene, anthracene, pyrene, and carbazole were less than the lower control limits, indicating a potential low bias. Benzoic acid was not recovered in the MS. Because benzoic acid is a poorly responding analyte and the LCS recovery was in control, the parent sample detection limit was estimated (UJ-8L) not rejected. Results for all of the other compounds with low MS recoveries were estimated (J-8L). There were also %R values for several other compounds that were less the lower control limit, however because the concentrations in the parent sample were greater than 4X the concentration of the spike, no action was required.

SDG 1510280: For this SDG, the laboratory extracted an MS, but not an MSD. The MS analyses were performed using a Sample MW11-11-20151020. The %R value for benzoic acid was less than the lower control limit, indicating a potential low bias. The positive result for benzoic acid in the parent sample was estimated (J-8L).

SDG 1510313: For this SDG, the laboratory extracted an MS, but not an MSD. The MS analyses were performed using Sample MW09-08-20151022. Benzyl alcohol was not recovered in the MS indicating a potential low bias. The benzyl alcohol result in the parent sample was previously rejected based on an LCS outlier. No further action was required.

SDG 1512220: The MS/MSD analyses were performed using Sample MW11-20151221. The %R values for 2,4-dimethylphenol, 4-chloro-3-methylphenol, 4-chloroaniline, 4-methylphenol, 4-nitrophenol, and benzyl alcohol were less than the lower control limits, indicating a potential low bias. Reporting limits for 2,4-dimethylphenol, 4-nitrophenol, and benzyl alcohol were previously rejected based on LCS outliers. The reporting limits for the remaining compounds were estimated (UJ-8) in the parent sample.

Field Duplicates

For water samples, the RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1512220: Two sets of field duplicates were submitted with this SDG: MW08-20151221 & MWFD1-20151221 and MW11-20151221 & MWFD2-20151221. Field precision was acceptable.

Target Analyte List

Results for additional compounds not listed on the QAPP Target Compound List were reported for some SDGs.

Reported Results

Several reporting limits were greater than the QAPP PQL values.

SDG 1510280, 1510291, 1512172, 1512220: Results were reported down to the method detection limit for several compounds. The laboratory flagged results for analytes that were not detected with "MDL" and J-flagged positive results less than the reporting limit.

SDGs 1510280 and 1510291: For the samples in the table below, all samples in SDG 1510291 and all QC samples, results for bis(2-ethylhexyl)phthalate, butylbenzylphthalate, dimethyl phthalate, and di-n-butyl phthalate were reported from the SVOC 8270D analyses in the PDF but from the PAH 8270-SIM analyses in the EDD. The laboratory indicated that the data could not be retrieved from archive in order to provide the QC sample results for these compounds for the analyses in SIM mode. QC sample results for these compounds was only evaluated using the full scan results.

MW11-11-20151020	MW11-16-20151020
MW07-04-20151020	MW07-08-20151020
MW07-13-20151020	

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable, as demonstrated by the surrogate, laboratory control sample, and MS/MSD percent recovery values. With the exceptions previously noted, precision was also acceptable as demonstrated by the laboratory duplicate, MS/MSD, and field duplicate relative percent difference values.

Results were estimated due to surrogate, LCS, laboratory duplicate, MS/MSD, and laboratory duplicate outliers. Reporting limits were raised due to method blank contamination.

Data were rejected due to surrogate and LCS outliers.

Data that were rejected should not be used for any purpose.

All other data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2015 Duwamish Marine Center
PCB Aroclors by Method SW8082

This report documents the review of analytical data from the analyses of soil, catch basin sediment, and ground water samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical Services, Inc. Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1509146	5 sediment samples	Stage 2A
1510258	10 soil samples	Stage 2A
1510280	12 soil samples	Stage 2A
1510291	13 soil samples	Stage 2A
1510313	12 soil samples	Stage 2A
1512172	9 groundwater samples	Stage 2A
1512220	7 groundwater samples	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

Ten percent (10%) of the results in the laboratory EDD were verified by comparison to the laboratory data package. No errors were noted.

SDG 1509146: The collection date on the chain of custody (COC) did not match the EDD. The collection date entered by the laboratory was used to assess holding time.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed in the following table

2	Sample Receipt, Preservation, and Holding Times	2	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)
1	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	✓	Target Analyte List
1	Surrogate Compounds	1	Reporting Limits
1	Laboratory Control Samples (LCS/LCSD)	✓	Reported Results

✓ Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C - 6°C and be extracted within 7 days for aqueous samples and 14 days for soil samples. Sample extracts must be analyzed within 40 days of extraction. The following exceptions were noted during validation:

SDG 1509146: The laboratory received the cooler at a temperature of 9.2°C. PCBs are stable at this temperature; no results qualified.

SDGs 1510258, 1510280, 1510291, 1510313, and 1512172: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

SDG 1510258: All samples were prepared past the 14 day holding time on the 17th day; results were qualified J/UJ-1.

Field Blanks

No field blanks were submitted with this sampling event.

Surrogate Compound

The surrogate compounds decachlorobiphenyl (DCBP) and tetrachloro-m-xylene (TCMX) were added to all samples. When the surrogate %R values indicate a potential low bias, associated results are estimated (J/UJ-13L). Only the associated positive results are estimated (J-13H) if the %R values indicate a potential high bias. If one or both surrogates are outside the control limits, the associated results in the sample are qualified. Qualifiers are not applied to QC samples. With the exceptions noted below, all surrogate recovery values were within the laboratory control limits.

SDG 1509146: The percent recovery value for the surrogate compound, DCBP, was greater than the upper control limit in Sample CB12-20150910. Target analytes were not detected in this sample; no results qualified.

SDG 1510291: The surrogate %R value was greater than the upper control limit in the Samples MW06-06-20151021 and MW06-14-20151021; there were no positive results in the associated samples; no results were qualified.

SDG 1510313: The surrogate %R value was greater than the upper control limit in the samples listed below, there were no positive results in the associated samples; therefore no results were qualified.

MW09D-05-20151022	MW10D-13-20151022
MW09D-14-20151022	MW10D-18-20151022
MW09D-18-20151022	MW10-06-20151022
MW10D-06-20151022	

Laboratory Control Samples

Laboratory control samples (LCS) were analyzed at the required frequency of one per batch of 20 or fewer samples. With the following exception, all LCS recovery values were within the laboratory control limits.

SDGs 1510280 and 1510291: The %R value for Aroclor 1254 for both LCS samples associated with two extraction batches were greater than the upper control limit. There were no positive results for this analyte in the associated samples; no results qualified.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate samples (MS/MSD) were analyzed at the appropriate frequency. No action is taken unless both the MS and MSD %R values are outside the control limits for MS/MSD %R outliers. Precision is indicated by the relative percent difference (RPD) between the MS and MSD values. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample. Qualifiers were only issued to the parent sample.

When the MS/MSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8). Only the associated positive results are estimated (J-8) if the %R values indicate a potential high bias. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty.

For some SDGs, a sample in the batch from another client was used as the parent sample for the matrix spikes. No data were qualified based on results for these samples.

SDG 1510291: Sample MW14-13-20151021 was used for the MS/MSD analyses. The %R values for the MS and MSD were less than the lower control limit for Aroclor 1016. All associated Aroclor results except Aroclor 1260 were estimated (UJ-8L) in the parent sample.

Field Duplicates

For water samples, the RPD control limit is 35% for results greater than 5x the RL. For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 20% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1512220: Samples MW08-20151221 & MWFD1-20151221 and MW11-20151221 & MWFD2-20151221 were identified as field duplicate sets. All acceptance criteria were met.

Target Analyte List

Results were reported for all compounds on the target analyte list.

Reporting Limits

The reporting limits were adjusted for sample aliquots, moisture, and dilutions.

Reported Results

The target analyte reporting limits specified in the QAPP/SAP were met.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values. Precision was also acceptable as demonstrated by the LCS/LCSD, MS/MSD, and field duplicate relative percent difference values.

Results were estimated based on holding time outliers and matrix spike recovery outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
2,3,7,8-TCDD by EPA 1613B

This report documents the review of analytical data from the analyses of one sediment sample and the associated laboratory quality control (QC) samples. Samples were analyzed by ARI Resources, Inc. Tukwila, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1509146	1 sediment sample	Stage 4

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

Ten percent (10%) of the results in the laboratory EDD were verified by comparison to the laboratory data package. No errors were noted.

TECHNICAL DATA VALIDATION

The quality control (QC) requirements that were reviewed are listed in the following table.

1	Sample Receipt, Preservation, and Holding Times	✓	Ongoing Precision and Recovery (OPR)
✓	System Performance and Resolution Checks	1	Certified Reference Material
✓	Initial Calibration (ICAL)	1	Field Duplicates
✓	Calibration Verification (CVER)	✓	Target Analyte List
✓	Laboratory Blanks	✓	Reporting Limits
1	Field Blanks	2	Compound Identification
✓	Labeled Compound Recovery	✓	Compound Quantitation
1	Matrix Spike/Matrix Spike Duplicates (MS/MSD)	1	Calculation Verification

✓Method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.
1 Quality control results are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C - 6°C and be extracted and analyzed within 1 year for sediment samples. The following exception was noted during validation

The laboratory received the cooler at a temperature of 9.2°C. Dioxins are stable at this temperature; no results qualified.

Field Blanks

No field blank samples were submitted with this SDG.

Matrix Spike/Matrix Spike Duplicate

There were no MS/MSD samples analyzed with this SDG.

Certified Reference Material

There were no certified reference material samples analyzed with this SDG.

Field Duplicates

There were no field duplicates identified with this SDG.

Compound Identification

For several samples, the laboratory reported EMPC or "estimated maximum possible concentrations" values for one or more of the target analytes. An EMPC value is reported when a peak was detected but did not meet identification criteria, as required by the method; therefore the result cannot be considered as positive identification for the analyte. To indicate that the reported result for an individual analyte is in effect an elevated detection limit, the EMPC values were qualified as estimated.

The laboratory reported an EMPC for 2,3,7,8-TCDD in Sample CB05-20150910; the result was qualified as not detected (U-25).

Calculation Verification

Calculation verifications were performed for this sample delivery group (SDG). No calculation or transcription errors were found.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the labeled compound and OPR recoveries. Because laboratory precision was not measured, this parameter could not be evaluated.

One detection limit was elevated based on an ion ratio outlier.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2015 Duwamish Marine Center
Gasoline Range Organics - Method NWTPH-Gx

This report documents the review of analytical data from the analyses of soil, catch basin sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1509146	5 sediment samples	Stage 2A
1510258	10 soil samples	
1510280	12 soil samples	
1510291	12 soil samples	
1510313	12 soil samples	
1512172	9 groundwater samples	
1512220	7 groundwater samples	

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

SDG 1509146: The collection date on the chain of custody (COC) did not match the EDD. The collection date entered by the laboratory was used to assess holding time.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Receipt, Preservation, and Holding Times	✓	Laboratory Duplicates
✓	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	✓	Target Analyte List
✓	Surrogate Compounds	✓	Reporting Limits
✓	Laboratory Control Samples (LCS)	✓	Reported Results
2	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)		

✓ Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

As stated in the validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C-6°C and samples must be analyzed within 14 days. For volatiles analysis, no action is taken if the cooler temperature is <10°C. If the cooler temperature is >10°C, associated sample results are estimated (J/UJ-1). The following exceptions were noted during validation:

SDG 15091476 and 1512172: The laboratory received the cooler at 9.2°C and 6.1°C. Although the temperatures were greater than the upper control limit, they were less than 10°C; no results were qualified.

SDG 1510258, 1510280, 1510291, 1510313: The laboratory received coolers with temperatures greater than the upper control limit. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were not analyzed. Accuracy was evaluated by the surrogate and laboratory control sample results. Precision was evaluated using the relative percent difference (RPD) values calculated between the laboratory duplicate sample results.

Field Blanks

Field blanks were not submitted with this sampling event.

Field Duplicates

For water samples, the RPD control limit is 35% for results greater than 5x the RL. For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1512220: Samples MW08-20151221 & MWFD1-20151221 and MW11-20151221 & MWFD2-20151221 were identified as field duplicate sets. All acceptance criteria were met.

Target Analyte List

The target analyte reporting limits specified in the QAPP/SAP were met.

Reported Results

No anomalies were noted during validation for evaluated results.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate and laboratory control sample (LCS) recovery values. Precision was also acceptable as demonstrated by the laboratory and field duplicate RPD values.

No data were qualified for any reason.

All data are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2015 Duwamish Marine Center
Diesel Range Organics - Method NWTPH-Dx

This report documents the review of analytical data from the analyses of soil, catch basin sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1509146	5 sediment samples	Stage 2A
1510258	10 soil samples	Stage 2A
1510280	12 soil samples	Stage 2A
1510291	12 soil samples	Stage 2A
1510313	12 soil samples	Stage 2A
1512172	9 water samples	Stage 2A
1512220	7 Groundwater	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

SDG 1509146: The collection date on the chain of custody (COC) did not match the EDD. The collection date entered by the laboratory was used to assess holding time.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times	2	Laboratory Duplicates
✓	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	✓	Target Analyte List
2	Surrogate Compounds	1	Reporting Limits
✓	Laboratory Control Samples (LCS)	✓	Reported Results
✓	Matrix Spikes/Matrix Spike Duplicates		

✓Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Preservation and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C - 6°C and be extracted within 7 days for aqueous samples and 14 days for soil samples. Sample extracts must be analyzed within 40 days of extraction. The following exceptions were noted during validation:

SDG 1509146: The laboratory received the cooler at a temperature of 9.2°C. Diesel and heavy oil are stable at this temperature; no results qualified.

SDGs 1510258, 1510280, 1510291, 1510313 and 1512172: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

Field Blanks

No field blanks were submitted with this sampling event.

Surrogate Compounds

The surrogate compounds o-terphenyl and 2-fluorobiphenyl were added to all samples. When the surrogate %R values indicate a potential low bias, associated results are estimated (J/UJ-13L). Only the associated positive results are estimated (J-13H) if the %R values indicate a potential high bias. If one or both surrogates are outside the control limits, the associated results in the sample are qualified. Qualifiers are not applied to QC samples. With the exceptions noted below, all surrogate recovery values were within the laboratory control limits

SDG 1510280: For Sample MW08-06-20151020, both surrogate recoveries were greater than the upper control limits. There were no positive results in this sample; no results were qualified.

SDG 1512220: For Sample MW16-20151221, o-terphenyl recovered less than the lower control limit. The associated sample results were estimated (J/UJ-13L).

Laboratory Duplicates

For soil samples, the laboratory RPD control limit is 50% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 2x the RL. For water samples, the laboratory RPD control limit is 35% for results greater than 5x the RL. For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL.

For some SDGs, a sample in the batch from another client was used as the parent sample for the duplicate. No data were qualified based on results for these samples.

SDG 1510258: The laboratory analyzed sample MW16-15-20151019 as a duplicate. The RPD for Heavy Oil was greater than the upper control limit. Diesel was detected in the parent sample at a concentration greater than 5x the RL, but was not detected in the duplicate sample. Results for both analytes were estimated (J/UJ-9) in the parent sample.

Target Analyte List

The target analyte reporting limits specified in the QAPP/SAP were met.

Compound Identification

No anomalies were noted during validation for compound identification.

Field Duplicates

For water samples, the laboratory RPD control limit is 35% for results greater than 5x the RL. For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL.

SDG 1512220: Samples MW08-20151221 & MWFD1-20151221 and MW11-20151221 & MWFD2-20151221 were identified as field duplicate sets. All acceptance criteria were met.

Reported Results

No anomalies were noted during validation for evaluated results.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable, as demonstrated by the surrogate, laboratory control sample, and MS/MSD percent recovery values. With the exceptions noted above, precision was also acceptable as demonstrated by the MS/MSD, laboratory duplicate, and field duplicate relative percent difference values.

Results were estimated based on a surrogate recovery outlier and laboratory duplicate precision outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2015 Duwamish Marine Center
Total Metals - Methods SW6020A & SW7471A
Total & Dissolved Metals – Methods EPA 200.8 & 1631E

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1509146	5 Sediment	Stage 2A
1510258	10 Soil	Stage 2A
1510280	12 Soil	Stage 2A
1510291	13 Soil	Stage 2A
1510313	12 Soil	Stage 2A
1512172	9 Groundwater	Stage 2A
1512220	7 Groundwater	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

SDG 1509146: The collection date on the chain of custody (COC) did not match the EDD. The collection date entered by the laboratory was used to assess holding time.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Receipt, Preservation, and Holding Times	2	Laboratory Duplicates
1	Laboratory Blanks	2	Field Duplicates
1	Field Blanks	1	Reporting Limits
✓	Laboratory Control Samples (LCS)	✓	Reported Results
2	Matrix Spikes (MS) and Matrix Spike Duplicates (MSD)		

✓ Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 0° to 6°C. With the exceptions noted below, the laboratory received the sample coolers within the advisory temperature range.

SDG 1509146: The sample cooler temperature was greater than the upper control limit at 9.2°C. This outlier did not affect data quality; no data were qualified.

SDGs 1510258, 1510280, 1510291, 1510313, and 1512172: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

Laboratory Blanks

To assess the impact of any blank contaminant on the reported sample results, an action level is established at five times (5x) the concentration reported in the blank. If a contaminant is reported in an associated field sample and the concentration is less than the action level, the result is qualified as not detected (U-7). No action is taken if the sample result is greater than the action level, or for non-detected results. For laboratory blanks that are less than the negative MDL, positive results less than the action level of five times the absolute value of the blank concentration are estimated (J-7) and non-detects are estimated (UJ-7) to indicate a potential low bias.

Laboratory blanks were analyzed at the appropriate frequency. Contaminant levels, associated samples, and action levels are documented in the data validation worksheets.

SDG 1509146: Chromium was detected in the method blank. All chromium results in the associated samples were greater than the action level or were non-detect; no data were qualified.

Field Blanks

No field blanks were included with this analytical data set.

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate samples (MS/MSD) were analyzed at the proper frequency of one per 20 samples.

For accuracy, where analyte concentrations were less than 4x the spike amount, the percent recovery (%R) values were evaluated. If the percent recovery values indicate a potential low bias, associated results are estimated (J/UJ-8L). If the %R values indicate a potential high bias, only the associated positive results are estimated (J-8H). If one %R value indicates a potential low bias and the other %R value indicates a potential high bias, the data were estimated with no bias indication (J/UJ-8). Also, no qualifiers were added for single outlier in the MS or MSD only.

For %R values less than 30% (indicating an extreme low bias), the results for the post digestion spike (PDS) were also evaluated. If the post spike %R values were acceptable, then associated results were estimated (J/UJ-8L). If the post spike %R value was also less than the 75% lower control limit, the positive results were estimated (J-8L) and the non-detects were rejected (R-8L).

Precision is indicated by the relative percent difference (RPD) between the MS and MSD values. RPD values outside the control limit of 20% indicate uncertainty in the measured results for the sample and positive results are estimated (J-9).

For some SDGs, a sample in the batch from another client was used as the parent sample for the matrix spikes. These batch QC results were evaluated from the pdf data package.

The following elements were qualified in one or more samples based on %R and/or RPD value outliers of the QAPP control limits. Qualifiers were issued to all samples associated with a QC batch.

SDG	Parent Sample ID	Analyte	Total/ Dissolved	MS %R	MSD %R	PDS %R	Potential Bias	Action
1509146	Batch QC	Antimony	Total	25.6	26.6	95.0	Low	J-8L
1510258	Batch QC	Antimony		28.3	27.9	95.8		J/UJ-8L
		Lead		55.8	30.7	115		J-8L
1510280	Batch QC	Antimony		26.3	26.5	94.8		J/UJ-8L
		Silver		67.5	71.5	70.5		
1510291	MW06-06-20151021	Antimony		43.4	42.7	88.8		
		Silver		73.9	74.6	71.1		
1510313	Batch QC	Antimony		23.8	29.2	95.9		

Laboratory Duplicates

For laboratory duplicate samples, the RPD control limit is 20% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL for aqueous samples and less than 2 times the RL for soil samples. RPD and difference values outside the control limit of 20% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1509146: A batch QC sample was analyzed as the laboratory duplicate. The RPD value for arsenic was greater than the control limit at 28.2%. All associated samples were estimated (J-9).

SDG 1510280: A batch QC was analyzed as the laboratory duplicate. The RPD value for lead was greater than the control limit at 24.8%. All associated samples were estimated (J-9).

SDG 1510291: Sample MW06-06-20151021 was analyzed as the laboratory duplicate. The RPD values for arsenic and zinc were greater than the control limit at 24.2% and 141%, respectively. All associated samples were estimated (J-9).

Field Duplicates

For water samples, the RPD control limit is 35% for results greater than 5x the RL. For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1512220: Sample sets MW08-20151221 & MWFD1-20151221 and MW11-20151221 & MWFD2-20151221 were identified as field duplicates. For Samples MW08-20151221 & MWFD1-20151221, the difference values for total mercury and total zinc exceeded the control limit. All associated results were estimated (J/UJ-9) in the parent and duplicate samples.

Reporting Limits

Several samples were diluted due to interferences, elevated target analytes, or other factors and the reporting limits were raised.

Reported Results

No anomalies were noted during validation for evaluated results.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical methods. With the exceptions noted above, accuracy was acceptable, as demonstrated by the laboratory control sample and matrix spike %R values. With the exceptions noted previously, precision was acceptable as demonstrated by the matrix spike and laboratory and field duplicate RPD values.

Results were estimated based on matrix spike recovery outliers, and laboratory duplicate and field duplicate precision outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2015 Duwamish Marine Center
Particle Size Analysis – Method ASTM D422
Total Organic Carbon – SW 9060
Percent Moisture – SM 2540B

This report documents the review of analytical data from the analyses of soil and catch basin sediment samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
1509146	5 Sediment	Stage 2A
1510258	10 Soil	Stage 2A
1510280	12 Soil	Stage 2A
1510291	13 Soil	Stage 2A
1510313	12 Soil	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

All SDGs: The laboratory did not include analytical results for the percent moisture and/or grainsize analyses in the electronic data deliverable (EDD). The results were evaluated from the laboratory report.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

SDG 1509146: The collection date on the chain of custody (COC) did not match the EDD. The collection date entered by the laboratory was used to assess holding time.

TECHNICAL DATA VALIDATION

This report documents the review of analytical QC requirements as listed in the following table.

1	Sample Receipt, Preservation, and Holding Times	✓	Laboratory Duplicates
✓	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	1	Reporting Limits
✓	Laboratory Control Samples	✓	Reported Results
✓	Matrix Spikes (MS)		

✓Method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.
1 Quality control results are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 0° to 6°C. With the following exceptions noted below, the laboratory received the sample coolers within the advisory temperature range.

SDG 1509146: The sample cooler temperature was greater than the upper control limit at 9.2°C. This outlier did not impact data quality; no data were qualified.

SDGs 1510258, 1510280, 1510291, and 1510313: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

Field Blanks

No field blanks were submitted.

Laboratory Control Samples

Laboratory control samples (LCS) were analyzed at the required frequency of one per batch of 20 or fewer samples. All spike recoveries were within the laboratory control limits.

Field Duplicate Analysis

Field duplicates were not included in this data set.

Reported Results

No anomalies were noted during validation for evaluated results.

OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the laboratory control sample and matrix spike/matrix spike duplicate recoveries. Precision was also acceptable as demonstrated by the matrix spike/matrix spike duplicate and laboratory duplicate relative percent difference values.

No data were qualified for any reason.

All data, as reported, are acceptable for use.

ECOCHEM
Data Quality

APPENDIX A

DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler temperature, pH, summa canister pressure); Exceeded Holding Times
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
	5A	Initial Calibration (RF, %RSD, r^2)
	5B	Calibration Verification (CCV, CCAL; RF, %D, %R) Use bias flags (H,L)[1] where appropriate
	5C	Initial Calibration Verification (ICV %D, %R) Use bias flags (H,L)[1] where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)[1] for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS and/or MSD) Recoveries Use bias flags (H,L)[1] where appropriate
	9	Precision (all replicates: LCS/LCSD, MS/MSD, Lab Replicate, Field Replicate)
	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)[1] where appropriate
	12	Reference Material Use bias flags (H,L)[1] where appropriate
	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)[1] where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)[1] where appropriate
	19	Internal Standard Performance (i.e., area, retention time, recovery)
	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
	3	2nd column confirmation (RPD or %D)
	4	Tentatively Identified Compound (TIC) (associated with NJ only)
	20	Calibration Range or Linear Range Exceeded
	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, re-extractions, etc. Associated with "R" and "DNR" only)
	14	Other (See DV report for details)
	26	Method QC information not provided

[1] H = high bias indicated
L = low bias indicated

Volatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8260C)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	4°C±2°C Aqueous: HCl to pH < 2 Current SW846 criterion is ≤ 6° C [3]	NFG [1] Method [3]	**If required by project:** J (pos)/UJ (ND) if greater than 6° C	1	Use **PJ** for temp outliers; see **TM20** if pH ≤ 2, reject 2-chloroethyl vinyl ether (R-1) some projects may require methanol preserved soils/seds
Holding Time	**Aqueous:** 14 days preserved 7 Days: unpreserved **Solid:** 14 Days	NFG [1] Method [3]	J (pos)/UJ (ND) if HT exceeded J (pos)/R (ND) if gross exceedance (> 2x HT)	1	Gross exceedance = > 2x HT, as per 1999 NFG
Instrument Performance					
Tuning	BFB Beginning of each 12 hour period Use method or project acceptance criteria	NFG [1] Method [3]	R (pos/ND) all analytes in all samples associated with the tune	24	
Initial Calibration **Sensitivity**	Minimum 5 standards RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders * RRF ≥ 0.005 1,4-dioxane	NFG [1] Method [3]	Use **PJ** to qualify J (pos)/UJ (ND)	5A	**TM-06** EcoChem Policy for the Evaluation and Qualification of GCMS Instrument Performance **PJ** - no action if response is stable (ICAL RSD and CCAL %D acceptable)
Initial Calibration **Stability**	%RSD ≤ 20% except: %RSD ≤ 40% poor responders * %RSD ≤ 50% 1,4-dioxane	NFG [1] Method [3]	J (pos) if %RSD > limit	5A	
Initial Calibration Verification	Second source analyzed immediately after ICAL %R 70% - 130%	Method [3]	J (pos) %R > UCL J (pos)/UJ (ND) %R < LCL	5A (H,L)[4]	QAPP may have overriding accuracy limits.
Continuing Calibration **Sensitivity**	RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders * RRF ≥ 0.005 1,4-dioxane	NFG [1] Method [3]	Use **PJ** to qualify J (pos)/UJ (ND)	5B	see ICAL RRF guidance
Continuing Calibration **Stability**	%D ≤ 25% except: %D ≤ 40% poor responders * %D ≤ 50% 1,4-dioxane	NFG [1] Method [3]	J (pos) - %D > control limit (high bias) J (pos)/UJ (ND) - %D < -control limit (low bias)	5B (H,L)[4]	

Volatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8260C)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch (of ≤ 20 samples) No detected compounds > MDL	NFG (2) Method (3)	U (pos) if result is < 5X or 10X action level	7	10X action level for methylene chloride, acetone, & 2-butanone. 5X for all other target analytes **Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review TB, qualify as needed** **#3 - Review FB, qualify as needed** **Note: Actions as per NFG 1999**
	No TICs present		R (pos) TICs using 10X rule		
Trip Blank (TB)	No detected compounds > MDL	NFG (2) Method (3)	U (pos) if result is < 5X or 10X action level	6	
Field Blank (FB)	No detected compounds > MDL	NFG (2) Method (3)	U (pos) if result is < 5X or 10X action level	6	
Precision and Accuracy					
LCS/LCSD (recovery)	One per matrix per batch (of ≤ 20 samples) LCSD not required by NFG or method Use method acceptance criteria/laboratory limits	Method (3)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND)%R < 10%	10 (H,L)[4]	No action if only one spike %R is outside criteria when LCSD is analyzed, unless one recovery is <10%. QAPP may have overriding accuracy limits.
LCS/LCSD RPD	If LCSD analyzed RPD < lab limits	Method (3)	J (pos)	9	Qualify all associated samples. QAPP may have overriding precision limits.
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[4]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Surrogates	Added to all samples Within method/laboratory control limits	NFG (1) Method (3)	J (pos) if %R >UCL J (pos)/UJ (ND) if %R <LCL J (pos)/R (ND) if <10%	13 (H,L)[4]	No action if there are 4+ surrogates and only 1 outlier Qualify all compounds if qualification is required.
Internal Standards	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	NFG (1) Method (3)	J (pos) if > 200% J (pos)/UJ (ND) if < 50% J (pos)/R (ND) if < 25% if RT >30 seconds use **PJ**	19	Qualify compounds quantified using particular internal standard

Volatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8260C)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy (continued)					
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG [1] Method [3]	J (pos) %R > UCL J (pos)/UJ (ND) if both %R < LCL J (pos)/R (ND) if both %R < 10% J (pos)/UJ (ND) if one > UCL & one < LCL, with no bias	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only.
MS/MSD (RPD)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG [1] Method [3]	J (pos) If RPD > control limit	9	Qualify parent sample only
Field Duplicates	**Solids:** RPD < 50% OR difference < 2X RL (for results < 5X RL) **Aqueous:** RPD < 35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	Use project limits if specified
Compound Identification and Quantitation					
Retention Time Relative Ion Intensities	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	NFG [1] Method [3]	U (pos) if identification criteria not met	25	
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NFG [1] Method [3]	NJ TIC R (pos) if common laboratory contaminants	4	Common laboratory contaminants: aldol condensation products, solvent preservatives, and reagent contaminants
Calibration Range	Results greater than highest calibration standard	EcoChem standard policy	Qualify J (pos)	20	If result from dilution analysis is not reported.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Organic Data Review, June, 2008
[2] National Functional Guidelines for Organic Data Review, Oct, 1999
[3] Method SW846 8260C Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
[4] NFG 2013 suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

(pos): Positive Result
(ND): Non-detect

* "Poor responder" compounds: Acetone, 2-butanone, carbon disulfide, chloroethane, chloromethane, cyclohexane, 1,2-dibromoethane, dichlorodifluoromethane, cis-1,2-dichloroethene, 1,2-dichloropropane, 1,2-dibromo-3-chloropropane, 2-hexanone, isopropylbenzene, methyl acetate, methylene chloride, methylcyclohexane, 4-methyl-2-pentanone, methyl tert-butyl ether, trans-1,2-dichloroethene, trichlorofluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane **criterion is 0.010 RRF;** 1,4-dioxane RRF **criterion is 0.005**.

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	4°C±2°C sediment/tissues may require storage at -20°C	NFG (1) Method (3)	**If required by project:** J (pos)/UJ (ND) if greater than 6° C	1	Use **PJ** for temp outliers; see **TM20** Current SW846 criterion is ≤ 6° C (3)
Holding Time	**Extraction Aqueous:** 7 days from collection **Extraction Solid:** 14 days from collection **Analysis (all matrices)**: 40 days from extraction Holding time may be extended to 1 year for frozen sediments/tissues	NFG (1) Method (3)	J (pos)/UJ (ND) if HT exceeded J (pos)/R (ND) if gross exceedance (> 2x HT)	1	Gross exceedance = > 2x HT, as per 1999 NFG
Instrument Performance					
Tuning	DFTPP Beginning of each 12 hour period Use method or project acceptance criteria	NFG (1) Method (3)	R (pos/ND) all analytes in all samples associated with the tune	24	
Initial Calibration **Sensitivity**	RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders *	NFG (1) Method (3)	Use **PJ** to qualify J (pos)/UJ (ND)	5A	**TM-06** EcoChem Policy for the Evaluation and Qualification of GCMS Instrument Performance **PJ** - no action if response is stable (ICAL RSD and CCAL %D acceptable)
Initial Calibration **Stability**	Minimum 5 standards %RSD ≤ 20.0% except: %RSD ≤ 40.0% poor responders * **or** co-efficient of determination (r^2) > 0.99	NFG (1) Method (3)	J (pos) if %RSD > limit **or** r^2 value <0.99	5A	
Initial Calibration Verification Check	Prepared from second source; analyze after each ICAL Percent recovery limits = 70-130%	Method (3)	J (pos) %R > UCL J (pos)/UJ (ND) %R < LCL	5A (H,L)[4]	QAPP may have overriding accuracy limits.

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Performance (continued)					
Continuing Calibration **Sensitivity**	RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders *	NFG [1] Method [3]	Use **PJ** to qualify J (pos)/UJ (ND)	5B	see ICAL RRF guidance
Continuing Calibration **Stability**	Prior to sample analysis and every 12 hours %D ≤ 25% except: %D ≤ 40.0% poor responders *	NFG [1] Method [3]	J (pos) - %D > control limit (high bias) J (pos)/UJ (ND) - %D < -control limit (low bias)	5B (H,L)[4]	
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > MDL	NFG [2] Method [3]	U(pos) if result is < 5X or 10X action level	7	10X action level applies to phthalates only. 5X for all other target analytes **Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review FB , qualify as needed** **Note: Actions as per 1999 NFG**
	No TICs present		R (pos) TICs using 10X rule	7	
Field Blank (FB)	No detected compounds > MDL	NFG [2] Method [3]	U (pos) if result is < 5X or 10X action level	6	
Precision and Accuracy					
LCS/LCSD (recovery)	One per matrix per batch (of ≤ 20 samples) LCSD not required by NFG or method Use method acceptance criteria/laboratory limits	Method [3]	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND)%R < 10%	10 (H,L)[4]	No action if only one spike %R is outside criteria when LCSD is analyzed, unless one recovery is <10%. QAPP may have overriding accuracy limits. Qualify all associated samples.
LCS/LCSD (RPD)	If LCSD analyzed RPD < lab limits	Method [3]	J (pos)	9	Qualify all associated samples. QAPP may have overriding precision limits.

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy (continued)					
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[4]	QAPP may have overriding accuracy limits. Some manufacturers have different RM control limits
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG (1) Method (3)	J (pos) %R > UCL J (pos)/UJ (ND) if both %R < LCL J (pos)/R (ND) if both %R < 10% J (pos)/UJ (ND) if one > UCL & one < LCL, with no bias	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only.
MS/MSD (RPD)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG (1) Method (2)	J (pos) in parent sample if RPD > CL	9	Qualify parent sample only
Surrogates	Minimum of 3 acid & 3 base/neutral (B/N) compounds added to all samples Within method control limits	NFG (1) Method (3)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND) if %R < 10%	13 (H,L)[4]	Qualify all compounds in associated fraction. Do not qualify if only 1 acid and/or 1 B/N surrogate is out, unless <10%. If 1 surrogate outlier < 10% then J (pos)/R (ND)
Internal Standards	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	NFG (1) Method (3)	J (pos) if > 200% J (pos)/UJ (ND) if < 50% J (pos)/R (ND) if < 25% if RT >30 seconds use **PJ**	19	Qualify compounds quantified using particular internal standard
Field Duplicates	**Solids:** RPD < 50% OR difference < 2X RL (for results < 5X RL) **Aqueous:** RPD < 35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	Use project limits if specified

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound Identification and Quantitation and Calculation					
Retention times and relative ion intensities	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	NFG [(1)] Method [(3)]	U (pos) if identification criteria not met	25	
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NFG [(1)] Method [(3)]	NJ the TIC unless: R (pos) common laboratory contaminants	4	
Calibration Range	Results greater than highest calibration standard	EcoChem standard policy	Qualify J (pos)	20	If result from dilution analysis is not reported.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Organic Data Review, June, 2008
[2] National Functional Guidelines for Organic Data Review, October, 1999
[3] Method SW846 8270D Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 4, February 2007.
[4] NFG 2013 suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

(pos): Positive Result(s)
(ND): Non-detects

* "Poor responder" compounds: acetophenone, atrazine, benzaldehyde, 1,1'-biphenyl, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, caprolactam, carbazole, 4-chloroaniline, diethylphthalate, di-n-butylphthalate, 3-3'-dichlorobenzidine, dimethylphthalate, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, di-n-octylphthalate, hexachlorobutadiene, hexachlorocyclopentadiene, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, 4-nitrophenol, N-nitrosodiphenylamine, 2,2'-oxybis-(1-chloropropane), 1,2,4,5-tetrachlorobenzene use a 0.010 RRF criterion.

PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample					
Cooler/Storage Temperature Preservation	4°C ± 2°C Tissue/sediments (may be frozen -20°C)	NFG (1) Method (2)	**If required by project:** J (pos)/UJ (ND) if greater than 6° C	1	Use Professional Judgment (PJ) to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C (3)
Holding Time	**Extraction Aqueous:** 7 days from collection **Extraction Solid:** 14 days from collection **Exraction Tissue/Sediment (frozen):** 1 year **Analysis (all matrices)**: 40 days from extraction	NFG (1) Method (2)	**If required by project:** J (pos)/UJ (ND) if ext/analyzed > HT J (pos)/R (ND) if gross exceedance (> 2x HT)	1	Use PJ to qualify for holding time outlier. Current SW846 does not have an extraction holding time limit.(3) Gross exceedance > 2x HT, as per NFG 1999
Instrument Performance					
Retention Times	Surrogates: TCMX (± 0.05); DCB (± 0.10) Aroclors (± 0.07)	NFG (1)	NJ (pos)/R (ND) results for analytes with RT shifts	24	
Initial Calibration	Minimum 5 point with RSD ≤ 20% OR correlation coefficient (r-value) ≥ 0.995 OR Minimum 6-point with co-efficient of determination (r2-value) ≥ 0.99	NFG (1) Method (4)	J (pos) if %RSD greater than 20% OR r-value < 0.995 OR r^2-value < 0.99	5A	Refer to TM-01 for additional information. Use bias flags (H,L)(5) where appropriate
Initial Calibration Verification (ICV)	No NFG criteria. Project specific.	Project	J (pos) if > UCL J (pos)/UJ (ND) if < LCL	5B	Use bias flags (H,L) where appropriate
Continuing Calibration (Prior to each 12 hr. shift)	%D ± 20%	Method (2)	If > 20% (high bias): J (pos) If <20% (low bias: J (pos)/UJ (ND)	5B	Refer to TM-01 for additional information. Use bias flags (H,L) where appropriate
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > RL	NFG (1) Method (2)	U (pos) if result is less than appropriate 5X action level.	7	**Hierarchy of blank review:** **#1 - Review MB and IB, qualify as needed** **#2 - Review FB , qualify as needed** Note: Actions as per NFG 1999 Note: IB not required by method
Field Blank (FB)	FB: frequency as per QAPP No detected compounds > RL	NFG (1) Method (2)	U (pos) if result is less than appropriate 5X action level.	6	
Instrument Blanks (IB)	Analyzed at the beginning and end of every 12 hour sequence No analyte > CRQL	NFG (1)	U (pos) if result is less than appropriate 5X action level.	7	

PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
MS/MSD (recovery)	One set per matrix per batch (of ≤ 20 samples) AR1016 and AR1260: %R = 29% - 135%, or project limits	NFG (1) Method (2)	Qualify parent only unless other QC indicates systematic problems. J (pos) if both %R > upper control limit (UCL) J (pos)/UJ (ND) if both %R < lower control limit (LCL) J (pos)/R (ND) if both %R < 10%	8	No action if only one spike %R is outside criteria. No action if native analyte conc. > 5x the amount spiked. Use bias flags (H,L) where appropriate. Actions apply to all Aroclors in parent sample.
MS/MSD (RPD)	One set per matrix per batch (of ≤ 20 samples) AR1016: RPD < 15%, AR1260: RPD < 20% or project limits	NFG (1) Method (2)	Qualify parent only unless other QC indicates systematic problems. J (pos) if RPD > control limit	9	No action if parent is ND.
LCS	One per lab batch (of ≤ 20 samples) AR1016 and AR1260: %R = 50% - 150%, or project limits	NFG (1)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND) if %R < 10%	10	Use bias flags (H,L) where appropriate. Actions apply to all Aroclors in associated samples.
LCS/LCSD (RPD)	if analyzed use MS/MSD RPD criteria	NFG (1)	J (pos) assoc. compound in all samples	9	LCSD not required by method or NFG
Precision and Accuracy					
Surrogates	TCMX and DCBP added to every sample %R = 30% - 150% or project limits	NFG (1) Method (2)	J (pos) if either %R > UCL J (pos)/UJ (ND) if either %R < LCL J (pos)/R (ND) if either %R < 10%	13	If %R < 10% (sample dilution is a factor), use PJ Use bias flags (H,L) where appropriate
Internal Standards (if used)	Acceptable Range: IS area = 50% to 200% of CCAL area RT within 30 seconds of CC RT	Method (2)	J (pos) if area > 200% J (pos)/UJ (ND) if area < 50% J (pos)/R (ND) if area < 25% RT > 30 seconds, narrate	19	
Field Duplicates	**Solids:** RPD < 50% OR difference < 2X RL (for results < 5X RL) **Aqueous:** RPD < 35% OR difference < 1X RL (for results < 5X RL)	EcoChem	J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	use project limits if specified

PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound Identification/Quantification					
Quantitation/ Identification	Between two columns: RPD < 40% or %D < 25% Within Retention Time Windows on both columns.	NFG [1] Method [2]	J (pos) if RPD = 40% - 60% (25% - 60% for %D) NJ (pos) if > 60% R (pos) if RTW criterion not met	3	See TM-08 for additional info.
Calibration Range	on column concentration < high calibration standard	NFG [1] Method [2]	J (pos) if conc > high standard and sample was not diluted	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	Standard reporting policy	Use "DNR" to flag results that will not be reported.	11	TM-04 Rev. 1 for additional info.
Sample Clean-up					
GPC/Sulfur/ Florisil/Acid	No criteria - cleanups are optional	NFG [1] Method [2]	Use Professional Judgment	14	special cleanups may be required for project cleanup standards may be associated with GPC/florisil cleanups

[1] National Functional Guidelines for Organic Data Review, June, 2008
[2] Polychlorinated Biphenyls (PCBs) by Gas Chromatography USEPA Method SW846 8082A, Feb 2007, Rev. 1
[3] SW846, Chapter 4, Organic Analytes
[4] Determinative Chromatographic Separations , Method 8000C , March 2003, Rev.3
[5] "H" = high bias indicated; "L" = low bias indicated

Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2011 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Waters/Solids ≤ 6°C & in the dark Tissues <-10°C & in the dark **Preservation Aqueous:** If Cl_2 is present Thiosulfate must be added and if pH > 9 it must be adjusted to 7 - 9	NFG [1] Method[2]	J(pos)/R(ND) if thiosulfate not added if Cl_2 present; J(pos)/UJ(ND) if pH not adjusted J(pos)/UJ(ND) if temp > 20°C	1	**EcoChem PJ, see TM-05**
Holding Time	**If properly stored, 1 year or:** **Extraction (all matrices):** 30 days from collection **Analysis (all matrices)**: 45 days from extraction	NFG [1] Method[2]	If not properly stored or HT exceedance: J(pos)/UJ(ND)	1	**EcoChem PJ, see TM-05** Gross exceedance = > 1 year 2011 NFG **Note:** Under CWA, SDWA, and RCRA the HT for H2O is 7 days.
Instrument Performance					
Mass Resolution (Tuning)	PFK (Perfluorokerosene) ≥10,000 resolving power at m/z 304.9824. Exact mass of m/z 380.9760 w/in 5 ppm of theoretical value (380.97410 to 380.97790) . Analyzed prior to ICAL and at the start and end of each 12 hr. shift.	NFG [1] Method [2]	R(pos/ND) all analytes in all samples associated with the tune	24	Notify PM
Windows Defining Mix	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level)	NFG [1] Method [2]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group	24	Notify PM
Column Performance Mix	Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2]	J(pos) if valley > 25%	24	**EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
Initial Calibration **Sensitivity**	S/N ratio > 10 for all native and labeled compounds in CS1 std.	NFG [1] Method [2]	If <10, elevate Det. Limit or R(ND)	5A	
Initial Calibration **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Table 9 of method 1613B)	NFG [1] Method [2]	If 2 or more ion ratios are out for one compound in ICAL, J(pos)	5A	**EcoChem PJ, see TM-05, Rev. 2**

Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2011 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Performance (continued)					
Initial Calibration (Minimum 5 stds.) **Stability**	%RSD < 20% for native compounds %RSD <30% for labeled compounds (%RSD < 35% for labeled compounds under 1613b)	NFG [1] Method [2]	J(pos) natives if %RSD > 20%	5A	
	Absolute RT of $^{13}C_{12}$-1234-TCDD >25 min on DB5 & >15 min on DB-225	NFG [1] Method [2]	Narrate, no action		**EcoChem PJ, see TM-05, Rev. 2**
Continuing Calibration (Prior to each 12 hr. shift) **Sensitivity**	S/N ratio for CS3 standard > 10	NFG [1] Method [2]	If <10, elevate Det. Limit or R(ND)	5B	
Continuing Calibration (Prior to each 12 hr. shift) **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Table 9 of method 1613B)	NFG [1] Method [2]	For congener with ion ratio outlier, J(pos) natives in all samples associated with CCAL. No action for labeled congener ion ratio outliers.	25	**EcoChem PJ, see TM-05**
Continuing Calibration (Prior to each 12 hr. shift) **Stability**	%D+/-20% for native compounds %D +/-30% for labeled compounds **(Must meet limits in Table 6, Method 1613B)** If %D in the closing CCAL are within 25%/35%, the mean RF from the two CCAL may be used to calculate samples **(Section 8.3.2.4 of 8290)**.	NFG [1] Method [2]	**Labeled compounds:** Narrate, no action. **Native compounds:** 1613: J(pos)/UJ(ND)if %D is outside Table 6 limits J(pos)/R(ND) if %D is +/-75% of Table 6 limits 8290: J(pos)/UJ(ND) if %D = 20% - 75% J(pos)/R(ND) if %D > 75%	5B (H,L)[3]	
	Absolute RT of $^{13}C_{12}$-1234-TCDD and $^{13}C_{12}$-123789-HxCDD should be ± 15 seconds of ICAL RRT for all other compounds must meet criteria listed in Table 2 Method 1316.	NFG [1] Method [2]	Narrate, no action	5B	**EcoChem PJ, see TM-05**
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > RL	NFG [1] Method [2]	U(pos) if result is < 5X action level.	7	**Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review FB , qualify as needed**
Field Blank (FB)	FB: frequency as per QAPP No detected compounds > RL		U(pos) if result is < 5X action level.	6	

Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2011 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
MS/MSD (recovery)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) if both %R > UCL - high bias J(pos)/UJ(ND) if both %R < LCL - low bias J(pos)/R(ND) if both %R < 10% - very low bias J(pos)/UJ(ND) if one > UCL & one < LCL, with no bias **PJ if only one %R outlier**	8 (H,L)[3]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only unless other QC indicates systematic problems.
MS/MSD (RPD)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) in parent sample if RPD > CL	9	Qualify parent sample only.
LCS (or OPR)	One per lab batch (of ≤ 20 samples) Use most current laboratory control limits **or** Limits from Table 6 of 1613B	NFG [1] Method [2]	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	10 (H,L)[3]	No action if only one spike %R is outside criteria, when LCSD is analyzed. Qualify all associated samples.
LCS/LCSD (RPD)	**LCSD not typically required for HRMS analyses.** One set per matrix and batch of 20 samples RPD < 35%	Method [2] Ecochem standard policy	J(pos) assoc. compound in all samples if RPD > CL	9	Qualify all associated samples.
Lab Duplicate (RPD)	**Lab Dup not typically required for HRMS analyses.** One per lab batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos)/UJ(ND) if RPD > CL	9	
Labeled Compounds (Internal Standards)	Added to all samples %R = 40% - 135% in all samples 8290 %R must meet limits in Table 7 Method 1613B	NFG [1] Method [2]	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	13 (H,L)[3]	
Field Duplicates	Solids: RPD <50% OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Narrate and qualify if required by project	9	**Use professional judgment**

Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2011 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound ID and Calculation					
Quantitation/ Identification	All ions for each isomer must maximize within ± 2 seconds. S/N ratio >2.5 Ion ratios must meet criteria listed in Table 8 Method 8290, or Table 9 of 1613B; RRTs w/in limits in Table 2 of 1613B	NFG [1] Method [2]	Narrate in report; qualify if necessary NJ(pos) for retention time outliers. U(pos) for ion ratio outliers.	25	**EcoChem PJ, see TM-05**
EMPC (estimated maximum possible concentration)	If quantitation identification criteria are not met, laboratory should report an EMPC value.	NFG [1] Method [2]	If laboratory correctly reported an EMPC value, qualify the native compound U(pos) to indicate that the value is a detection limit and qualify total homolog groups J (pos)	25	**Use professional judgment See TM-18**
Interferences	Interferences from chlorodiphenyl ether compounds	NFG [1] Method [2]	J(pos)/UJ(ND) if present	23	**See TM-16**
	Lock masses must not deviate ± 20% from values in Table 8 of 1613B	Method [2]	J(pos)/UJ(ND) if present	24	**See TM-17**
Second Column Confirmation	All 2,3,7,8-TCDF hits must be confirmed on a DB-225 (or equiv) column. All QC criteria must also be met for the confirmation analysis.	NFG [1] Method [2]	Report the DB-225 value. If not performed use PJ.	3	DNR-11 DB5 result if both results from both columns are reported. **EcoChem PJ, see TM-05**
Calculation Check	Check 10% of field & QC sample results	EcoChem standard policy	Contact laboratory for resolution and/or corrective action	na	Full data validation only.
Electronic Data Deliverable (EDD)					
Verification of EDD to hardcopy data	EcoChem verify @ 10% unless problems noted; then increase level up to 100% for next several packages.		Depending on scope of problem, correct at EcoChem (minor issues) to resubmittal by laboratory (major issues).	na	EcoChem Project Manager and/or Database Administrator will work with lab to provide long-term corrective action.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	Standard reporting policy	Use "DNR" to flag results that will not be reported.	11	

(pos) - positive (detected) results; (ND) - not detected results

[1] National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) & Chlorinated Dibenzofurans (CDFs) Data Review, September 2011

[2] Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), USEPA SW-846, Method 8290

[2] EPA Method 1613, Rev.B, Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGS/HRMS, October 1994

[3] NFG 2013 suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Gasoline Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Gx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling				
Cooler Temperature & Preservation	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6°C	1	
Holding Time	Waters: 14 days preserved 7 days unpreserved Solids: 14 Days	J(+)/UJ(-) if hold times exceeded J(+)/R(-) if exceeded > 3X	1	Professional Judgement
Instrument Performance				
Initial Calibration	5 calibration points (All within 15% of true value) Linear Regression: $r^2 \geq 0.990$ If used, RSD of response factors ≤20%	Narrate if fewer than 5 calibration levels or if %R >15% J(+)/UJ(-) if r^2 <0.990 J(+)/UJ(-) if %RSD > 20%	5A	
Mid-range Calibration Check Std.	Analyzed before and after each analysis shift & every 20 samples. Recovery range 80% to 120%	Narrate if frequency not met. J(+)/UJ(-) if %R < 80% J(+) if %R >120%	5B	
Blank Contamination				
Method Blank	At least one per batch (≤10 samples) No results >RL	U (at the RL) if sample result is < RL & < 5X blank result.	7	
		U (at reported sample value) if sample result is ≥ RL and < 5X blank result	7	
Trip Blank (if required by project)	No results >RL	Action is same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned.	18	
Field Blanks (if required by project)	No results > RL	Action is same as method blank for positive results remaining in field blank after method **and** trip blank qualifiers are assigned.	6	

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Gasoline Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Gx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy				
MS samples (accuracy) (if required by project)	%R within lab control limits	Qualify parent only, unless other QC indicates systematic problems. J(+) if both %R > upper control limit (UCL) J(+)/UJ(-) if both %R < lower control limit (LCL) No action if parent conc. >5X the amount spiked.	8	Use Professional Judgement if only one %R outlier
Precision: MS/MSD or LCS/LCSD or sample/dup	At least one set per batch (≤10 samples) RPD ≤ lab control limit	J(+) if RPD > lab control limits	9	
LCS (not required by method)	%R within lab control limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10%	10	Professional Judgement
Surrogates	Bromofluorobenzene and/or 1,4-difluorobenzene added to all samples (inc. QC samples). %R = 50-150%	J(+)/UJ(-) if %R < LCL J(+) if %R >UCL J(+)/R(-) if any %R <10% No action if 2 or more surrogates are used, and only one is outside control limits.	13	Professional Judgement
Pattern Identification	Compare sample chromatogram to standard chromatogram to ensure range and pattern are reasonable match. Laboratory may flag results which have poor match.	J(+)	2	
Field Duplicates	Use project control limits, if stated in QAPP **EcoChem default:** water: RPD < 35% solids: RPD < 50%	Narrate outliers **If required by project**, qualify with J(+)/UJ(-)	9	
Compound ID and Calculation				
Two analyses for one sample (e.g., dilution)	Report only one result per analyte	"DNR" (or client requested qualifier) all results that should not be reported.	11	See EcoChem TM-04

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling				
Cooler Temperature & Preservation	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6 deg. C	1	
Holding Time	Ext. Waters: 14 days preserved 7 days unpreserved Ext. Solids: 14 Days Analysis: 40 days from extraction	J(+)/UJ(-) if hold times exceeded J(+)/R(-) if exceeded > 3X	1	Professional Judgement
Instrument Performance				
Initial Calibration	5 calibration points (All within 15% of true value) Linear Regression: $r^2 \geq 0.990$ If used, RSD of response factors ≤20%	Narrate if fewer than 5 calibration levels or if %R >15% J(+)/UJ(-) if r^2 <0.990 J(+)/UJ(-) if %RSD > 20%	5A	
Mid-range Calibration Check Std.	Analyzed before and after each analysis shift & every 20 samples. Recovery range 85% to 115%	Narrate if frequency not met. J(+)/UJ(-) if %R < 85% J(+) if %R >115%	5B	
Blank Contamination				
Method Blank	At least one per batch (≤20 samples) No results >RL	U (at the RL) if sample result is < RL & < 5X blank result.	7	
		U (at reported sample value) if sample result is ≥ RL and < 5X blank result	7	
Field Blanks (if required by project)	No results > RL	Action is same as method blank for positive results remaining in the field blank after method blank qualifiers are assigned.	6	

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy				
MS samples (accuracy) (if required by project)	%R within lab control limits	Qualify parent only, unless other QC indicates systematic problems. J(+) if both %R > upper control limit (UCL) J(+)/UJ(-) if both %R < lower control limit (LCL) No action if parent conc. >5X the amount spiked.	8	Use Professional Judgement if only one %R outlier
Precision: MS/MSD or LCS/LCSD or sample/dup	At least one set per batch (≤10 samples) RPD ≤ lab control limit	J(+) if RPD > lab control limits	9	
LCS (not required by method)	%R within lab control limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10%	10	Professional Judgement
Surrogates	2-fluorobiphenyl, p-terphenyl, o-terphenyl, and/or pentacosane added to all samples (inc. QC samples). %R = 50-150%	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10% No action if 2 or more surrogates are used, and only one is outside control limits.	13	Professional Judgement
Pattern Identification	Compare sample chromatogram to standard chromatogram to ensure range and pattern are reasonable match. Laboratory may flag results which have poor match.	J(+)	2	
Field Duplicates	Use project control limits, if stated in QAPP **EcoChem default:** water: RPD < 35% solids: RPD < 50%	Narrate (Use Professional Judgement to qualify)	9	

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound ID and Calculation				
Two analyses for one sample (dilution)	Report only one result per analyte	"DNR" (or client requested qualifier) all results that should not be reported.	11	See EcoChem TM-04

Metals by ICP-MS
(Based on Inorganic NFG 2010 and SW-846 6020A)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler / Storage Temperature Preservation	**Solid:** Cooler temperature 4°C±2°C **Aqueous:** Nitric Acid to pH < 2 **Dissolved Metals:** 0.45 µm filter, preserve to pH < 2 after filtration	NFG (1) Method (2)	Cooler Temps: **If required by project** J (pos)/UJ (ND) if greater than 6° C Aqueous: J (pos)/UJ (ND) if pH > 2	1	Use **PJ** to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C (4) No quals for pH if samples preserved by lab immediately upon receipt and within 1 day of collection.
Holding Time	All matrices: 180 days from date sampled Frozen soils, sediments, tissues (-20°C) - HT extended to 1 year	NFG (1) Method (2) EcoChem standard policy	J (pos)/UJ (ND) if holding time exceeded	1	
Instrument Performance					
Tune	Analyzed prior to ICAL tunignsolution analyzed 5 times with Std. Dev. ≤ 5% Mass calibration < 0.1 amu difference from target mass Resolution < 0.9 amu @ 10% peak height	NFG (1) Method (2)	J(pos)/UJ(ND) if tune criteria not met	5A	Use **PJ** to evaluate tune. Alternate Resolution critteria may apply based on instrument specs (i.e <0.75 amu at 5% peak height)
Initial Calibration (ICAL)	Based on instrument requirements, blank + 1 standard minimum requirement for calibration If more than 1 standard used, r ≥ 0.995	NFG (1) Method (2)	J (pos)/UJ (ND) if r < 0.995	5A	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R within ± 10% of true value	NFG (1) Method (2)	R (pos/ND) if %R < 75% J (pos)/UJ (ND) if %R 75% - 89% J (pos) if %R >111%	5A (H,L)[3]	Qualify all samples in run
Reporting Limit (RL) Standard Low Level ICV/CCV	concentration at RL %R = 70%-130%	Method (2)	J (pos) < 2x RL / R (ND) if %R <50% J (pos) < 2x RL / UJ (ND) if %R 50 - 69% J (pos) < 2x RL if %R > 130%	5A (H,L)[3]	Qualify all samples in run

Metals by ICP-MS
(Based on Inorganic NFG 2010 and SW-846 6020A)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Performance cont'd					
Continuing Calibration Verification (CCV)	Immediately following ICV/ICB, then every two hours or ten samples, and at end of run. %R within ± 10% of true value	NFG [1] Method [2]	R (pos/ND) if %R < 75% J (pos)/UJ (ND) if %R 75% - 89% J (pos) if %R >111%	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Interference Check Samples (ICSA / ICSAB)	ICSAB %R 80% - 120% for all spiked elements | ICSA | < MDL for all unspiked elements	NFG [1] Method [2]	For samples with Al, Ca, Fe, Mg > ICS levels: **ICSAB**: J(pos)/R (ND) if %R < 50% J (pos)/UJ (ND) if %R = 50% - 79% J (pos) if %R > 120% **ICSA:** J (pos)< 2x ICSA/UJ (ND) for ICSA <Neg MDL J (pos) < 2x ICSA for ICSA > MDL	17 (H,L)[3]	Use **PJ** and molecular interferences to evaluate ICSA to determine if bias is present. Refer to **TM-14** for additional information.
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [1] Method [2]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG [1] Method [2]	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blks: 7 Neg Blks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review: #1 - Review MB, quaify as needed #2 - Review IB , qualify as needed #3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.

Metals by ICP-MS
(Based on Inorganic NFG 2010 and SW-846 6020A)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
Internal Standards (IS)	Added to all samples. All analytes must be associated with an internal standard 60-125% of cal blank IS	NFG [1] Method [2]	J(pos)/UJ(ND) all analytes associated with IS outlier	19	6020A criteria - IS >70% of ICAL std
LCS (recovery)	One per matrix per batch (of ≤ 20 samples); LCSD not required %R between 80-120%	Method [2]	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits. NFG Limits 70% -130%
LCS/LCSD (RPD)	LCSD not required, if analyzed: RPD ≤ 20%	Method [2]	J (pos)/UJ (ND) if RPD > 20%	9	Qualify all samples in batch QAPP may have overriding precision limits.
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples); MSD not required %R between 75-125%	NFG [1] Method [2]	J (pos) if %R > 125% J (pos)/UJ (ND) if %R <75% J (pos)/R (ND) if %R < 30%, unless post digestion spike analyzed, J (pos)/UJ (ND) if post digestion spike %R OK	8 (H,L)[3]	No action if only one spike %R is outside criteria. NA if parent concentration >4x the amount spiked. Qualify all samples in batch. QAPP may have overriding accuracy limits.
Post Digestion Spikes	If MS is outside 75-125%, post-spike should be analyzed %R 80%-120% (method); 75%-125% (NFG)	NFG [1] Method [2]	Only used to support MS qualification decisions	NA	No qualifiers assigned based solely on this element.
MS/MSD (RPD)	MSD not required, if analyzed: RPD ≤ 20%	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20%	9	QAPP may have overriding precision limits.
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.

Metals by ICP-MS
(Based on Inorganic NFG 2010 and SW-846 6020A)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy cont'd					
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Serial Dilution	Analyze one sample per matrix at a 5x dilution %D <10% for original sample conc. > 50x MDL	NFG [(1)]	J(pos)/UJ(ND) if %D > 10% and native sample concentration > 50x MDL	16	Note serial dilutions for soil are reported in ug/L, but the MDL is in mg/kg. The units need to be adjusted. Qualify all samples in batch.
Field Duplicate	Solids: RPD <50% OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Narrate and qualify if required by project **(EcoChem PJ)** Qualify only field duplicate samples J(pos)/UJ(ND)	9	QAPP may have overriding precision limits.
Compound Quantitation					
Total and Dissolved Comparison	Total > Dissolved	EcoChem standard policy	J (pos)/UJ (ND) if Dissolved > Total and results fall outside of standard duplicate precision criteria	14	
Calibration Range	Results < instrument linear range	NFG [(1)] Method [(2)]	if result exceeds linear range and sample was not diluted J (pos)	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.
[2] Method SW846 6020A Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), Revision 1, February 2007.
[3] "H" = high bias indicated; "L" = low bias indicated
[4] SW846, Chapter 3, Inorganic Analytes

(pos): Positive Result
(ND): Not detected

Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler / Storage Temperature Preservation	**Solid:** Cooler temperature 4°C±2°C **Aqueous:** Nitric Acid to pH < 2 **Dissolved Metals:** 0.45 µm filter, preserve to pH < 2 after filtration	NFG (1) Method (2)	Cooler Temps: **If required by project** J (pos)/UJ (ND) if greater than 6° C Aqueous: J (pos)/UJ (ND) if pH > 2	1	Use **PJ** to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C (4) No quals for pH if samples preserved by lab immediately upon receipt and within 1 day of collection.
Holding Time	28 days from date sampled Frozen solids and tissues HT extended to 6 months	NFG (1) Method (2) EcoChem standard policy	J (pos)/UJ (ND) if HT exceeded	1	
Instrument Performance					
Initial Calibration (ICAL)	Daily Calibration Blank + 5 standards, one ≤ RL Correlation coefficient (r) ≥ 0.995	NFG (1) Method (2)	J (pos)/UJ (ND) if r < 0.995	5A (H,L)[3]	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after ICAL %R within ± 15% of true value	NFG (1) Method (2)	R(pos/ND) if %R <70% J(pos)/UJ(ND) if %R = 70-84% J(pos) if %R = > 116%	5A (H,L)[3]	Qualify all samples in run
Reporting Limit (RL) Standard	Conc = RL %R = 70-130%	Method (2)	J (pos) < 2x RL / R (ND) if %R <50% J (pos) < 2x RL / UJ (ND) if %R 50 - 69% J (pos) < 2x RL if %R > 130%	5A (H,L)[3]	Qualify all samples in run
Continuing Calibration Verification (CCV)	At beginning of run, every ten samples, and again after last sample. %R within ± 15% of true value	NFG (1) Method (2)	R(pos/ND) if %R <70% J(pos)/UJ(ND) if %R = 70-84% J(pos) if %R = > 116%	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG (1) Method (2)	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994

Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG (1) Method (2)	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blanks: 7 Neg Blanks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review:** **#1 - Review MB, quaify as needed** **#2 - Review IB , qualify as needed** **#3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.
Precision and Accuracy					
Laboratroy Control Sample (recovery)	One per matrix per batch (of ≤ 20 samples); LCSD not required %R between 80-120%	Method (2)	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits. NFG does not address LCS
LCS/LCSD (RPD)	LCSD not required, if analyzed: RPD ≤ 20%	Method (2)	J (pos)/UJ (ND) if RPD > 20%	9	Qualify all samples in batch QAPP may have overriding precision limits.
Matris Spike/Matrix Spike Duplicate MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples); MSD not required %R between 75-125%	NFG (1) Method (2)	J (pos) if %R > 125% J (pos)/UJ (ND) if %R <75% J (pos)/R (ND) if %R < 30%	8 (H,L)[3]	No action if only one spike %R is outside criteria. NA if parent concentration >4x the amount spiked. Qualify all samples in batch. QAPP may have overriding accuracy limits.
MS/MSD (RPD)	MSD not required, if analyzed: RPD ≤ 20%	NFG (1) Method (2)	J (pos)/UJ (ND) if RPD > 20%	9	QAPP may have overriding precision limits.
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG (1) Method (2)	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.

Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Total and Dissolved Comparison	Total > Dissolved	EcoChem standard policy	J (pos)/UJ (ND) if Dissolved > Total and results fall outside of standard duplicate precision criteria	14	
Calibration Range	Results < instrument linear range	NFG (1) Method (2)	if result exceeds linear range and sample was not diluted J (pos)	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.

[2] Method SW846 7470A Mercury in Liquid Waste (Manual Cold-Vapor Technique), Revision 1, September 1994.
Method SW846 7471B Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique), Revision 2, February 2007.

[3] "H" = high bias indicated; "L" = low bias indicated

[4] SW846, Chapter 3, Inorganic Analytes

(pos): Positive Result
(ND): Not Detected

Conventional Methods by Gravimetric Analysis
(i.e., Total Solids, Total Dissolved Solids, Total Suspended Solids, Grain Size)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Cooler temperature: 4°C±2°C Preservation: Analyte/Method Specific	Method [(1)] NFG[(2)]	J (pos)/UJ (ND) if preservation requirements not met	1	Use **PJ** to qualify for cooler temp outliers.
Holding Time	Analyte/Method Specific	Method NFG[(2)]	J (pos)/UJ (ND) if holding time exceeded	1	
Blank Contamination					
Method Blank (MB)	If required by method,one per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [(1)] Method [(2)]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994
Precision and Accuracy					
LCS (If appropriate to method)	One per matrix per batch (of ≤ 20 samples) %R between 80-120%	Method [(2)]	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits.
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits

Conventional Methods by Gravimetric Analysis
(i.e., Total Solids, Total Dissolved Solids, Total Suspended Solids, Grain Size)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% For Grain Size, no action if results for fraction are less than 5%	9	Qualify all samples in batch, except Grain Size - qualify parent only. QAPP may have overriding precision limits.
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte per sample	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.
[2] SW846 or EPA Standard Methods
[3] "H" = high bias indicated; "L" = low bias indicated

(pos): Positive Result
(ND): Not Detected

Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Cooler temperature: 4°C±2°C Preservation: Analyte/Method Specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if preservation requirements not met	1	Use **PJ** to qualify for cooler temp outliers.
Holding Time	Analyte/Method Specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if holding time exceeded	1	
Instrument Performance					
Initial Calibration (ICAL)	blank + multiple standards as per method requirements r ≥ 0.995	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) for r < 0.995	5A	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R method specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if %R < lower control limit (LCL) J (pos) if %R > upper control limit (UCL)	5A (H,L)[3]	Qualify all samples in run
Continuing Calibration Verification (CCV)	Immediately following ICV, every 10 samples, and end of run %R method specific	NFG [(1)] Method [(2)]	J(pos)/UJ(ND) if %R < LCL J(pos) if %R > UCL	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [(1)] Method [(2)]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994

Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG [(1)] Method [(2)]	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blanks: 7 Neg Blanks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review:** **#1 - Review MB, quaify as needed** **#2 - Review IB , qualify as needed** **#3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.
Precision and Accuracy					
Laboratory Control Sample (LCS)	One per matrix per batch (of ≤ 20 samples) %R within Method control limits (or Laboratory control limtis if none specified in method)	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if %R < LCL J (pos) if %R > UCL	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits.
Reference Materials (RM, CRM, SRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits

Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Where applicable to method; MSD may not be required One per matrix per batch (of ≤ 20 samples) For samples <4x spike level, %R within method control limits (or Laboratory control limtis if none specified in method)	NFG [1] Method [2]	J (pos)/UJ (ND) if %R < LCL J (pos) if %R > UCL	8 (H,L)3	Qualify all samples in batch No action if native analyte concentration ≥ 4x spike added. Qualify all samples in batch. QAPP may have overriding accuracy limits.
Laboratory Duplicate (or MS/MSD)	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Linear Range	Sample concentrations less than highest calibration standard	NFG [1] Method [2]	If result exceeds linear range & sample was not diluted J (pos)	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.
[2] SW846 or EPA Standard Methods
[3] "H" = high bias indicated; "L" = low bias indicated

(pos): Positive Result
(ND): Not Detected

ECOCHEM
Data Quality

APPENDIX B

QUALIFIED DATA SUMMARY TABLE

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1509146	CB05-20150910	AMM8A	1613B	2,3,7,8-TCDD	0.38	pg/g	JEMPC	U	25
	CB01-20150910	1509146-001A	SW8270D	Dibenzofuran		UG/KG		R	13L
	CB01-20150910	1509146-001A	SW6020A	Antimony, Total	1.03	MG/KG		J	8L
	CB01-20150910	1509146-001A	SW6020A	Arsenic, Total	11.1	MG/KG		J	9
	CB03-20150910	1509146-002C	SW8260C	Methylene chloride	0.109	MG/KG		U	7
	CB04-20150910	1509146-003A	SW6020A	Antimony, Total	1.53	MG/KG		J	8L
	CB04-20150910	1509146-003A	SW6020A	Arsenic, Total	19	MG/KG		J	9
	CB01-20150910	1509146-001A	SW8270D	Carbazole		UG/KG		R	13L
	CB03-20150910	1509146-002A	SW6020A	Antimony, Total	5.41	MG/KG		J	8L
	CB03-20150910	1509146-002A	SW6020A	Arsenic, Total	18.6	MG/KG		J	9
	CB04-20150910	1509146-003C	SW8260C	Methylene chloride	0.0699	MG/KG		U	7
	CB05-20150910	1509146-004A	SW6020A	Antimony, Total	1.29	MG/KG		J	8L
	CB05-20150910	1509146-004A	SW6020A	Arsenic, Total	10.9	MG/KG		J	9
	CB01-20150910	1509146-001A	SW8270D	Benzyl alcohol		UG/KG		R	13L
	CB01-20150910	1509146-001A	SW8270D	Bis(2-chloroethoxy)methane		UG/KG		R	13L
	CB01-20150910	1509146-001A	SW8270D	Hexachlorobenzene		UG/KG		R	13L
	CB12-20150910	1509146-005A	SW6020A	Antimony, Total	2.49	MG/KG		J	8L
1510258	CB12-20150910	1509146-005A	SW6020A	Arsenic, Total	13.8	MG/KG		J	9
	MW05-06-20151019	1510258-017A	SW6020A	Lead, Total	1360	MG/KG		J	8L
	MW05-06-20151019	1510258-017A	SW6020A	Antimony, Total	6.78	MG/KG		J	8L
	MW05-06-20151019	1510258-017A	SW8082	Total PCBs	15.8	MG/KG	D	J	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1260		MG/KG	D	UJ	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1254	6.95	MG/KG	D	J	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1268		MG/KG	D	UJ	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1221		MG/KG	D	UJ	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1232		MG/KG	D	UJ	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1248		MG/KG	D	UJ	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1016	8.89	MG/KG	D	J	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1262		MG/KG	D	UJ	1
	MW05-06-20151019	1510258-017A	SW8082	Aroclor 1242		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW6020A	Lead, Total	477	MG/KG		J	8L
	MW05-10-20151019	1510258-018A	SW6020A	Antimony, Total	11.9	MG/KG		J	8L
	MW05-10-20151019	1510258-018A	SW8082	Total PCBs	0.119	MG/KG	D	J	1

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1510258	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1260		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1254		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1268		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1221		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1232		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1248		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1016		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1262		MG/KG	D	UJ	1
	MW05-10-20151019	1510258-018A	SW8082	Aroclor 1242		MG/KG	D	UJ	1
	MW05-13-20151019	1510258-019A	SW6020A	Lead	1.33	MG/KG		J	8L
	MW05-13-20151019	1510258-019A	SW6020A	Antimony		MG/KG		UJ	8L
	MW05-13-20151019	1510258-019A	SW8082	Total PCBs		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1260		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1254		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1268		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1221		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1232		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1248		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1016		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1262		MG/KG		UJ	1
	MW05-13-20151019	1510258-019A	SW8082	Aroclor 1242		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW6020A	Lead	1.8	MG/KG		J	8L
	MW12D-08-20151019	1510258-009A	SW6020A	Antimony		MG/KG		UJ	8L
	MW12D-08-20151019	1510258-009A	SW8082	Total PCBs		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1260		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1254		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1268		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1221		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1232		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1248		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1016		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1262		MG/KG		UJ	1
	MW12D-08-20151019	1510258-009A	SW8082	Aroclor 1242		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW6020A	Lead	1.36	MG/KG		J	8L
	MW12D-14-20151019	1510258-012A	SW6020A	Antimony		MG/KG		UJ	8L
	MW12D-14-20151019	1510258-012A	SW8082	Total PCBs		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1260		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1254		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1268		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1221		MG/KG		UJ	1

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1510258	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1232		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1248		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1016		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1262		MG/KG		UJ	1
	MW12D-14-20151019	1510258-012A	SW8082	Aroclor 1242		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW6020A	Lead	2.71	MG/KG		J	8L
	MW12D-16-20151019	1510258-013A	SW6020A	Antimony		MG/KG		UJ	8L
	MW12D-16-20151019	1510258-013A	SW8082	Total PCBs		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1260		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1254		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1268		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1221		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1232		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1248		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1016		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1262		MG/KG		UJ	1
	MW12D-16-20151019	1510258-013A	SW8082	Aroclor 1242		MG/KG		UJ	1
	MW16-10-20151019	1510258-003A	SW6020A	Lead	51.6	MG/KG		J	8L
	MW16-10-20151019	1510258-003A	SW6020A	Antimony	9.48	MG/KG		J	8L
	MW16-10-20151019	1510258-003A	SW8082	Total PCBs	0.0575	MG/KG		J	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1260	0.0575	MG/KG		J	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1254		MG/KG		UJ	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1268		MG/KG		UJ	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1221		MG/KG		UJ	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1232		MG/KG		UJ	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1248		MG/KG		UJ	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1016		MG/KG		UJ	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1262		MG/KG		UJ	1
	MW16-10-20151019	1510258-003A	SW8082	Aroclor 1242		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW6020A	Lead	18.3	MG/KG		J	8L
	MW16-13-20151019	1510258-004A	SW6020A	Antimony	0.67	MG/KG		J	8L
	MW16-13-20151019	1510258-004A	SW8082	Total PCBs		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1260		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1254		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1268		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1221		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1232		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1248		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1016		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1262		MG/KG		UJ	1

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1510258	MW16-13-20151019	1510258-004A	SW8082	Aroclor 1242		MG/KG		UJ	1
	MW16-13-20151019	1510258-004A	SW8270D	Benzoic acid		UG/KG	Q	UJ	8L
	MW16-13-20151019	1510258-004A	SW8270D	Carbazole	1400	UG/KG		J	8L
	MW16-13-20151019	1510258-004A	SW8270D	Anthracene	1450	UG/KG		J	8L
	MW16-13-20151019	1510258-004A	SW8270D	Pyrene	3220	UG/KG		J	8L
	MW16-13-20151019	1510258-004A	SW8270D	1-Methylnaphthalene	3900	UG/KG		J	8L
	MW16-15-20151019	1510258-005A	NWTPH-	Diesel (Fuel Oil)	92.2	MG/KG		J	9
	MW16-15-20151019	1510258-005A	NWTPH-	Heavy Oil	1370	MG/KG		J	9
	MW16-15-20151019	1510258-005A	SW6020A	Lead	321	MG/KG		J	8L
	MW16-15-20151019	1510258-005A	SW6020A	Antimony	2.41	MG/KG		J	8L
	MW16-15-20151019	1510258-005A	SW8082	Total PCBs	0.107	MG/KG		J	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1260		MG/KG		UJ	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1254		MG/KG		UJ	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1268		MG/KG		UJ	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1221		MG/KG		UJ	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1232		MG/KG		UJ	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1248		MG/KG		UJ	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1016	0.0727	MG/KG		J	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1262		MG/KG		UJ	1
	MW16-15-20151019	1510258-005A	SW8082	Aroclor 1242		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW6020A	Lead	1.85	MG/KG		J	8L
	MW16-18-20151019	1510258-006A	SW6020A	Antimony		MG/KG		UJ	8L
	MW16-18-20151019	1510258-006A	SW8082	Total PCBs		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1260		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1254		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1268		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1221		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1232		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1248		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1016		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1262		MG/KG		UJ	1
	MW16-18-20151019	1510258-006A	SW8082	Aroclor 1242		MG/KG		UJ	1
1510280	MW08-08-20151020	1510280-006A	SW6020A	Lead	668	MG/KG		J	9
	MW08-08-20151020	1510280-006A	SW6020A	Silver		MG/KG		UJ	8L
	MW08-08-20151020	1510280-006A	SW6020A	Antimony	0.264	MG/KG		J	8L
	MW07-04-20151020	1510280-014A	SW6020A	Lead	382	MG/KG		J	9
	MW07-04-20151020	1510280-014A	SW6020A	Silver	0.287	MG/KG		J	8L
	MW07-04-20151020	1510280-014A	SW6020A	Antimony	1.18	MG/KG		J	8L
	MW07-04-20151020	1510280-014A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW07-08-20151020	1510280-015A	SW6020A	Lead	1.71	MG/KG		J	9

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1510280	MW07-08-20151020	1510280-015A	SW6020A	Silver		MG/KG		UJ	8L
	MW07-08-20151020	1510280-015A	SW6020A	Antimony		MG/KG		UJ	8L
	MW07-08-20151020	1510280-015A	SW8270D	Benzoic acid		UG/KG	*	J	10L
	MW08-06-20151020	1510280-005A	SW6020A	Lead	97	MG/KG		J	9
	MW08-06-20151020	1510280-005A	SW6020A	Silver		MG/KG		UJ	8L
	MW08-06-20151020	1510280-005A	SW6020A	Antimony		MG/KG		UJ	8L
	MW08-15-20151020	1510280-008A	SW6020A	Lead	27.6	MG/KG		J	9
	MW08-15-20151020	1510280-008A	SW6020A	Silver		MG/KG		UJ	8L
	MW08-15-20151020	1510280-008A	SW6020A	Antimony		MG/KG		UJ	8L
	MW11-06-20151020	1510280-010A	SW6020A	Lead	45.6	MG/KG		J	9
	MW11-06-20151020	1510280-010A	SW6020A	Silver	0.109	MG/KG		J	8L
	MW11-06-20151020	1510280-010A	SW6020A	Antimony	0.511	MG/KG		J	8L
	MW11-11-20151020	1510280-011A	SW6020A	Lead	140	MG/KG		J	9
	MW11-11-20151020	1510280-011A	SW6020A	Silver	0.271	MG/KG		J	8L
	MW11-11-20151020	1510280-011A	SW6020A	Antimony	1.53	MG/KG		J	8L
	MW11-11-20151020	1510280-011A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW11-11-20151020	1510280-011A	SW8270D	Anthracene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Pyrene	84.6	UG/KG		J	9
	MW11-11-20151020	1510280-011A	SW8270D	Benzo(g,h,i)perylene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Benzo(b)fluoranthene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Fluoranthene	70.4	UG/KG		J	9
	MW11-11-20151020	1510280-011A	SW8270D	Benzo(k)fluoranthene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Chrysene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Benzo(a)pyrene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Benz(a)anthracene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Acenaphthene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Phenanthrene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Fluorene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	1-Methylnaphthalene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	Naphthalene		UG/KG		UJ	9
	MW11-11-20151020	1510280-011A	SW8270D	2-Methylnaphthalene		UG/KG		UJ	9
	MW11-16-20151020	1510280-012A	SW6020A	Lead	1.56	MG/KG		J	9
	MW11-16-20151020	1510280-012A	SW6020A	Silver		MG/KG		UJ	8L
	MW11-16-20151020	1510280-012A	SW6020A	Antimony		MG/KG		UJ	8L
	MW11-16-20151020	1510280-012A	SW8270D	Benzoic acid		UG/KG	*	UJ	8L,10L
	MW12-06-20151020	1510280-002A	SW6020A	Lead	755	MG/KG		J	9
	MW12-06-20151020	1510280-002A	SW6020A	Silver	0.676	MG/KG		J	8L
	MW12-06-20151020	1510280-002A	SW6020A	Antimony	7.22	MG/KG		J	8L
	MW12-11-20151020	1510280-003A	SW6020A	Lead	138	MG/KG		J	9
	MW12-11-20151020	1510280-003A	SW6020A	Silver		MG/KG		UJ	8L

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1510280	MW12-11-20151020	1510280-003A	SW6020A	Antimony	1.8	MG/KG		J	8L
	MW07-13-20151020	1510280-016A	SW6020A	Lead	6.92	MG/KG		J	9
	MW07-13-20151020	1510280-016A	SW6020A	Silver		MG/KG		UJ	8L
	MW07-13-20151020	1510280-016A	SW6020A	Antimony		MG/KG		UJ	8L
	MW07-13-20151020	1510280-016A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW12-16-20151020	1510280-004A	SW6020A	Lead	1.41	MG/KG		J	9
	MW12-16-20151020	1510280-004A	SW6020A	Silver		MG/KG		UJ	8L
1510291	MW12-16-20151020	1510280-004A	SW6020A	Antimony		MG/KG		UJ	8L
	MW06-06-20151021	1510291-002A	SW6020A	Silver		MG/KG		UJ	8L
	MW06-06-20151021	1510291-002A	SW6020A	Antimony	0.192	MG/KG		J	8L
	MW06-06-20151021	1510291-002A	SW6020A	Arsenic	5.14	MG/KG		J	9
	MW06-06-20151021	1510291-002A	SW6020A	Zinc	44.4	MG/KG		J	9
	MW06-06-20151021	1510291-002A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW06-11-20151021	1510291-003A	SW6020A	Silver		MG/KG		UJ	8L
	MW06-11-20151021	1510291-003A	SW6020A	Antimony		MG/KG		UJ	8L
	MW06-11-20151021	1510291-003A	SW6020A	Arsenic	5.84	MG/KG		J	9
	MW06-11-20151021	1510291-003A	SW6020A	Zinc	34.3	MG/KG		J	9
	MW06-11-20151021	1510291-003A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW06-14-20151021	1510291-004A	SW6020A	Silver		MG/KG		UJ	8L
	MW06-14-20151021	1510291-004A	SW6020A	Antimony		MG/KG		UJ	8L
	MW06-14-20151021	1510291-004A	SW6020A	Arsenic	1.47	MG/KG		J	9
	MW06-14-20151021	1510291-004A	SW6020A	Zinc	21.7	MG/KG		J	9
	MW06-14-20151021	1510291-004A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW13-04-20151021	1510291-010A	SW6020A	Silver		MG/KG		UJ	8L
	MW13-04-20151021	1510291-010A	SW6020A	Antimony		MG/KG		UJ	8L
	MW13-04-20151021	1510291-010A	SW6020A	Arsenic	1.77	MG/KG		J	9
	MW13-04-20151021	1510291-010A	SW6020A	Zinc	34.7	MG/KG		J	9
	MW13-04-20151021	1510291-010A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW13-10-20151021	1510291-011A	SW6020A	Silver		MG/KG		UJ	8L
	MW13-10-20151021	1510291-011A	SW6020A	Antimony		MG/KG		UJ	8L
	MW13-10-20151021	1510291-011A	SW6020A	Arsenic	7.61	MG/KG		J	9
	MW13-10-20151021	1510291-011A	SW6020A	Zinc	33.7	MG/KG		J	9
	MW13-10-20151021	1510291-011A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW13-18-20151021	1510291-013A	SW6020A	Silver		MG/KG		UJ	8L
	MW13-18-20151021	1510291-013A	SW6020A	Antimony		MG/KG		UJ	8L
	MW13-18-20151021	1510291-013A	SW6020A	Arsenic	2.45	MG/KG		J	9
	MW13-18-20151021	1510291-013A	SW6020A	Zinc	17.8	MG/KG		J	9
	MW13-18-20151021	1510291-013A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW14-06-20151021	1510291-016A	SW6020A	Silver		MG/KG		UJ	8L
	MW14-06-20151021	1510291-016A	SW6020A	Antimony	0.568	MG/KG		J	8L

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1510291	MW14-06-20151021	1510291-016A	SW6020A	Arsenic	5.85	MG/KG		J	9
	MW14-06-20151021	1510291-016A	SW6020A	Zinc	79.6	MG/KG		J	9
	MW14-06-20151021	1510291-016A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW14-11-20151021	1510291-017A	SW6020A	Silver	2.12	MG/KG		J	8L
	MW14-11-20151021	1510291-017A	SW6020A	Antimony	0.787	MG/KG		J	8L
	MW14-11-20151021	1510291-017A	SW6020A	Arsenic	11.7	MG/KG		J	9
	MW14-11-20151021	1510291-017A	SW6020A	Zinc	140	MG/KG		J	9
	MW14-11-20151021	1510291-017A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW14-13-20151021	1510291-018A	SW6020A	Silver	7.5	MG/KG		J	8L
	MW14-13-20151021	1510291-018A	SW6020A	Antimony	0.464	MG/KG		J	8L
	MW14-13-20151021	1510291-018A	SW6020A	Arsenic	14.1	MG/KG		J	9
	MW14-13-20151021	1510291-018A	SW6020A	Zinc	302	MG/KG		J	9
	MW14-13-20151021	1510291-018A	SW8082	Total PCBs	0.0519	MG/KG		J	8L
	MW14-13-20151021	1510291-018A	SW8082	Aroclor 1254		MG/KG		UJ	8L
	MW14-13-20151021	1510291-018A	SW8082	Aroclor 1268		MG/KG		UJ	8L
	MW14-13-20151021	1510291-018A	SW8082	Aroclor 1221		MG/KG		UJ	8L
	MW14-13-20151021	1510291-018A	SW8082	Aroclor 1232		MG/KG		UJ	8L
	MW14-13-20151021	1510291-018A	SW8082	Aroclor 1248		MG/KG		UJ	8L
	MW14-13-20151021	1510291-018A	SW8082	Aroclor 1016		MG/KG		UJ	8L
	MW14-13-20151021	1510291-018A	SW8082	Aroclor 1262		MG/KG		UJ	8L
	MW14-13-20151021	1510291-018A	SW8082	Aroclor 1242		MG/KG		UJ	8L
	MW14-13-20151021	1510291-018A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW14-20-20151021	1510291-020A	SW6020A	Silver	0.405	MG/KG		J	8L
	MW14-20-20151021	1510291-020A	SW6020A	Antimony	0.592	MG/KG		J	8L
	MW14-20-20151021	1510291-020A	SW6020A	Arsenic	4	MG/KG		J	9
	MW14-20-20151021	1510291-020A	SW6020A	Zinc	63.9	MG/KG		J	9
	MW14-20-20151021	1510291-020A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW15-06-20151021	1510291-006A	SW6020A	Silver		MG/KG		UJ	8L
	MW15-06-20151021	1510291-006A	SW6020A	Antimony	0.345	MG/KG		J	8L
	MW15-06-20151021	1510291-006A	SW6020A	Arsenic	2.68	MG/KG		J	9
	MW15-06-20151021	1510291-006A	SW6020A	Zinc	82.6	MG/KG		J	9
	MW15-06-20151021	1510291-006A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW15-11-20151021	1510291-007A	SW6020A	Silver		MG/KG		UJ	8L
	MW15-11-20151021	1510291-007A	SW6020A	Antimony		MG/KG		UJ	8L
	MW15-11-20151021	1510291-007A	SW6020A	Arsenic	8.86	MG/KG		J	9
	MW15-11-20151021	1510291-007A	SW6020A	Zinc	49.4	MG/KG		J	9
	MW15-11-20151021	1510291-007A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW15-15-20151021	1510291-008A	SW6020A	Silver		MG/KG		UJ	8L
	MW15-15-20151021	1510291-008A	SW6020A	Antimony		MG/KG		UJ	8L
	MW15-15-20151021	1510291-008A	SW6020A	Arsenic	1.01	MG/KG		J	9

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1510291	MW15-15-20151021	1510291-008A	SW6020A	Zinc	24.9	MG/KG		J	9
1510313	MW15-15-20151021	1510291-008A	SW8270D	Benzoic acid		UG/KG	*	UJ	10L
	MW09-08-20151022	1510313-002A	SW6020A	Antimony		MG/KG		UJ	8L
	MW09-08-20151022	1510313-002A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW09-13-20151022	1510313-003A	SW6020A	Antimony		MG/KG		UJ	8L
	MW09-13-20151022	1510313-003A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW09-16-20151022	1510313-004A	SW6020A	Antimony		MG/KG		UJ	8L
	MW09-16-20151022	1510313-004A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW09D-05-20151022	1510313-006A	SW6020A	Antimony	17.7	MG/KG		J	8L
	MW09D-05-20151022	1510313-006A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW09D-14-20151022	1510313-008A	SW6020A	Antimony	0.218	MG/KG		J	8L
	MW09D-14-20151022	1510313-008A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW09D-18-20151022	1510313-009A	SW6020A	Antimony		MG/KG		UJ	8L
	MW09D-18-20151022	1510313-009A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW10-06-20151022	1510313-020A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW10-16-20151022	1510313-022A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW10-18-20151022	1510313-023A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW10D-06-20151022	1510313-014A	SW6020A	Antimony		MG/KG		UJ	8L
	MW10D-06-20151022	1510313-014A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW10D-13-20151022	1510313-015A	SW6020A	Antimony		MG/KG		UJ	8L
	MW10D-13-20151022	1510313-015A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
1512172	MW10D-18-20151022	1510313-016A	SW8270D	Benzyl alcohol		UG/KG	*	R	10L
	MW06-20151217	1512172-001E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW07-20151217	1512172-002E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW09-20151217	1512172-003E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW09D-20151217	1512172-004E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW10-20151217	1512172-005E	SW8270D	4-Nitrophenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW10-20151217	1512172-005E	SW8270D	2,4-Dimethylphenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	4-Methylphenol (p-cresol)		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	Phenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	2,4-Dichlorophenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	2,4-Dinitrophenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	4-Chloro-3-methylphenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	Pentachlorophenol		UG/L	MDL	R	13L
	MW10-20151217	1512172-005E	SW8270D	2,4,6-Trichlorophenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	2-Nitrophenol		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	2-Methylphenol (o-cresol)		UG/L		R	13L
	MW10-20151217	1512172-005E	SW8270D	2-Chlorophenol		UG/L		R	13L

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1512172	MW10-20151217	1512172-005E	SW8270D	2,4,5-Trichlorophenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	4-Nitrophenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW10D-20151217	1512172-006E	SW8270D	2,4-Dimethylphenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	4-Methylphenol (p-cresol)		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	Phenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	2,4-Dichlorophenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	2,4-Dinitrophenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	4-Chloro-3-methylphenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	Pentachlorophenol		UG/L	MDL	R	13L
	MW10D-20151217	1512172-006E	SW8270D	2,4,6-Trichlorophenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	2-Nitrophenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	2-Methylphenol (o-cresol)		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	2-Chlorophenol		UG/L		R	13L
	MW10D-20151217	1512172-006E	SW8270D	2,4,5-Trichlorophenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	4-Nitrophenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW12-20151217	1512172-007E	SW8270D	2,4-Dimethylphenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	4-Methylphenol (p-cresol)		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	Phenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	2,4-Dichlorophenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	2,4-Dinitrophenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	4-Chloro-3-methylphenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	Pentachlorophenol		UG/L	MDL	R	13L
	MW12-20151217	1512172-007E	SW8270D	2,4,6-Trichlorophenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	2-Nitrophenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	2-Methylphenol (o-cresol)		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	2-Chlorophenol		UG/L		R	13L
	MW12-20151217	1512172-007E	SW8270D	2,4,5-Trichlorophenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	4-Nitrophenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW12D-20151217	1512172-008E	SW8270D	bis(2-Ethylhexyl)adipate	1.54	UG/L	B	U	7
	MW12D-20151217	1512172-008E	SW8270D	2,4-Dimethylphenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	4-Methylphenol (p-cresol)		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	Phenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	2,4-Dichlorophenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	2,4-Dinitrophenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		R	13L

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1512172	MW12D-20151217	1512172-008E	SW8270D	4-Chloro-3-methylphenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	Pentachlorophenol		UG/L	MDL	R	13L
	MW12D-20151217	1512172-008E	SW8270D	2,4,6-Trichlorophenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	2-Nitrophenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	2-Methylphenol (o-cresol)		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	2-Chlorophenol		UG/L		R	13L
	MW12D-20151217	1512172-008E	SW8270D	2,4,5-Trichlorophenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	4-Nitrophenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW15-20151217	1512172-009E	SW8270D	2,4-Dimethylphenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	4-Methylphenol (p-cresol)		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	Phenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	2,4-Dichlorophenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	2,4-Dinitrophenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	4-Chloro-3-methylphenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	Pentachlorophenol		UG/L	MDL	R	13L
	MW15-20151217	1512172-009E	SW8270D	2,4,6-Trichlorophenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	2-Nitrophenol		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	2-Methylphenol (o-cresol)		UG/L		R	13L
	MW15-20151217	1512172-009E	SW8270D	2-Chlorophenol		UG/L		R	13L
1512220	MW15-20151217	1512172-009E	SW8270D	2,4,5-Trichlorophenol		UG/L		R	13L
	MW08-20151221	1512220-001G	EPA1631E	Mercury	2			J	9
	MW08-20151221	1512220-001B	EPA200.8	Zinc	3.98	UG/L		J	9
	MW08-20151221	1512220-001E	SW8270D	4-Nitrophenol		UG/L	Q*	R	10L
	MW08-20151221	1512220-001E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW08-20151221	1512220-001E	SW8270D	2,4-Dimethylphenol		UG/L	*	R	10L
	MW11-20151221	1512220-002E	SW8270D	4-Nitrophenol		UG/L	Q*	R	10L
	MW11-20151221	1512220-002E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW11-20151221	1512220-002E	SW8270D	2,4-Dimethylphenol		UG/L	*	R	10L
	MW11-20151221	1512220-002E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	8L,13L
	MW11-20151221	1512220-002E	SW8270D	4-Chloroaniline		UG/L		UJ	8L
	MW11-20151221	1512220-002E	SW8270D	Phenol		UG/L		UJ	13L
	MW11-20151221	1512220-002E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	13L
	MW11-20151221	1512220-002E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	13L
	MW11-20151221	1512220-002E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	13L
	MW11-20151221	1512220-002E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	8L,13L
	MW11-20151221	1512220-002E	SW8270D	Pentachlorophenol		UG/L	MDL	UJ	13L
	MW11-20151221	1512220-002E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	13L
	MW11-20151221	1512220-002E	SW8270D	2-Nitrophenol		UG/L		UJ	13L

Qualified Data Summary Table
2015 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1512220	MW11-20151221	1512220-002E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	13L
	MW11-20151221	1512220-002E	SW8270D	2-Chlorophenol		UG/L		UJ	13L
	MW11-20151221	1512220-002E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	13L
	MW13-20151221	1512220-003E	SW8270D	4-Nitrophenol		UG/L	Q*	R	10L
	MW13-20151221	1512220-003E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW13-20151221	1512220-003E	SW8270D	2,4-Dimethylphenol		UG/L	*	R	10L
	MW14-20151221	1512220-004E	SW8270D	4-Nitrophenol		UG/L	Q*	R	10L
	MW14-20151221	1512220-004E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW14-20151221	1512220-004E	SW8270D	2,4-Dimethylphenol		UG/L	*	R	10L
	MW16-20151221	1512220-005F	NWTPH-	Diesel (Fuel Oil)	2690	UG/L		J	13L
	MW16-20151221	1512220-005F	NWTPH-	Heavy Oil		UG/L		UJ	13L
	MW16-20151221	1512220-005E	SW8270D	4-Nitrophenol		UG/L	Q*	R	10L
	MW16-20151221	1512220-005E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MW16-20151221	1512220-005E	SW8270D	2,4-Dimethylphenol	12.7	UG/L	D*	J	10L
	MWFD1-20151221	1512220-006G	EPA1631E	Mercury	1.04			J	9
	MWFD1-20151221	1512220-006B	EPA200.8	Zinc		UG/L		UJ	9
	MWFD1-20151221	1512220-006I	SW8260C	Carbon tetrachloride		UG/L		UJ	8L
	MWFD1-20151221	1512220-006E	SW8270D	4-Nitrophenol		UG/L	Q*	R	10L
	MWFD1-20151221	1512220-006E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L
	MWFD1-20151221	1512220-006E	SW8270D	2,4-Dimethylphenol		UG/L	*	R	10L
	MWFD2-20151221	1512220-007E	SW8270D	4-Nitrophenol		UG/L	Q*	R	10L
	MWFD2-20151221	1512220-007E	SW8270D	Benzyl alcohol		UG/L	Q*	R	10L

APPENDIX K-2

Data Validation Report, EcoChem (2016)

DATA VALIDATION REPORT

2016 DUWAMISH MARINE CENTER

Prepared for:

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40 2nd Avenue SE
Issaquah, Washington 98027-3452

Prepared by:

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1011 Western Avenue, Suite 1006
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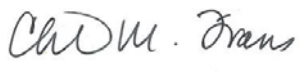
EcoChem Project: C27102-1

March 22, 2017

Approved for Release:



Christina M. Frans
Senior Project Manager
EcoChem, Inc.

PROJECT NARRATIVE

Basis for the Data Validation

This report summarizes the results of the summary level validation (Stage 2A) performed on soil, sediment, and ground water samples and the associated laboratory and field quality control samples for the Duwamish Marine Center project sampling. A complete list of samples is provided in the Sample Index.

Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington, ARI Laboratories, Tukwila, Washington, and ALS Environmental, Kelso, Washington. The analytical methods and EcoChem project chemists are listed in the following table:

ANALYSIS	METHOD OF ANALYSIS	PRIMARY REVIEW	SECONDARY REVIEW
Volatile Organic Compounds (VOC)	SW8260C	E. Clayton	C. Frans
Semivolatile Organic Compounds (SVOC)	SW8270D & SW8270D-SIM	A. Bodkin	
PCB Aroclors	SW8082	B. Frans	
Total Petroleum Hydrocarbons – Diesel Range	NWTPH-Dx	B. Frans	
Total Petroleum Hydrocarbons – Gasoline Range	NWTPH-Gx	B. Frans	
Tributyltin	Krone	E. Clayton	
Total & Dissolved Metals & Mercury	SW6020, EPA 200.8 SW7471, EPA 1631E		
Total Organic Carbon	SW9060		
Hexavalent Chromium	SW7196		
Moisture	SM2540B		

The data were reviewed using guidance and quality control criteria documented in the analytical methods; Quality Assurance Project Plan Duwamish Marine Center, SoundEarth Strategies, Inc., May 13, 2013; USEPA National Functional Guidelines for Organic Data Review (EPA, 1999 & 2008); and USEPA National Functional Guidelines for Inorganic Data Review (EPA, 2010 & 2014).

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

Data qualifier definitions, reason codes, and validation criteria are included as APPENDIX A. A Qualified Data Summary Table is included in APPENDIX B. Data Validation Worksheets will be kept

on file at EcoChem, Inc. A qualified laboratory electronic data deliverable (EDD) is also submitted with this report.

Sample Index
Duwamish Marine Center

SDG	Sample ID	Lab Sample ID	Dioxins	NWTPH-Gx NWTPH-Dx	VOCs	SIM VOC	SVOCs	SIM PAHs	TBT	PCBs	Total Metals/Hg	Dissolved Metals/Hg	Grain Size	Hexavalent Chromium	Wet Chemistry
1603305	GLB07-08-20160328	1603305-002		✓	✓			✓		✓	✓				
	GLB07-15-20160328	1603305-003		✓	✓			✓		✓	✓				
	GLB07-19-20160328	1603305-004		✓	✓			✓		✓	✓				
	GLB08-08-20160328	1603305-005		✓	✓			✓		✓	✓				
	GLB08-12-20160328	1603305-006		✓	✓			✓		✓	✓				
	GLB08-20-20160328	1603305-008		✓	✓			✓		✓	✓				
	GLB05-04-20160328	1603305-009		✓	✓			✓		✓	✓				
	GLB05-12-20160328	1603305-011		✓	✓			✓		✓	✓				
	GLB05-20-20160328	1603305-013		✓	✓			✓		✓	✓				
	GLB04-04-20160328	1603305-014		✓	✓			✓		✓	✓				
	GLB04-07-20160328	1603305-015		✓	✓			✓		✓	✓				
	GLB04-12-20160328	1603305-016		✓	✓			✓		✓	✓				
	GLB04-16-20160328	1603305-017		✓	✓			✓		✓	✓				
	GLB02-03-20160328	1603305-019		✓	✓			✓		✓	✓				
	GLB02-08-20160328	1603305-020		✓	✓			✓		✓	✓				
	GLB02-17-20160328	1603305-022		✓	✓			✓		✓	✓				
	GLB02-20-20160328	1603305-023		✓	✓			✓		✓	✓				
	GLB03-08-20160328	1603305-025		✓	✓			✓		✓	✓				
	GLB03-17-20160328	1603305-026		✓	✓			✓		✓	✓				
	GLB03-20-20160328	1603305-027		✓	✓			✓		✓	✓				
	GLB11-06-20160328	1603305-028		✓	✓			✓		✓	✓				
	GLB11-15-20160328	1603305-030		✓	✓			✓		✓	✓				
	GLB11-20-20160328	1603305-031		✓	✓			✓		✓	✓				
	GLB13-01-20160328	1603305-032		✓	✓			✓		✓	✓				
	GLB13-04-20160328	1603305-033		✓	✓			✓		✓	✓				
	GLB13-12-20160328	1603305-034		✓	✓			✓		✓	✓				
1603321	GLB12-04-20160329	1603321-001		✓	✓			✓		✓	✓				
	GLB12-14-20160329	1603321-004		✓	✓			✓		✓	✓				
	GLB12-20-20160329	1603321-005		✓	✓			✓		✓	✓				
	GLB06-04-20160329	1603321-006		✓	✓			✓		✓	✓				
	GLB06-09-20160329	1603321-008		✓	✓			✓		✓	✓				
	GLB06-14-20160329	1603321-009		✓	✓			✓		✓	✓				
	GLB09-03-20160329	1603321-011		✓	✓			✓		✓	✓				
	GLB09-14-20160329	1603321-013		✓	✓			✓		✓	✓				
	GLB09-20-20160329	1603321-014		✓	✓			✓		✓	✓				
	GLB01-07-20160329	1603321-015		✓	✓			✓		✓	✓				
	GLB01-14-20160329	1603321-017		✓	✓			✓		✓	✓				
	GLB01-20-20160329	1603321-018		✓	✓			✓		✓	✓				
	GLB10-04-20160329	1603321-019		✓	✓			✓		✓	✓				
	GLB10-08-20160329	1603321-020		✓	✓			✓		✓	✓				
	GLB14-02-20160329	1603321-021		✓	✓			✓		✓	✓				
	GLB14-06-20160329	1603321-022		✓	✓			✓		✓	✓				
	GLB14-12-20160329	1603321-023		✓	✓			✓		✓	✓				
	GLB14-15-20160329	1603321-024								✓					
1604206	MW05-20160420	1604206-001		✓	✓		✓			✓	✓	✓			✓
	MW06-20160421	1604206-002		✓	✓		✓			✓	✓	✓			✓
	MW07-20160421	1604206-003		✓	✓		✓			✓	✓	✓			✓
	MW08-20160421	1604206-004		✓	✓		✓			✓	✓	✓			✓
	MW09-20160421	1604206-005		✓	✓		✓			✓	✓	✓			✓
	MW09D-20160421	1604206-006		✓	✓		✓			✓	✓	✓			✓

Sample Index
Duwamish Marine Center

SDG	Sample ID	Lab Sample ID	Dioxins	NWTPH-Gx NWTPH-Dx	VOCs	SIM VOC	SVOCs	SIM PAHs	TBT	PCBs	Total Metals/Hg	Dissolved Metals/Hg	Grain Size	Hexavalent Chromium	Wet Chemistry
1604206	MW10-20160420	1604206-007		✓	✓		✓			✓	✓	✓			✓
	MW10D-20160420	1604206-008		✓	✓		✓			✓	✓	✓			✓
	MW11-20160420	1604206-009		✓	✓		✓			✓	✓	✓			✓
	MW12-20160420	1604206-010		✓	✓		✓			✓	✓	✓			✓
	MW12D-20160420	1604206-011		✓	✓		✓			✓	✓	✓			✓
	MW13-20160421	1604206-012		✓	✓		✓			✓	✓	✓			✓
	MW14-20160421	1604206-013		✓	✓		✓			✓	✓	✓		✓	✓
	MW15-20160420	1604206-014		✓	✓		✓			✓	✓	✓			✓
	MW16-20160421	1604206-015		✓	✓		✓			✓	✓	✓			✓
	FD1-20160420	1604206-016		✓	✓		✓			✓	✓	✓			✓
	FD2-20160421	1604206-017		✓	✓		✓			✓	✓	✓			✓
1606375	CB12-20160628	1606375-001		✓	✓	✓	✓			✓	✓				✓
	CB01-20160628	1606375-002		✓	✓	✓	✓			✓	✓				✓
1609147	MW-14-20160913	1609147-001		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW-13-20160913	1609147-002		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW-15-20160913	1609147-003		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW-09-20160913	1609147-004		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	FD1-20160913	1609147-005		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
1609166	MW16-20160914	1609166-001		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW06-20160914	1609166-002		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW12-20160914	1609166-003		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW07-20160914	1609166-004		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
1609184	FD2-20160915	1609184-001		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW12D-20160915	1609184-002		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW11-20160915	1609184-003		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW08-20160915	1609184-004		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW05-20160915	1609184-005		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
1609207	MW09D-20160916	1609207-001		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW10-20160916	1609207-002		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	MW10D-20160916	1609207-003		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
Volatile Organic Compounds - Method SW8260C
1,4-Dioxane by Method SW8260C-SIM

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1603305	26 Soil	Stage 2A
1603321	27 Soil	Stage 2A
1604206	17 Groundwater	Stage 2A
1606375	2 Sediment	Stage 2A
1609147	5 Groundwater	Stage 2A
1609166	4 Groundwater	Stage 2A
1609184	5 Groundwater	Stage 2A
1609207	3 Groundwater	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

SDG 1609147, 1609166, 1609184, 1609207: The method detection limit was greater than the reporting limit for vinyl acetate.

SDG 1604206: The laboratory included quality control (QC) samples not associated with any samples in this analytical data set. All results from these QC samples were flagged as do-not-report and should not be used for any reason.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

2	Sample Receipt, Preservation, and Holding Times	✓	Laboratory Duplicates
✓	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	✓	Target Analyte List
2	Surrogate Compounds	1	Reporting Limits
2	Laboratory Control Samples (LCS)	✓	Reported Results
2	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)		

✓Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

As stated in the validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C-6°C and samples must be analyzed within 14 days. For volatiles analysis, no action is taken if the cooler temperature is <10°C. If the cooler temperature is >10°C, associated sample results are estimated (J/UJ-1). The following exceptions were noted during validation:

SDGs 1603305, 1606375, 1609147, 1609166, 1609184, 1609207: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

SDG 1604206: The cooler temperatures were greater than the upper control limit of 6°C, ranging from 8.1°C – 14.2°C. It was unclear which samples were in which coolers. The samples were received at the laboratory on 4/21/2017. For samples collected on 4/21/2017, there was insufficient time for the samples to cool. Therefore, no action was taken. For samples collected on 4/20/2017, results were estimated (J/UJ-1).

MW05-20160420	MW12-20160420
MW10-20160420	MW12D-20160420
MW10D-20160420	MW15-20160420
MW11-20160420	FD1-20160420

Field Blanks

Trip blanks were shipped to the field and accompanied samples from the field to the laboratory. Analyses of these trip blank samples was not requested, therefore data were not generated.

Field blanks were not submitted with this sampling event.

Surrogate Compounds

The surrogate compounds toluene-d8, 4-bromofluorobenzene, and dibromofluoromethane, were added to all samples. When one or more surrogate percent recovery (%R) values are below the control limits and indicate a potential low bias, associated results are estimated (J/UJ-13L). When one or more surrogate %R values are greater than the control limit and indicate a potential high bias, only the positive results in sample are estimated (J-13H). If there is one surrogate outlier that is less than 10% recovery in a sample, the reporting limits are rejected (R-13L) and the detections are estimated (J-13L).

Qualifiers are not applied to QC samples. With the exceptions noted below, all surrogate spike recoveries were within the laboratory control limits.

SDG 1609147: The toluene-d8 recovery for Sample MW-14-20160913 was greater than the upper control limit. The associated 1,4-dioxane result was not detected; no qualification was required.

SDG 1609166: For Sample MW16-20160914, the toluene-d8 recovery was greater than the upper control limit and dibromofluoromethane recovered very low (<10%). The associated 1,4-dioxane reporting limit result was rejected (R-13).

The toluene-d8 recovery for Sample MW07-20160914 was greater than the upper control limit. The associated 1,4-dioxane result was not detected; no qualification was required.

Laboratory Control/Laboratory Control Duplicate Samples

Laboratory control sample/laboratory control duplicate samples (LCS/LCSD) were analyzed at the required frequency of one per batch of 20 or fewer samples. No action is taken unless both the LCS and LCSD %R values are outside the control limits for %R outliers. When the LCS/LCSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8). Only the associated positive results are estimated (J-8) if the %R values indicate a potential high bias.

Precision is evaluated using the RPD values calculated between the LCS and LCSD results. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample.

Qualifiers were issued to all samples in an extraction batch. Although various laboratory control samples exhibited recoveries outside of the control limits, only the following required qualification in the associated field samples.

SDG 1604206:, Nitrobenzene was not recovered in both extraction batches; all associated results were not detected and all reporting limits were rejected (R-10L).

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the appropriate frequency. No action is taken unless both the MS and MSD %R values are outside the control limits for MS/MSD %R outliers. When the MS/MSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8). Only the associated positive results are estimated (J-8) if the %R values indicate a potential high bias.

Precision is evaluated using the RPD values calculated between the MS and MSD results. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty.

For some SDGs, a sample in the batch from another client was used as the parent sample for the matrix spikes; no data were qualified based on these outliers.

Qualifiers were only issued to the parent sample. Although various matrix spike samples exhibited recoveries outside of the control limits, only the following required qualification in the associated field samples:

SDG	Parent Sample ID	Analyte	MS %R	MSD %R	RPD	Potential Bias	Action
1603305	GLB02-20-20160328	2,2-Dichloropropane	33.7	30.5	--	Low	UJ-8L
		1,1,2,2-Tetrachloroethane	1.8	1.6	--	Low	R-8L
1606375	CB01-20160628	Dichlorodifluoromethane	38.4	34.6	--	Low	UJ-8L
		1,1,2,2-Tetrachloroethane	20.4	18	--	Low	
		Vinyl acetate	-0.05	-0.15	--	Low	R-8L
1609184	MW05-	1,4-Dioxane	30	31.5	--	Low	UJ-8L

Field Duplicates

For water samples, the RPD control limit is 25% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL.

SDG 1609147: Samples MW-13-20160913 and FD1-20160913 were identified as field duplicates. All RPD values were within acceptance criteria.

SDG 1609184: Samples MW11-20160915 and FD2-20160915 were identified as field duplicates. All RPD values were within acceptance criteria.

Target Analyte List

The QAPP/SAP did not specify a target analyte list.

Reporting Limits

The target reporting limits for samples were adjusted for sample size, moisture content, and required dilutions. No data were qualified.

Reported Results

No anomalies were noted during validation for evaluated results.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable as demonstrated by the surrogate, LCS/LCSD and MS/MSD recovery values. Precision was also acceptable as demonstrated by the LCS/LCSD, MS/MSD, and field duplicate RPD values.

One detection limit was rejected based on a very low surrogate recovery.

Other data were estimated due to MS/MSD and LCS/LCSD recovery outliers.

Data that have been rejected should not be used for any purpose.

All other data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
Semivolatile Organic Compounds - Method SW8270D
Polynuclear Aromatic Hydrocarbons - Method SW8270D-SIM

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level	SVOC	PAH
1603305	26 Soil	Stage 2A		✓
1603321	17 Soil	Stage 2A		✓
1604206	17 Water	Stage 2A	✓	✓
1606375	2 Sediment	Stage 2A	✓	
1609147	5 Water	Stage 2A	✓	✓
1609166	4 Water	Stage 2A	✓	✓
1609184	5 Water	Stage 2A	✓	✓
1609207	3 Water	Stage 2A	✓	✓

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

SDG 1603321: Both SVOC and PAH analyses were requested on the Chain-of-Custody (COC), however only PAH results were reported by the laboratory.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

TECHNICAL DATA VALIDATION

2	Sample Preservation and Holding Times	2	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)
2	Laboratory Blanks	2	Field Duplicates
1	Field Blanks	1	Target Analyte List
2	Surrogate Compounds	✓	Reporting Limits
2	Laboratory Control Samples (LCS)	2	Reported Results
2	Laboratory Duplicates (DUP)		

✓Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Preservation and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C - 6°C and be extracted within 7 days for aqueous samples and 14 days for soil samples. Sample extracts must be analyzed within 40 days of extraction. The following exceptions were noted during validation:

SDGs 1603305, 1606375, 1609147, 1609166, 1609184, 1609207: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

SDG 1604206: The cooler temperatures were greater than the upper control limit of 6°C, ranging from 8.1°C – 14.2°C. It was unclear which samples were in which coolers. The samples were received at the laboratory on 4/21/2017. For samples collected on 4/21/2017, there was insufficient time for the samples to cool. Therefore, no action was taken. For samples collected on 4/20/2017, results were estimated (J/UJ-1).

MW05-20160420	MW12-20160420
MW10-20160420	MW12D-20160420
MW10D-20160420	MW15-20160420
MW11-20160420	FD1-20160420

Laboratory Blanks

To assess the impact of any blank contaminant on the reported sample results, an action level is established at five times (5x) the concentration reported in the blank. If a contaminant is reported in an associated field sample and the concentration is less than the action level, the result is qualified as not detected (U-7). No action is taken if the sample result is greater than the action level, or for non-detected results.

Laboratory blanks were analyzed at the appropriate frequency. Contaminant levels, associated samples, and action levels are documented in the data validation worksheets.

SDG 1603305, 1603321: There were positive detections of bis(2-ethylhexyl)phthalate in the method blanks for two extraction batches. Positive results for this compound in associated samples that were less than the action level were qualified as not detected (U-7) at the reported concentration.

SDG 1604206: There were positive results for bis(2-ethylhexyl)phthalate and benzyl butylphthalate. Positive results for these compounds in associated samples that were less than the action level were qualified as not detected (U-7) at the reported concentration.

SDG 1606375: There was a positive result for dimethylphthalate. Positive results for this compound in associated samples were greater than the action level. No action was required.

SDG 1609147: There were positive results for benzo(g,h,i)perylene and pyrene. Positive results for these compounds in associated samples that were less than the action level were qualified as not detected (U-7) at the reported concentration.

Field Blanks

Field blanks were not submitted with this data set.

Surrogate Compounds

For full scan analysis (8270D), the surrogate compounds 2,4,6-tribromophenol, 2-fluorobiphenyl, nitrobenzene-d5, phenol-d6, and terphenyl-d14, were added to all field and batch QC samples. For selected ion monitoring (SIM) analysis (8270D-SIM), the surrogate compounds terphenyl-d14 and 2-fluorobiphenyl were added to all field and batch QC samples.

When one or more acid surrogate percent recovery (%R) values or two or more base/neutral surrogate %R values are below the control limits and indicate a potential low bias, associated results for the affected fraction are estimated (J/UJ-13L).

When one or more acid surrogate %R values or two or more base/neutral surrogate %R values are greater than the control limit and indicate a potential high bias, only the positive results in a fraction for a sample are estimated (J-13H).

If there is one surrogate outlier in a fraction that is less than 10% recovery, the reporting limits for that fraction are rejected (R-13L) and the detections are estimated (J-13L).

With the exceptions noted below, all surrogate spike recoveries were within the laboratory control limits.

SDG 1606375: For Sample CB12-20160628, one base-neutral surrogate %R value was less than 10%, indicating a very low bias. Base-neutral positive results were estimated (J-13L) and reporting limits were rejected (R-13L). For Sample CB01-20160628, one base-neutral surrogate %R value was less than the lower control limit. The %R values for the other two base-neutral surrogates were acceptable. No action was required.

SDG 1609166, 1609184, 1609207: For the laboratory duplicate, the %R value for 2,4,6-tribromophenol was 0%. Qualifiers are not assigned to QC samples. No action was taken.

Laboratory Control Samples

Laboratory control samples (LCS) and/or laboratory control sample/laboratory control sample duplicates (LCS/LCSD) were analyzed at the required frequency of one per batch of 20 or fewer samples. For batches with both an LCS and LCSD, no action is taken unless both the LCS and LCSD %R values are outside the control limits. Precision is evaluated using the relative percent difference (RPD) values calculated between the LCS and LCSD results.

When the LCS/LCSD %R values indicate a potential low bias, associated results are estimated (J/UJ-10L). If there is an outlier that is less than 10% recovery, the reporting limit is rejected (R-10L) and any detections are estimated (J-10L). Only associated positive results are estimated (J-10H) if the %R values indicate a potential high bias. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty. Qualifiers were issued to all samples in the extraction batch.

SDG 1603305, 1603321: The %R values for bis(2-ethylhexyl)phtlalate was greater than the upper control limit for two extraction batches. After qualifying for method blank contamination, there were no positive results for this compound in the associated samples. No action was required.

SDG 1604206: Benzyl alcohol was not recovered in the LCS. Because there were no positive results for this compound in the associated samples, all reporting limits were rejected (R-10L).

SDG 1606375: An LCS/LCSD was submitted with this SDG. There were several %R and RPD outliers. Below is a summary of outliers and qualifiers:

COMPOUND	LCS %R	LCSD %R	RPD OUTLIER	QUALIFIER
2,4,6-Trichlorophenol	24.8	0	--	UJ-10L
2,4-dinitrophenol	0	0	--	R-10L
2-Nitrophenol	--	9.48	150	UJ-10L
4,6-Dinitro-2-methylphenol	0	0	--	R-10L
4-Nitrophenol	--	15.2	117	J-9
Pentachlorophenol	0	0	--	J/R-10L

Laboratory Duplicates

SDG1606375: A laboratory duplicate was not submitted with this SDG.

SDG 1604206: A laboratory duplicate was performed on Sample MW06-20160421. The difference value for pentachlorophenol was greater than the control limit. The positive result for pentachlorophenol in the parent sample was estimated (J-9).

SDG 1609147: A laboratory duplicate was performed on Sample MW-14-20160913. Several RPD or difference values were greater than the control limits. Associated results in the parent sample were estimated (J/UJ-9).

SDG 1609184, 1609207: Batch laboratory duplicates from SDG 1609166 was submitted with this SDG. The parent sample was not from this SDG. Therefore, no action was required.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the appropriate frequency. No action is taken unless both the MS and MSD %R values are outside the control limits for MS/MSD %R outliers. Precision is evaluated using the RPD values calculated between the MS and MSD results. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample. Qualifiers were only issued to the parent sample.

When the MS/MSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8L). Only the associated positive results are estimated (J-8H) if the %R values indicate a potential high bias. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty.

SDG 1609147: The MS/MSD analyses were performed using Samples MW-13-20160913. The %R values in the MS and MSD were less than the lower control limit for bis(2-ethylhexyl)phthalate, di-n-octyl phthalate, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, and dibenz(a,h)anthracene, indicating a potential low bias. Results in the parent sample were estimated (J/UJ-8L).

SDG 1609166: The MS/MSD analyses were performed using Sample MW06-20160914. The %R values in the MS and MSD were less than the lower control limit for bis(2-ethylhexyl)phthalate, di-n-octyl phthalate, benzo(b)fluoranthene, benzo(g,h,i)perylene, and dibenz(a,h)anthracene, indicating a potential low bias. Results in the parent sample were estimated (J/UJ-8L).

SDG 1609184, 1609207: Batch MS/MSD from SDG 1609166 was submitted with this SDG. The parent sample was not from this SDG. Therefore, no action was required.

SDG 1604206: The batch MS/MSD analyses were performed using a sample from another project. Although there were %R and RPD values that were outside the control limits, no action was required since the parent sample was in another SDG.

SDG 1606375: An MS/MSD was not submitted with this SDG. Precision and accuracy was evaluated using the LCS/LCSD.

Field Duplicates

For soil samples, the RPD control limit is 50% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 2x the RL.

For water samples, the RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL.

SDG 1603305, 1603321, 1606375, 1609166, 1609207: Field duplicates were not submitted with this SDG.

SDG 1604206: Two sets of field duplicates was submitted with this SDG: MW15-20160420 & FD1-20160420 and MW07-20160421 & FD2-20160421. Benzo(g,h,i)perylene was not detected in the parent sample but was detected in the duplicate sample at a concentration greater than 5x the RL. Results for this compound in the field duplicate and parent sample were estimated (J/UJ-9).

SDG 1609147: One field duplicate set was submitted with this SDG: MW-13-20160913 & FD1-20160913. After qualifying for method blank contamination, there were no positive results greater than the reporting limit. Field precision was acceptable.

SDG 1609184: One field duplicate set was submitted with this SDG: MW-11-20160915 & FD2-20160915. Field precision was acceptable.

Target Analyte List

Results for additional compounds not listed on the QAPP Target Compound List were reported for some SDGs.

Reporting Limits

The reporting limits for several analytes were greater than the QAPP PQLs.

Reported Results

SDG 1609147: Chrysene and benzo(a)anthracene were reported from the 8270 and the 8270SIM analyses. Results from the 8270SIM analyses should be used. The 8270 results were qualified as do-not-report (DNR-14).

SDG 1609166: For Samples IDW-1, MW-23, and MW-C, the naphthalene results were E-flagged by the laboratory indicating that the concentrations exceeded the calibration range of the instrument. These results were estimated (J-20).

Overall Assessment

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted previously, accuracy was acceptable, as demonstrated by the surrogate, laboratory control sample, and MS/MSD percent recovery values. With exceptions noted previously, precision was also acceptable as demonstrated by the MS/MSD, laboratory duplicate, and field duplicate relative percent difference values.

Results were estimated due to cooler temperature, surrogate, LCS, MS/MSD, laboratory duplicate, and field duplicate outliers. Two results were estimated because the concentration exceeded the calibration range.

Reporting limits were elevated due to method blank contamination.

For one SDG, results for two compounds were reported from the full scan and the SIM analyses. Results from the SIM analyses should be used. The full scan results were qualified as do-not-report (DNR-14).

Data were rejected due to surrogate and LCS outliers.

Data that are rejected or qualified as DNR should be used for any purpose.

All other data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
PCB Aroclors by Method SW8082

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical Services, Inc. Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1603305	26 soil samples	Stage 2A
1603321	18 soil samples	Stage 2A
1604206	17 groundwater samples	Stage 2A
1606375	2 sediment samples	Stage 2A
1609147	5 groundwater samples	Stage 2A
1609166	4 groundwater samples	Stage 2A
1609184	4 groundwater samples	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

Ten percent (10%) of the results in the laboratory EDD were verified by comparison to the laboratory data package. No errors were noted.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed in the following table

2	Sample Receipt, Preservation, and Holding Times	✓	Laboratory Duplicates
✓	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	✓	Target Analyte List
2	Surrogate Compounds	1	Reporting Limits
2	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)	✓	Reported Results
1	Laboratory Control Samples (LCS/LCSD)		

✓ Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C - 6°C and be extracted within 7 days for aqueous samples and 14 days for soil samples. Sample extracts must be analyzed within 40 days of extraction. The following exceptions were noted during validation

SDGs 1603305, 1606375, 1609147, 1609166, 1609184, 1609207: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

SDG 1603305: All samples were extracted past the 14-day QAPP holding time on the 38th or 39th day; all results and detection limits were qualified J/UJ-1.

SDG 1603321: All samples were extracted past the 14-day QAPP holding time on the 38th or 42nd day; all results and detection limits were qualified J/UJ-1.

SDG 1604206: The cooler temperatures were greater than the upper control limit of 6°C, ranging from 8.1°C – 14.2°C. It was unclear which samples were in which coolers. The samples were received at the laboratory on 4/21/2017. For samples collected on 4/21/2017, there was insufficient time for the samples to cool. Therefore, no action was taken. For samples collected on 4/20/2017, PCBs are stable at these temperatures, no action taken.

Field Blanks

No field blanks were submitted with this sampling event.

Surrogate Compounds

The surrogate compounds decachlorobiphenyl (DCBP) and tetrachloro-m-xylene (TCMX) were added to all samples. When the surrogate %R values indicate a potential low bias, associated results are estimated (J/UJ-13L). Only the associated positive results are estimated (J-13H) if the %R values indicate a potential high bias. If one or both surrogates are outside the control limits, the associated results in the sample are qualified. Qualifiers are not applied to QC samples. With the exceptions noted below, all surrogate recovery values were within the laboratory control limits.

SDG 1603305: The %R for TCMX in Sample GLB02-17-20160328 was less than the lower control limit indicating a potential low bias; all positive detections and reporting limits were qualified (J/UJ-13L) for this sample. The %R for DCBP in Sample GLB03-08-20160328 was greater than the control limit indicating a potential high bias; all positive results were estimated (J-13H).

SDG 1609147 and 1609166: Several samples exhibited surrogate recoveries greater than the upper control limits indicating a potential high bias; there were no positive results in any of the samples, therefore, no results were qualified.

SDGs 1609184 and 1609207: The %R values for DCB and TCMX were greater than the upper control limits in all samples indicating a potential high bias; there were no positive results in any of the samples, therefore, no results were qualified.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate samples (MS/MSD) were analyzed at the appropriate frequency. No action is taken unless both the MS and MSD %R values are outside the control limits for MS/MSD %R outliers. Precision is indicated by the relative percent difference (RPD) between the MS and MSD values. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample. Qualifiers were only issued to the parent sample.

When the MS/MSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8). Only the associated positive results are estimated (J-8) if the %R values indicate a potential high bias. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty

SDG 1603305: Sample GLB02-20-20160328 was used for the matrix spike analyses. The MS/MSD %R values for Aroclor 1260 were greater than the upper control limit. There were no positive results for Aroclors in the parent sample; no results were qualified.

SDG 1603321: Sample GLB01-07-20160329 was used for the matrix spike analyses. The MS/MSD %R values for Aroclor 1260 were less than the lower control limit. Detection limits for all Aroclors, except Aroclor 1016, in the parent sample were estimated (UJ-8L).

Laboratory Control Samples

Laboratory control samples/laboratory control sample duplicates (LCS/LCSD) were analyzed at the required frequency of one per batch of 20 or fewer samples. With the following exceptions, all LCS/LCSD recovery and RPD values were within the laboratory control limits.

SDGs 1609147 and 1609166: The RPD value for Aroclor 1016 LCS/LCSD samples was greater than the control limit. There were no positive results in the associated samples; no results were qualified.

SDGs 1609184 and 1609207: The %R values for Aroclor 1016 and 1260 in the LCSD were greater than the upper control limits, the %R values in the LCS were within control limits for both analytes, no sample results were qualified for these single outliers.

The %R value for Aroclor 1254 in the LCS was greater than the upper control limit. There were no positive results associated with this analyte; therefore, no results were qualified.

Field Duplicates

For water samples, the RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

The samples listed in the table below were identified as field duplicates sets. All RPD values were within acceptance criteria.

SDG	Parent Sample	Field Duplicate
1604206	MW07-20160421	FD2-20160421
	MW15-20160420	FD1-20160420
1609147	MW-13-20160913	FD1-20160913
1609184	MW11-20160915	FD2-20160915

Target Analyte List

Results were reported for all compounds on the target analyte list.

Reporting Limits

The reporting limits were adjusted for sample aliquots, moisture, and dilutions.

Reported Results

The target analyte reporting limits specified in the QAPP/SAP were met.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values. Precision was also acceptable as demonstrated by the LCS/LCSD, MS/MSD, and laboratory and field duplicate relative percent difference values.

Results were estimated based on a holding time outliers and surrogate and matrix spike recovery outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
Tributyltin by Krone

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by ALS Environmental, Inc., Kelso, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1609147	5 Groundwater	Stage 2A
1609166	4 Groundwater	Stage 2A
1609184	5 Groundwater	Stage 2A
1609207	3 Groundwater	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (100% verification) by comparing the EDD to the pdf laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are summarized in the following table:

1	Sample Receipt, Preservation, and Holding Times	1	Matrix Spike/Matrix Spike Duplicates (MS/MSD)
✓	Method Blanks	1	Field Duplicates
✓	Surrogate Compounds	✓	Reporting Limits
✓	Laboratory Control Samples (LCS)	✓	Reported Results

✓ Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.
[1] Quality control results are discussed below, but no data were qualified.
[2] Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of ≤6°C.

All SDGs: The sample coolers arrived at temperatures greater than the acceptance criteria between 11.1°C and 14.1°C. The samples were delivered to the laboratory within several hours of sampling; therefore, no qualification was required.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were not analyzed. Accuracy is evaluated by the surrogate and laboratory control/laboratory control duplicate (LCS/LCSD) sample results. Precision is evaluated using the relative percent difference (RPD) values calculated between the LCS/LCSD sample results. All acceptance criteria were met.

Field Duplicates

For water samples, the RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1609147: Samples MW13-20160913 and FD1-20160913 were identified as field duplicates. Field precision was acceptable.

SDG 1609184: Samples MW11-20160915 and FD2-20160915 were identified as field duplicates. Field precision was acceptable.

OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate and LCS/LCSD recovery values. Precision was also acceptable as demonstrated by the LCS/LCSD and field duplicate RPD values.

No data were qualified for any reason.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
Gasoline Range Organics - Method NWTPH-Gx

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
1603305	26 soil samples	Stage 2A
1603321	17 soil samples	Stage 2A
1604206	17 groundwater samples	Stage 2A
1606375	2 sediment samples	Stage 2A
1609147	5 groundwater samples	Stage 2A
1609166	4 groundwater samples	Stage 2A
1609184	5 groundwater samples	Stage 2A
1609207	3 groundwater samples	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

2	Sample Receipt, Preservation, and Holding Times	✓	Laboratory Duplicates
✓	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	✓	Target Analyte List
1	Surrogate Compounds	✓	Reporting Limits
✓	Laboratory Control Samples (LCS)	✓	Reported Results
2	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)		

✓Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

As stated in the validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C-6°C and samples must be analyzed within 14 days. For volatiles analysis, no action is taken if the cooler temperature is <10°C. If the cooler temperature is >10°C, associated sample results are estimated (J/UJ-1). The following exceptions were noted during validation:

SDGs 1603305, 1606375, 1609147, 160916, and 1609207: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

SDG 1604206: The cooler temperatures were greater than the upper control limit of 6°C, ranging from 8.1°C – 14.2°C. It was unclear which samples were in which coolers. The samples were received at the laboratory on 4/21/2017. For samples collected on 4/21/2017, there was insufficient time for the samples to cool. Therefore, no action was taken. For samples collected on 4/20/2017, results were estimated (UJ-1).

MW05-20160420	MW12-20160420
MW10-20160420	MW12D-20160420
MW10D-20160420	MW15-20160420
MW11-20160420	FD1-20160420

Field Blanks

Trip blanks were shipped to the field and accompanied samples from the field to the laboratory. Analyses of these trip blank samples was not requested, therefore data were not generated.

Field blanks were not submitted with this sampling event.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the appropriate frequency. No action is taken unless both the MS and MSD %R values are outside the control limits for MS/MSD %R outliers. Precision is evaluated using the RPD values calculated between the MS and MSD results. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample. Qualifiers were only issued to the parent sample.

When the MS/MSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8). Only the associated positive results are estimated (J-8) if the %R values indicate a potential high bias. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty.

SDG 1603321: Sample GLB06-04-20160329 was used for the matrix spike analyses. The %R values for the MS and MSD were less than the lower control limit indicating a potential low bias, the parent

sample was estimated (J-8L). The RPD was greater than the control limit; the parent ample was qualified (J- 9).

Field Duplicates

For water samples, the RPD control limit is 25% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

The samples listed in the table below were identified as field duplicates sets. All RPD values were within acceptance criteria.

SDG	Parent Sample	Field Duplicate
1604206	MW07-20160421	FD2-20160421
	MW15-20160420	FD1-20160420
1609147	MW-13-20160913	FD1-20160913
1609184	MW11-20160915	FD2-20160915

Target Analyte List

The target analyte reporting limits specified in the QAPP/SAP were met.

Reported Results

No anomalies were noted during validation for evaluated results.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable as demonstrated by the surrogate, laboratory control sample/laboratory control sample duplicate (LCS/LCSD) and MS/MSD recovery values. With the exceptions noted above, precision was also acceptable as demonstrated by the LCS/LCSD and MS/MSD RPD values.

Data were estimated due to cooler temperatures at receipt and matrix spike accuracy and precision outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
Diesel Range Organics - Method NWTPH-Dx

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1603305	26 soil samples	Stage 2A
1603321	17 soil samples	Stage 2A
1604206	17 ground water samples	Stage 2A
1606375	2 sediment samples	Stage 2A
1609147	5 ground water samples	Stage 2A
1609166	4 ground water samples	Stage 2A
1069184	5 ground water samples	Stage 2A
1069207	3 ground water samples	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (10% verification) by comparing the EDD to the laboratory data package.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times	2	Laboratory Duplicates
✓	Laboratory Blanks	1	Field Duplicates
1	Field Blanks	✓	Target Analyte List
2	Surrogate Compounds	✓	Reporting Limits
✓	Laboratory Control Samples (LCS)	✓	Reported Results
1	Matrix Spikes/Matrix Spike Duplicates		

✓Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Preservation and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of ≤6°C and be extracted within 7 days for aqueous samples and 14 days for soil samples. The following exceptions were noted during validation:

SDGs 1603305, 1606375, 1609147, 1609166, 1609184, 1609207: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

SDG 1604206: The cooler temperatures were greater than the upper control limit of 6°C, ranging from 8.1°C – 14.2°C. It was unclear which samples were in which coolers. The samples were received at the laboratory on 4/21/2017. For samples collected on 4/21/2017, there was insufficient time for the samples to cool. Therefore, no action was taken. For samples collected on 4/20/2017, diesel range organic compounds are stable at these temperatures, no action taken.

Field Blanks

No field blanks were submitted with this sampling event.

Surrogate Compounds

The surrogate compounds o-terphenyl and 2-fluorobiphenyl were added to all samples. When the surrogate %R values indicate a potential low bias, associated results are estimated (J/UJ-13L). Only the associated positive results are estimated (J-13H) if the %R values indicate a potential high bias. If one or both surrogates are outside the control limits, the associated results in the sample are qualified. Qualifiers are not applied to QC samples. With the exceptions noted below, all surrogate recovery values were within the laboratory control limits

SDG 1609147: Both surrogate recoveries for the sample MW-14-20160913 were less than the lower control limits indicating a potential low bias. The associated results for this sample were estimated (J-13L).

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the appropriate frequency. No action is taken unless both the MS and MSD %R values are outside the control limits for MS/MSD %R outliers. Precision is evaluated using the RPD values calculated between the MS and MSD results. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample. Qualifiers were only issued to the parent sample.

When the MS/MSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8). Only the associated positive results are estimated (J-8) if the %R values indicate a potential high bias. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty.

SDGs 1603305 and 1603321: The %R for the MS was less than the lower control limit. The %R for the MSD was within control limits. No results qualified based on a single outlier.

Laboratory Duplicates

For soil samples, the RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 2x the RL. For water samples, the RPD control limit is 25% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limits indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1604206: Sample CB12-20160628 was analyzed as the laboratory duplicate. The RPD value for heavy oil was greater than the control limit. The parent sample was qualified (J-9).

Field Duplicates

For water samples, the RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

The samples listed in the table below were identified as field duplicates sets. All RPD values were within acceptance criteria.

SDG	Parent Sample	Field Duplicate
1604206	MW07-20160421	FD2-20160421
	MW15-20160420	FD1-20160420
1609147	MW-13-20160913	FD1-20160913
1609184	MW11-20160915	FD2-20160915

Target Analyte List

The target analyte reporting limits specified in the QAPP/SAP were met.

Compound Identification

No anomalies were noted during validation for compound identification.

Reported Results

No anomalies were noted during validation for evaluated results.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable, as demonstrated by the surrogate, laboratory control sample/laboratory control sample duplicate (LCS/LCSD), and matrix spike matrix spike duplicate (MS/MSD) percent recovery values. Precision was also acceptable as demonstrated by the LCS/LCSD, MS/MSD, laboratory duplicate, and field duplicate relative percent difference values.

Results were estimated based on a surrogate recovery outlier and a laboratory duplicate precision outlier.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
Total Metals - Method SW6020A
Total Mercury - Method SW7471A
Total & Dissolved Metals - Method EPA 200.8/1631E

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
1603305	26 Soil	Stage 2A
1603321	17 Soil	Stage 2A
1604206	17 Groundwater	Stage 2A
1606375	2 Sediment	Stage 2A
1609147	5 Groundwater	Stage 2A
1609166	4 Groundwater	Stage 2A
1609184	5 Groundwater	Stage 2A
1609207	3 Groundwater	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (100% verification) by comparing the EDD to the pdf laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Receipt, Preservation, and Holding Times	2	Laboratory Duplicates
✓	Laboratory Blanks	2	Field Duplicates
1	Field Blanks	1	Reporting Limits
✓	Laboratory Control Samples (LCS)	2	Reported Results
2	Matrix Spikes (MS) and Matrix Spike Duplicates (MSD)		

✓Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed
1 Quality control outliers are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C - 6°C and be analyzed within 28 days of sample collection for mercury and 180 days for ICP-MS metals. The following exceptions were noted during validation:

SDGs 1603305, 1604206, 1606375, 1609147, 1609166, 1609184, 1609207: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

Field Blanks

No field blanks were included with this analytical data set.

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate samples (MS/MSD) were analyzed at the proper frequency of one per 20 samples or one per batch for soil samples. With the exceptions noted in the table below, all spike recoveries were within the QAPP control limits of 50%-150% and RPD values were within ±20%.

For accuracy, where analyte concentrations were less than 4x the spike amount, the percent recovery (%R) values were evaluated. If the percent recovery values indicate a potential low bias, associated results are estimated (J/UJ-8L). If the %R values indicate a potential high bias, only the associated positive results are estimated (J-8H). If one %R value indicates a potential low bias and the other %R value indicates a potential high bias, the data were estimated with no bias indication (J/UJ-8). Also, no qualifiers were added for a single outlier in the MS or MSD only.

For %R values less than 30% (indicating an extreme low bias), the results for the post digestion spike (PDS) were also evaluated (ICP-MS only). If the post spike %R values were acceptable, then associated results were estimated (J/UJ-8L). If the post spike %R value was also less than the 75% lower control limit, the positive results were estimated (J-8L) and the non-detects were rejected (R-8L).

Precision is indicated by the relative percent difference (RPD) between the MS and MSD values. RPD values outside the control limit of 20% indicate uncertainty in the measured results for the sample and positive results are estimated (J-9).

The following elements were qualified in one or more samples based on %R and/or RPD value outliers. Qualifiers were issued to all samples associated with a QC batch.

SDG	Parent Sample ID	Analyte	Total/ Dissolved	MS %R	MSD %R	RPD	Potential Bias	Action
1603305	Batch QC	Antimony	Total	31.5	32.5	--	Low	J/UJ-8L
		Lead	Total	213	--	20.1	--	J-9
		Zinc	Total	151	160	--	High	J-8H
1603321	GLB06-04-20160329	Antimony	Total	26.7	30.9	--	Low	J/UJ-8L

SDG	Parent Sample ID	Analyte	Total/ Dissolved	MS %R	MSD %R	RPD	Potential Bias	Action
		Lead	Total	--	--	22.8	--	J-9
	Batch QC	Antimony	Total	35.7	32.9	--	Low	J/UJ-8L
1606375	CB12-20160628	Antimony	Total	25.2	17.6	--	Low	J-8L
		Lead	Total	290	--	29	--	J-9
1609147	MW-14-20160913	Mercury	Total	4.4	1.8	84.6	Low	J/R-8L, 9
	MW-13-20160913		Dissolved	--	--	44.2	--	J/UJ-9

Laboratory Duplicates

For laboratory duplicate samples, the RPD control limit is 20% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL for aqueous samples and less than 2 times the RL for soil samples.

Laboratory duplicate RPD values greater than the control limit are listed below.

SDG	Parent Sample ID	Analyte	Total/ Dissolved	RPD	Action
1603305	Batch QC	Lead	Total	23.2	J-9
	GLB05-20-20160328	Chromium	Total	44.5	
		Lead	Total	35.2	
	Batch QC	Mercury	Total	168	J/UJ-9
1603321	Batch QC	Arsenic	Total	20.6	J-9
	GLB06-04-20160329	Lead	Total	25.3	
1604206	MW05-20160420	Antimony	Total	> 1x Diff	J/UJ-9
		Copper	Total	Diff	
1609207	MW09D-20160916	Antimony	Total	Diff	

Field Duplicates

For water samples, the RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than the RL. RPD and difference values outside the control limit of 35% indicate uncertainty in the measured results for the sample and results are estimated (J/UJ-9).

SDG 1604206: Samples MW15-20160420 & FD1-20160420 were identified as field duplicates. Field precision was acceptable.

Samples MW07-20160421 & FD2-20160421 were identified as field duplicates. For the total analyses, the absolute difference value for zinc was greater than the control limit. Zinc results were estimated (J-9) in the parent and field duplicate only. For the dissolved fractions, arsenic was detected at a concentration greater than 5x the RL but was not detected in the duplicate sample. Arsenic results were estimated (J/UJ-9) in the parent and field duplicate only.

SDG 1609147: Samples MW13-20160913 & FD1-20160913 were identified as field duplicates. For the total analyses, the absolute differences for nickel and zinc were greater than the reporting limits. Nickel and zinc results were estimated (J-9) in the parent and field duplicate only. For the dissolved analyses, the RPD value for arsenic was greater than the control limit. Arsenic results were estimated (J-9) in the parent and field duplicate only. Also for the dissolved analysis, mercury was detected at a concentration greater than 5x the RL in the duplicate sample but was not detected in the parent sample. Mercury results were estimated (J/UJ-9).

SDG 1609184: Samples MW11-20160915 & FD2-20160915 were identified as field duplicates. For the total analysis, the absolute differences for silver, cadmium, and copper as well as the RPD values for antimony and zinc were greater than the control limits. These result for these elements were estimated (J/UJ-9) in the parent and field duplicate only. For the dissolved analysis, the absolute differences for copper and silver as well as the RPD values for antimony, arsenic, and selenium were greater than the control limits. The results for these elements were estimated (J/UJ-9) in the parent and field duplicate only.

Reporting Limits

Several samples were diluted due to interferences or other factors and the reporting limits were raised.

Reported Results

SDG 1609147: For Samples MW-15-20160913, MW-09-20160913, and FD1-20160913 the dissolved mercury results were greater than the total mercury results. For Sample MW-14-20160913, antimony was not detected in the total analysis but was detected in the dissolved analysis at a concentration greater than 5x the RL. The associated total and dissolved mercury and antimony results for these samples were estimated (J/UJ-14).

SDG 1609166: For Sample MW06-20160914, the dissolved zinc result was greater than the total zinc result. The associated total and dissolved zinc results were estimated (J-14). For Sample MW16-20160914, copper was not detected in the total analysis but was detected in the dissolved analysis at a concentration greater than 5x the RL. The associated total and dissolved copper results were estimated (J/UJ-14).

SDG 1609184: For Sample FD2-20160915, the dissolved antimony result was greater than the total antimony result. The associated total and dissolved antimony results were estimated (J-14). Copper was not detected in the total analysis, but was detected in the dissolved analysis at a concentration greater than 5x the RL. The total and dissolved copper results were qualified (J/UJ-14).

SDG 1609207: For Sample MW10-20160916, the dissolved antimony result was greater than the total antimony result. The associated total and dissolved antimony results were estimated (J-14).

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical methods. With the exceptions noted above, accuracy was acceptable, as demonstrated by the laboratory control sample and matrix spike recovery values. With the exceptions noted previously, precision was acceptable as demonstrated by the matrix spike and laboratory and field duplicate RPD values.

Results were estimated based on matrix spike recovery and precision outliers and laboratory duplicate and field duplicate precision outliers. Results were also estimated due to inconsistencies between total and dissolved fractions.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
G-Logics, Inc. – 2016 Duwamish Marine Center
Total Organic Carbon – SW 9060
Hexavalent Chromium – Method 7196
Moisture – SM 2540B

This report documents the review of analytical data from the analyses of soil, sediment, and groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Fremont Analytical, Inc., Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	Number of Samples	Validation Level
1603305	26 Soil	Stage 2A
1603321	17 Soil	Stage 2A
1604206	1 Groundwater	Stage 2A
1606375	2 Sediment	Stage 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

All SDGs: The laboratory did not include analytical results for the percent moisture analyses in the electronic data deliverable (EDD). The results were evaluated from the laboratory report.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (100% verification) by comparing the EDD to the hardcopy laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

This report documents the review of analytical QC requirements as listed in the following table.

1	Sample Receipt, Preservation, and Holding Times	✓	Laboratory Duplicates
✓	Laboratory Blanks	✓	Field Duplicates
1	Field Blanks	✓	Reporting Limits
✓	Laboratory Control Samples	✓	Reported Results
✓	Matrix Spikes (MS)		

✓Method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.
1 Quality control results are discussed below, but no data were qualified.
2 Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 0° to 6°C. With the following exceptions noted below, the laboratory received the sample coolers within the advisory temperature range.

SDGs 1603305, 1604206, 1606375: The laboratory received the sample coolers with temperatures greater than the upper control limit of 6°C. The coolers were received within several hours after the samples were collected preventing sufficient time for cooling; no results qualified.

Field Blanks

No field blanks were submitted.

Laboratory Control Samples

Laboratory control samples (LCS) were analyzed at the required frequency of one per batch of 20 or fewer samples. All spike recoveries were within the laboratory control limits.

Field Duplicate Analysis

Field duplicate samples were not included in this data set.

OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the laboratory control sample and matrix spike recoveries. Precision was also acceptable as demonstrated by the laboratory duplicate relative percent difference values.

No data were qualified for any reason.

All data, as reported, are acceptable for use.

ECOCHEM
Data Quality

APPENDIX A

DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler temperature, pH, summa canister pressure); Exceeded Holding Times
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
	5A	Initial Calibration (RF, %RSD, r^2)
	5B	Calibration Verification (CCV, CCAL; RF, %D, %R) Use bias flags (H,L)[1] where appropriate
	5C	Initial Calibration Verification (ICV %D, %R) Use bias flags (H,L)[1] where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)[1] for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS and/or MSD) Recoveries Use bias flags (H,L)[1] where appropriate
	9	Precision (all replicates: LCS/LCSD, MS/MSD, Lab Replicate, Field Replicate)
	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)[1] where appropriate
	12	Reference Material Use bias flags (H,L)[1] where appropriate
	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)[1] where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)[1] where appropriate
	19	Internal Standard Performance (i.e., area, retention time, recovery)
	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
	3	2nd column confirmation (RPD or %D)
	4	Tentatively Identified Compound (TIC) (associated with NJ only)
	20	Calibration Range or Linear Range Exceeded
	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, re-extractions, etc. Associated with "R" and "DNR" only)
	14	Other (See DV report for details)
	26	Method QC information not provided

[1] H = high bias indicated
L = low bias indicated

Volatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8260C)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	4°C±2°C Aqueous: HCl to pH < 2 Current SW846 criterion is ≤ 6° C [3]	NFG [1] Method [3]	**If required by project:** J (pos)/UJ (ND) if greater than 6° C	1	Use **PJ** for temp outliers; see **TM20** if pH ≤ 2, reject 2-chloroethyl vinyl ether (R-1) some projects may require methanol preserved soils/seds
Holding Time	**Aqueous:** 14 days preserved 7 Days: unpreserved **Solid:** 14 Days	NFG [1] Method [3]	J (pos)/UJ (ND) if HT exceeded J (pos)/R (ND) if gross exceedance (> 2x HT)	1	Gross exceedance = > 2x HT, as per 1999 NFG
Instrument Performance					
Tuning	BFB Beginning of each 12 hour period Use method or project acceptance criteria	NFG [1] Method [3]	R (pos/ND) all analytes in all samples associated with the tune	24	
Initial Calibration **Sensitivity**	Minimum 5 standards RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders * RRF ≥ 0.005 1,4-dioxane	NFG [1] Method [3]	Use **PJ** to qualify J (pos)/UJ (ND)	5A	**TM-06** EcoChem Policy for the Evaluation and Qualification of GCMS Instrument Performance **PJ** - no action if response is stable (ICAL RSD and CCAL %D acceptable)
Initial Calibration **Stability**	%RSD ≤ 20% except: %RSD ≤ 40% poor responders * %RSD ≤ 50% 1,4-dioxane	NFG [1] Method [3]	J (pos) if %RSD > limit	5A	
Initial Calibration Verification	Second source analyzed immediately after ICAL %R 70% - 130%	Method [3]	J (pos) %R > UCL J (pos)/UJ (ND) %R < LCL	5A (H,L)[4]	QAPP may have overriding accuracy limits.
Continuing Calibration **Sensitivity**	RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders * RRF ≥ 0.005 1,4-dioxane	NFG [1] Method [3]	Use **PJ** to qualify J (pos)/UJ (ND)	5B	see ICAL RRF guidance
Continuing Calibration **Stability**	%D ≤ 25% except: %D ≤ 40% poor responders * %D ≤ 50% 1,4-dioxane	NFG [1] Method [3]	J (pos) - %D > control limit (high bias) J (pos)/UJ (ND) - %D < -control limit (low bias)	5B (H,L)[4]	

Volatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8260C)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch (of ≤ 20 samples) No detected compounds > MDL	NFG (2) Method (3)	U (pos) if result is < 5X or 10X action level	7	10X action level for methylene chloride, acetone, & 2-butanone. 5X for all other target analytes **Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review TB, qualify as needed** **#3 - Review FB, qualify as needed** **Note: Actions as per NFG 1999**
	No TICs present		R (pos) TICs using 10X rule		
Trip Blank (TB)	No detected compounds > MDL	NFG (2) Method (3)	U (pos) if result is < 5X or 10X action level	6	
Field Blank (FB)	No detected compounds > MDL	NFG (2) Method (3)	U (pos) if result is < 5X or 10X action level	6	
Precision and Accuracy					
LCS/LCSD (recovery)	One per matrix per batch (of ≤ 20 samples) LCSD not required by NFG or method Use method acceptance criteria/laboratory limits	Method (3)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND)%R < 10%	10 (H,L)[4]	No action if only one spike %R is outside criteria when LCSD is analyzed, unless one recovery is <10%. QAPP may have overriding accuracy limits.
LCS/LCSD RPD	If LCSD analyzed RPD < lab limits	Method (3)	J (pos)	9	Qualify all associated samples. QAPP may have overriding precision limits.
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[4]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Surrogates	Added to all samples Within method/laboratory control limits	NFG (1) Method (3)	J (pos) if %R >UCL J (pos)/UJ (ND) if %R <LCL J (pos)/R (ND) if <10%	13 (H,L)[4]	No action if there are 4+ surrogates and only 1 outlier Qualify all compounds if qualification is required.
Internal Standards	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	NFG (1) Method (3)	J (pos) if > 200% J (pos)/UJ (ND) if < 50% J (pos)/R (ND) if < 25% if RT >30 seconds use **PJ**	19	Qualify compounds quantified using particular internal standard

Volatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8260C)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy (continued)					
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG [1] Method [3]	J (pos) %R > UCL J (pos)/UJ (ND) if both %R < LCL J (pos)/R (ND) if both %R < 10% J (pos)/UJ (ND) if one > UCL & one < LCL, with no bias	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only.
MS/MSD (RPD)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG [1] Method [3]	J (pos) If RPD > control limit	9	Qualify parent sample only
Field Duplicates	**Solids:** RPD < 50% OR difference < 2X RL (for results < 5X RL) **Aqueous:** RPD < 35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	Use project limits if specified
Compound Identification and Quantitation					
Retention Time Relative Ion Intensities	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	NFG [1] Method [3]	U (pos) if identification criteria not met	25	
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NFG [1] Method [3]	NJ TIC R (pos) if common laboratory contaminants	4	Common laboratory contaminants: aldol condensation products, solvent preservatives, and reagent contaminants
Calibration Range	Results greater than highest calibration standard	EcoChem standard policy	Qualify J (pos)	20	If result from dilution analysis is not reported.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Organic Data Review, June, 2008
[2] National Functional Guidelines for Organic Data Review, Oct, 1999
[3] Method SW846 8260C Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
[4] NFG 2013 suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

(pos): Positive Result
(ND): Non-detect

* "Poor responder" compounds: Acetone, 2-butanone, carbon disulfide, chloroethane, chloromethane, cyclohexane, 1,2-dibromoethane, dichlorodifluoromethane, cis-1,2-dichloroethene, 1,2-dichloropropane, 1,2-dibromo-3-chloropropane, 2-hexanone, isopropylbenzene, methyl acetate, methylene chloride, methylcyclohexane, 4-methyl-2-pentanone, methyl tert-butyl ether, trans-1,2-dichloroethene, trichlorofluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane **criterion is 0.010 RRF;** 1,4-dioxane RRF **criterion is 0.005**.

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	4°C±2°C sediment/tissues may require storage at -20°C	NFG (1) Method (3)	**If required by project:** J (pos)/UJ (ND) if greater than 6° C	1	Use **PJ** for temp outliers; see **TM20** Current SW846 criterion is ≤ 6° C (3)
Holding Time	**Extraction Aqueous:** 7 days from collection **Extraction Solid:** 14 days from collection **Analysis (all matrices)**: 40 days from extraction Holding time may be extended to 1 year for frozen sediments/tissues	NFG (1) Method (3)	J (pos)/UJ (ND) if HT exceeded J (pos)/R (ND) if gross exceedance (> 2x HT)	1	Gross exceedance = > 2x HT, as per 1999 NFG
Instrument Performance					
Tuning	DFTPP Beginning of each 12 hour period Use method or project acceptance criteria	NFG (1) Method (3)	R (pos/ND) all analytes in all samples associated with the tune	24	
Initial Calibration **Sensitivity**	RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders *	NFG (1) Method (3)	Use **PJ** to qualify J (pos)/UJ (ND)	5A	**TM-06** EcoChem Policy for the Evaluation and Qualification of GCMS Instrument Performance **PJ** - no action if response is stable (ICAL RSD and CCAL %D acceptable)
Initial Calibration **Stability**	Minimum 5 standards %RSD ≤ 20.0% except: %RSD ≤ 40.0% poor responders * **or** co-efficient of determination (r^2) > 0.99	NFG (1) Method (3)	J (pos) if %RSD > limit **or** r^2 value <0.99	5A	
Initial Calibration Verification Check	Prepared from second source; analyze after each ICAL Percent recovery limits = 70-130%	Method (3)	J (pos) %R > UCL J (pos)/UJ (ND) %R < LCL	5A (H,L)[4]	QAPP may have overriding accuracy limits.

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Performance (continued)					
Continuing Calibration **Sensitivity**	RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders *	NFG [1] Method [3]	Use **PJ** to qualify J (pos)/UJ (ND)	5B	see ICAL RRF guidance
Continuing Calibration **Stability**	Prior to sample analysis and every 12 hours %D ≤ 25% except: %D ≤ 40.0% poor responders *	NFG [1] Method [3]	J (pos) - %D > control limit (high bias) J (pos)/UJ (ND) - %D < -control limit (low bias)	5B (H,L)[4]	
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > MDL	NFG [2] Method [3]	U(pos) if result is < 5X or 10X action level	7	10X action level applies to phthalates only. 5X for all other target analytes **Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review FB , qualify as needed** **Note: Actions as per 1999 NFG**
	No TICs present		R (pos) TICs using 10X rule	7	
Field Blank (FB)	No detected compounds > MDL	NFG [2] Method [3]	U (pos) if result is < 5X or 10X action level	6	
Precision and Accuracy					
LCS/LCSD (recovery)	One per matrix per batch (of ≤ 20 samples) LCSD not required by NFG or method Use method acceptance criteria/laboratory limits	Method [3]	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND)%R < 10%	10 (H,L)[4]	No action if only one spike %R is outside criteria when LCSD is analyzed, unless one recovery is <10%. QAPP may have overriding accuracy limits. Qualify all associated samples.
LCS/LCSD (RPD)	If LCSD analyzed RPD < lab limits	Method [3]	J (pos)	9	Qualify all associated samples. QAPP may have overriding precision limits.

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy (continued)					
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[4]	QAPP may have overriding accuracy limits. Some manufacturers have different RM control limits
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG (1) Method (3)	J (pos) %R > UCL J (pos)/UJ (ND) if both %R < LCL J (pos)/R (ND) if both %R < 10% J (pos)/UJ (ND) if one > UCL & one < LCL, with no bias	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only.
MS/MSD (RPD)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG (1) Method (2)	J (pos) in parent sample if RPD > CL	9	Qualify parent sample only
Surrogates	Minimum of 3 acid & 3 base/neutral (B/N) compounds added to all samples Within method control limits	NFG (1) Method (3)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND) if %R < 10%	13 (H,L)[4]	Qualify all compounds in associated fraction. Do not qualify if only 1 acid and/or 1 B/N surrogate is out, unless <10%. If 1 surrogate outlier < 10% then J (pos)/R (ND)
Internal Standards	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	NFG (1) Method (3)	J (pos) if > 200% J (pos)/UJ (ND) if < 50% J (pos)/R (ND) if < 25% if RT >30 seconds use **PJ**	19	Qualify compounds quantified using particular internal standard
Field Duplicates	**Solids:** RPD < 50% OR difference < 2X RL (for results < 5X RL) **Aqueous:** RPD < 35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	Use project limits if specified

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound Identification and Quantitation and Calculation					
Retention times and relative ion intensities	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	NFG [(1)] Method [(3)]	U (pos) if identification criteria not met	25	
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NFG [(1)] Method [(3)]	NJ the TIC unless: R (pos) common laboratory contaminants	4	
Calibration Range	Results greater than highest calibration standard	EcoChem standard policy	Qualify J (pos)	20	If result from dilution analysis is not reported.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Organic Data Review, June, 2008
[2] National Functional Guidelines for Organic Data Review, October, 1999
[3] Method SW846 8270D Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 4, February 2007.
[4] NFG 2013 suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

(pos): Positive Result(s)
(ND): Non-detects

* "Poor responder" compounds: acetophenone, atrazine, benzaldehyde, 1,1'-biphenyl, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, caprolactam, carbazole, 4-chloroaniline, diethylphthalate, di-n-butylphthalate, 3-3'-dichlorobenzidine, dimethylphthalate, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, di-n-octylphthalate, hexachlorobutadiene, hexachlorocyclopentadiene, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, 4-nitrophenol, N-nitrosodiphenylamine, 2,2'-oxybis-(1-chloropropane), 1,2,4,5-tetrachlorobenzene use a 0.010 RRF criterion.

PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample					
Cooler/Storage Temperature Preservation	4°C ± 2°C Tissue/sediments (may be frozen -20°C)	NFG (1) Method (2)	**If required by project:** J (pos)/UJ (ND) if greater than 6° C	1	Use Professional Judgment (PJ) to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C (3)
Holding Time	**Extraction Aqueous:** 7 days from collection **Extraction Solid:** 14 days from collection **Exraction Tissue/Sediment (frozen):** 1 year **Analysis (all matrices)**: 40 days from extraction	NFG (1) Method (2)	**If required by project:** J (pos)/UJ (ND) if ext/analyzed > HT J (pos)/R (ND) if gross exceedance (> 2x HT)	1	Use PJ to qualify for holding time outlier. Current SW846 does not have an extraction holding time limit.(3) Gross exceedance > 2x HT, as per NFG 1999
Instrument Performance					
Retention Times	Surrogates: TCMX (± 0.05); DCB (± 0.10) Aroclors (± 0.07)	NFG (1)	NJ (pos)/R (ND) results for analytes with RT shifts	24	
Initial Calibration	Minimum 5 point with RSD ≤ 20% OR correlation coefficient (r-value) ≥ 0.995 OR Minimum 6-point with co-efficient of determination (r2-value) ≥ 0.99	NFG (1) Method (4)	J (pos) if %RSD greater than 20% OR r-value < 0.995 OR r^2-value < 0.99	5A	Refer to TM-01 for additional information. Use bias flags (H,L)(5) where appropriate
Initial Calibration Verification (ICV)	No NFG criteria. Project specific.	Project	J (pos) if > UCL J (pos)/UJ (ND) if < LCL	5B	Use bias flags (H,L) where appropriate
Continuing Calibration (Prior to each 12 hr. shift)	%D ± 20%	Method (2)	If > 20% (high bias): J (pos) If <20% (low bias: J (pos)/UJ (ND)	5B	Refer to TM-01 for additional information. Use bias flags (H,L) where appropriate
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > RL	NFG (1) Method (2)	U (pos) if result is less than appropriate 5X action level.	7	**Hierarchy of blank review:** **#1 - Review MB and IB, qualify as needed** **#2 - Review FB , qualify as needed** Note: Actions as per NFG 1999 Note: IB not required by method
Field Blank (FB)	FB: frequency as per QAPP No detected compounds > RL	NFG (1) Method (2)	U (pos) if result is less than appropriate 5X action level.	6	
Instrument Blanks (IB)	Analyzed at the beginning and end of every 12 hour sequence No analyte > CRQL	NFG (1)	U (pos) if result is less than appropriate 5X action level.	7	

PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
MS/MSD (recovery)	One set per matrix per batch (of ≤ 20 samples) AR1016 and AR1260: %R = 29% - 135%, or project limits	NFG (1) Method (2)	Qualify parent only unless other QC indicates systematic problems. J (pos) if both %R > upper control limit (UCL) J (pos)/UJ (ND) if both %R < lower control limit (LCL) J (pos)/R (ND) if both %R < 10%	8	No action if only one spike %R is outside criteria. No action if native analyte conc. > 5x the amount spiked. Use bias flags (H,L) where appropriate. Actions apply to all Aroclors in parent sample.
MS/MSD (RPD)	One set per matrix per batch (of ≤ 20 samples) AR1016: RPD < 15%, AR1260: RPD < 20% or project limits	NFG (1) Method (2)	Qualify parent only unless other QC indicates systematic problems. J (pos) if RPD > control limit	9	No action if parent is ND.
LCS	One per lab batch (of ≤ 20 samples) AR1016 and AR1260: %R = 50% - 150%, or project limits	NFG (1)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND) if %R < 10%	10	Use bias flags (H,L) where appropriate. Actions apply to all Aroclors in associated samples.
LCS/LCSD (RPD)	if analyzed use MS/MSD RPD criteria	NFG (1)	J (pos) assoc. compound in all samples	9	LCSD not required by method or NFG
Precision and Accuracy					
Surrogates	TCMX and DCBP added to every sample %R = 30% - 150% or project limits	NFG (1) Method (2)	J (pos) if either %R > UCL J (pos)/UJ (ND) if either %R < LCL J (pos)/R (ND) if either %R < 10%	13	If %R < 10% (sample dilution is a factor), use PJ Use bias flags (H,L) where appropriate
Internal Standards (if used)	Acceptable Range: IS area = 50% to 200% of CCAL area RT within 30 seconds of CC RT	Method (2)	J (pos) if area > 200% J (pos)/UJ (ND) if area < 50% J (pos)/R (ND) if area < 25% RT > 30 seconds, narrate	19	
Field Duplicates	**Solids:** RPD < 50% OR difference < 2X RL (for results < 5X RL) **Aqueous:** RPD < 35% OR difference < 1X RL (for results < 5X RL)	EcoChem	J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	use project limits if specified

PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound Identification/Quantification					
Quantitation/ Identification	Between two columns: RPD < 40% or %D < 25% Within Retention Time Windows on both columns.	NFG [1] Method [2]	J (pos) if RPD = 40% - 60% (25% - 60% for %D) NJ (pos) if > 60% R (pos) if RTW criterion not met	3	See TM-08 for additional info.
Calibration Range	on column concentration < high calibration standard	NFG [1] Method [2]	J (pos) if conc > high standard and sample was not diluted	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	Standard reporting policy	Use "DNR" to flag results that will not be reported.	11	TM-04 Rev. 1 for additional info.
Sample Clean-up					
GPC/Sulfur/ Florisil/Acid	No criteria - cleanups are optional	NFG [1] Method [2]	Use Professional Judgment	14	special cleanups may be required for project cleanup standards may be associated with GPC/florisil cleanups

[1] National Functional Guidelines for Organic Data Review, June, 2008
[2] Polychlorinated Biphenyls (PCBs) by Gas Chromatography USEPA Method SW846 8082A, Feb 2007, Rev. 1
[3] SW846, Chapter 4, Organic Analytes
[4] Determinative Chromatographic Separations , Method 8000C , March 2003, Rev.3
[5] "H" = high bias indicated; "L" = low bias indicated

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Gasoline Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Gx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling				
Cooler Temperature & Preservation	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6°C	1	
Holding Time	Waters: 14 days preserved 7 days unpreserved Solids: 14 Days	J(+)/UJ(-) if hold times exceeded J(+)/R(-) if exceeded > 3X	1	Professional Judgement
Instrument Performance				
Initial Calibration	5 calibration points (All within 15% of true value) Linear Regression: $r^2 \geq 0.990$ If used, RSD of response factors ≤20%	Narrate if fewer than 5 calibration levels or if %R >15% J(+)/UJ(-) if r^2 <0.990 J(+)/UJ(-) if %RSD > 20%	5A	
Mid-range Calibration Check Std.	Analyzed before and after each analysis shift & every 20 samples. Recovery range 80% to 120%	Narrate if frequency not met. J(+)/UJ(-) if %R < 80% J(+) if %R >120%	5B	
Blank Contamination				
Method Blank	At least one per batch (≤10 samples) No results >RL	U (at the RL) if sample result is < RL & < 5X blank result.	7	
		U (at reported sample value) if sample result is ≥ RL and < 5X blank result	7	
Trip Blank (if required by project)	No results >RL	Action is same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned.	18	
Field Blanks (if required by project)	No results > RL	Action is same as method blank for positive results remaining in field blank after method **and** trip blank qualifiers are assigned.	6	

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Gasoline Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Gx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy				
MS samples (accuracy) (if required by project)	%R within lab control limits	Qualify parent only, unless other QC indicates systematic problems. J(+) if both %R > upper control limit (UCL) J(+)/UJ(-) if both %R < lower control limit (LCL) No action if parent conc. >5X the amount spiked.	8	Use Professional Judgement if only one %R outlier
Precision: MS/MSD or LCS/LCSD or sample/dup	At least one set per batch (≤10 samples) RPD ≤ lab control limit	J(+) if RPD > lab control limits	9	
LCS (not required by method)	%R within lab control limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10%	10	Professional Judgement
Surrogates	Bromofluorobenzene and/or 1,4-difluorobenzene added to all samples (inc. QC samples). %R = 50-150%	J(+)/UJ(-) if %R < LCL J(+) if %R >UCL J(+)/R(-) if any %R <10% No action if 2 or more surrogates are used, and only one is outside control limits.	13	Professional Judgement
Pattern Identification	Compare sample chromatogram to standard chromatogram to ensure range and pattern are reasonable match. Laboratory may flag results which have poor match.	J(+)	2	
Field Duplicates	Use project control limits, if stated in QAPP **EcoChem default:** water: RPD < 35% solids: RPD < 50%	Narrate outliers **If required by project**, qualify with J(+)/UJ(-)	9	
Compound ID and Calculation				
Two analyses for one sample (e.g., dilution)	Report only one result per analyte	"DNR" (or client requested qualifier) all results that should not be reported.	11	See EcoChem TM-04

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling				
Cooler Temperature & Preservation	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6 deg. C	1	
Holding Time	Ext. Waters: 14 days preserved 7 days unpreserved Ext. Solids: 14 Days Analysis: 40 days from extraction	J(+)/UJ(-) if hold times exceeded J(+)/R(-) if exceeded > 3X	1	Professional Judgement
Instrument Performance				
Initial Calibration	5 calibration points (All within 15% of true value) Linear Regression: $r^2 \geq 0.990$ If used, RSD of response factors ≤20%	Narrate if fewer than 5 calibration levels or if %R >15% J(+)/UJ(-) if r^2 <0.990 J(+)/UJ(-) if %RSD > 20%	5A	
Mid-range Calibration Check Std.	Analyzed before and after each analysis shift & every 20 samples. Recovery range 85% to 115%	Narrate if frequency not met. J(+)/UJ(-) if %R < 85% J(+) if %R >115%	5B	
Blank Contamination				
Method Blank	At least one per batch (≤20 samples) No results >RL	U (at the RL) if sample result is < RL & < 5X blank result.	7	
		U (at reported sample value) if sample result is ≥ RL and < 5X blank result	7	
Field Blanks (if required by project)	No results > RL	Action is same as method blank for positive results remaining in the field blank after method blank qualifiers are assigned.	6	

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy				
MS samples (accuracy) (if required by project)	%R within lab control limits	Qualify parent only, unless other QC indicates systematic problems. J(+) if both %R > upper control limit (UCL) J(+)/UJ(-) if both %R < lower control limit (LCL) No action if parent conc. >5X the amount spiked.	8	Use Professional Judgement if only one %R outlier
Precision: MS/MSD or LCS/LCSD or sample/dup	At least one set per batch (≤10 samples) RPD ≤ lab control limit	J(+) if RPD > lab control limits	9	
LCS (not required by method)	%R within lab control limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10%	10	Professional Judgement
Surrogates	2-fluorobiphenyl, p-terphenyl, o-terphenyl, and/or pentacosane added to all samples (inc. QC samples). %R = 50-150%	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10% No action if 2 or more surrogates are used, and only one is outside control limits.	13	Professional Judgement
Pattern Identification	Compare sample chromatogram to standard chromatogram to ensure range and pattern are reasonable match. Laboratory may flag results which have poor match.	J(+)	2	
Field Duplicates	Use project control limits, if stated in QAPP **EcoChem default:** water: RPD < 35% solids: RPD < 50%	Narrate (Use Professional Judgement to qualify)	9	

EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound ID and Calculation				
Two analyses for one sample (dilution)	Report only one result per analyte	"DNR" (or client requested qualifier) all results that should not be reported.	11	See EcoChem TM-04

Metals by ICP-MS
(Based on Inorganic NFG 2010 and SW-846 6020A)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler / Storage Temperature Preservation	**Solid:** Cooler temperature 4°C±2°C **Aqueous:** Nitric Acid to pH < 2 **Dissolved Metals:** 0.45 µm filter, preserve to pH < 2 after filtration	NFG (1) Method (2)	Cooler Temps: **If required by project** J (pos)/UJ (ND) if greater than 6° C Aqueous: J (pos)/UJ (ND) if pH > 2	1	Use **PJ** to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C (4) No quals for pH if samples preserved by lab immediately upon receipt and within 1 day of collection.
Holding Time	All matrices: 180 days from date sampled Frozen soils, sediments, tissues (-20°C) - HT extended to 1 year	NFG (1) Method (2) EcoChem standard policy	J (pos)/UJ (ND) if holding time exceeded	1	
Instrument Performance					
Tune	Analyzed prior to ICAL tunignsolution analyzed 5 times with Std. Dev. ≤ 5% Mass calibration < 0.1 amu difference from target mass Resolution < 0.9 amu @ 10% peak height	NFG (1) Method (2)	J(pos)/UJ(ND) if tune criteria not met	5A	Use **PJ** to evaluate tune. Alternate Resolution critteria may apply based on instrument specs (i.e <0.75 amu at 5% peak height)
Initial Calibration (ICAL)	Based on instrument requirements, blank + 1 standard minimum requirement for calibration If more than 1 standard used, r ≥ 0.995	NFG (1) Method (2)	J (pos)/UJ (ND) if r < 0.995	5A	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R within ± 10% of true value	NFG (1) Method (2)	R (pos/ND) if %R < 75% J (pos)/UJ (ND) if %R 75% - 89% J (pos) if %R >111%	5A (H,L)[3]	Qualify all samples in run
Reporting Limit (RL) Standard Low Level ICV/CCV	concentration at RL %R = 70%-130%	Method (2)	J (pos) < 2x RL / R (ND) if %R <50% J (pos) < 2x RL / UJ (ND) if %R 50 - 69% J (pos) < 2x RL if %R > 130%	5A (H,L)[3]	Qualify all samples in run

Metals by ICP-MS
(Based on Inorganic NFG 2010 and SW-846 6020A)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Performance cont'd					
Continuing Calibration Verification (CCV)	Immediately following ICV/ICB, then every two hours or ten samples, and at end of run. %R within ± 10% of true value	NFG [1] Method [2]	R (pos/ND) if %R < 75% J (pos)/UJ (ND) if %R 75% - 89% J (pos) if %R >111%	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Interference Check Samples (ICSA / ICSAB)	ICSAB %R 80% - 120% for all spiked elements | ICSA | < MDL for all unspiked elements	NFG [1] Method [2]	For samples with Al, Ca, Fe, Mg > ICS levels: **ICSAB**: J(pos)/R (ND) if %R < 50% J (pos)/UJ (ND) if %R = 50% - 79% J (pos) if %R > 120% **ICSA:** J (pos)< 2x ICSA/UJ (ND) for ICSA <Neg MDL J (pos) < 2x ICSA for ICSA > MDL	17 (H,L)[3]	Use **PJ** and molecular interferences to evaluate ICSA to determine if bias is present. Refer to **TM-14** for additional information.
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [1] Method [2]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG [1] Method [2]	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blks: 7 Neg Blks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review: #1 - Review MB, quaify as needed #2 - Review IB , qualify as needed #3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.

Metals by ICP-MS
(Based on Inorganic NFG 2010 and SW-846 6020A)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
Internal Standards (IS)	Added to all samples. All analytes must be associated with an internal standard 60-125% of cal blank IS	NFG [1] Method [2]	J(pos)/UJ(ND) all analytes associated with IS outlier	19	6020A criteria - IS >70% of ICAL std
LCS (recovery)	One per matrix per batch (of ≤ 20 samples); LCSD not required %R between 80-120%	Method [2]	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits. NFG Limits 70% -130%
LCS/LCSD (RPD)	LCSD not required, if analyzed: RPD ≤ 20%	Method [2]	J (pos)/UJ (ND) if RPD > 20%	9	Qualify all samples in batch QAPP may have overriding precision limits.
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples); MSD not required %R between 75-125%	NFG [1] Method [2]	J (pos) if %R > 125% J (pos)/UJ (ND) if %R <75% J (pos)/R (ND) if %R < 30%, unless post digestion spike analyzed, J (pos)/UJ (ND) if post digestion spike %R OK	8 (H,L)[3]	No action if only one spike %R is outside criteria. NA if parent concentration >4x the amount spiked. Qualify all samples in batch. QAPP may have overriding accuracy limits.
Post Digestion Spikes	If MS is outside 75-125%, post-spike should be analyzed %R 80%-120% (method); 75%-125% (NFG)	NFG [1] Method [2]	Only used to support MS qualification decisions	NA	No qualifiers assigned based solely on this element.
MS/MSD (RPD)	MSD not required, if analyzed: RPD ≤ 20%	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20%	9	QAPP may have overriding precision limits.
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.

Metals by ICP-MS
(Based on Inorganic NFG 2010 and SW-846 6020A)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy cont'd					
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Serial Dilution	Analyze one sample per matrix at a 5x dilution %D <10% for original sample conc. > 50x MDL	NFG [(1)]	J(pos)/UJ(ND) if %D > 10% and native sample concentration > 50x MDL	16	Note serial dilutions for soil are reported in ug/L, but the MDL is in mg/kg. The units need to be adjusted. Qualify all samples in batch.
Field Duplicate	Solids: RPD <50% OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Narrate and qualify if required by project **(EcoChem PJ)** Qualify only field duplicate samples J(pos)/UJ(ND)	9	QAPP may have overriding precision limits.
Compound Quantitation					
Total and Dissolved Comparison	Total > Dissolved	EcoChem standard policy	J (pos)/UJ (ND) if Dissolved > Total and results fall outside of standard duplicate precision criteria	14	
Calibration Range	Results < instrument linear range	NFG [(1)] Method [(2)]	if result exceeds linear range and sample was not diluted J (pos)	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.
[2] Method SW846 6020A Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), Revision 1, February 2007.
[3] "H" = high bias indicated; "L" = low bias indicated
[4] SW846, Chapter 3, Inorganic Analytes

(pos): Positive Result
(ND): Not detected

Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler / Storage Temperature Preservation	**Solid:** Cooler temperature 4°C±2°C **Aqueous:** Nitric Acid to pH < 2 **Dissolved Metals:** 0.45 µm filter, preserve to pH < 2 after filtration	NFG (1) Method (2)	Cooler Temps: **If required by project** J (pos)/UJ (ND) if greater than 6° C Aqueous: J (pos)/UJ (ND) if pH > 2	1	Use **PJ** to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C (4) No quals for pH if samples preserved by lab immediately upon receipt and within 1 day of collection.
Holding Time	28 days from date sampled Frozen solids and tissues HT extended to 6 months	NFG (1) Method (2) EcoChem standard policy	J (pos)/UJ (ND) if HT exceeded	1	
Instrument Performance					
Initial Calibration (ICAL)	Daily Calibration Blank + 5 standards, one ≤ RL Correlation coefficient (r) ≥ 0.995	NFG (1) Method (2)	J (pos)/UJ (ND) if r < 0.995	5A (H,L)[3]	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after ICAL %R within ± 15% of true value	NFG (1) Method (2)	R(pos/ND) if %R <70% J(pos)/UJ(ND) if %R = 70-84% J(pos) if %R = > 116%	5A (H,L)[3]	Qualify all samples in run
Reporting Limit (RL) Standard	Conc = RL %R = 70-130%	Method (2)	J (pos) < 2x RL / R (ND) if %R <50% J (pos) < 2x RL / UJ (ND) if %R 50 - 69% J (pos) < 2x RL if %R > 130%	5A (H,L)[3]	Qualify all samples in run
Continuing Calibration Verification (CCV)	At beginning of run, every ten samples, and again after last sample. %R within ± 15% of true value	NFG (1) Method (2)	R(pos/ND) if %R <70% J(pos)/UJ(ND) if %R = 70-84% J(pos) if %R = > 116%	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG (1) Method (2)	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994

Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG (1) Method (2)	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blanks: 7 Neg Blanks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review:** **#1 - Review MB, quaify as needed** **#2 - Review IB , qualify as needed** **#3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.
Precision and Accuracy					
Laboratroy Control Sample (recovery)	One per matrix per batch (of ≤ 20 samples); LCSD not required %R between 80-120%	Method (2)	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits. NFG does not address LCS
LCS/LCSD (RPD)	LCSD not required, if analyzed: RPD ≤ 20%	Method (2)	J (pos)/UJ (ND) if RPD > 20%	9	Qualify all samples in batch QAPP may have overriding precision limits.
Matris Spike/Matrix Spike Duplicate MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples); MSD not required %R between 75-125%	NFG (1) Method (2)	J (pos) if %R > 125% J (pos)/UJ (ND) if %R <75% J (pos)/R (ND) if %R < 30%	8 (H,L)[3]	No action if only one spike %R is outside criteria. NA if parent concentration >4x the amount spiked. Qualify all samples in batch. QAPP may have overriding accuracy limits.
MS/MSD (RPD)	MSD not required, if analyzed: RPD ≤ 20%	NFG (1) Method (2)	J (pos)/UJ (ND) if RPD > 20%	9	QAPP may have overriding precision limits.
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG (1) Method (2)	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.

Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Total and Dissolved Comparison	Total > Dissolved	EcoChem standard policy	J (pos)/UJ (ND) if Dissolved > Total and results fall outside of standard duplicate precision criteria	14	
Calibration Range	Results < instrument linear range	NFG (1) Method (2)	if result exceeds linear range and sample was not diluted J (pos)	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.

[2] Method SW846 7470A Mercury in Liquid Waste (Manual Cold-Vapor Technique), Revision 1, September 1994.
Method SW846 7471B Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique), Revision 2, February 2007.

[3] "H" = high bias indicated; "L" = low bias indicated

[4] SW846, Chapter 3, Inorganic Analytes

(pos): Positive Result
(ND): Not Detected

Conventional Methods by Gravimetric Analysis
(i.e., Total Solids, Total Dissolved Solids, Total Suspended Solids, Grain Size)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Cooler temperature: 4°C±2°C Preservation: Analyte/Method Specific	Method [(1)] NFG[(2)]	J (pos)/UJ (ND) if preservation requirements not met	1	Use **PJ** to qualify for cooler temp outliers.
Holding Time	Analyte/Method Specific	Method NFG[(2)]	J (pos)/UJ (ND) if holding time exceeded	1	
Blank Contamination					
Method Blank (MB)	If required by method,one per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [(1)] Method [(2)]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994
Precision and Accuracy					
LCS (If appropriate to method)	One per matrix per batch (of ≤ 20 samples) %R between 80-120%	Method [(2)]	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits.
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits

Conventional Methods by Gravimetric Analysis
(i.e., Total Solids, Total Dissolved Solids, Total Suspended Solids, Grain Size)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% For Grain Size, no action if results for fraction are less than 5%	9	Qualify all samples in batch, except Grain Size - qualify parent only. QAPP may have overriding precision limits.
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte per sample	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.
[2] SW846 or EPA Standard Methods
[3] "H" = high bias indicated; "L" = low bias indicated

(pos): Positive Result
(ND): Not Detected

Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Cooler temperature: 4°C±2°C Preservation: Analyte/Method Specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if preservation requirements not met	1	Use **PJ** to qualify for cooler temp outliers.
Holding Time	Analyte/Method Specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if holding time exceeded	1	
Instrument Performance					
Initial Calibration (ICAL)	blank + multiple standards as per method requirements r ≥ 0.995	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) for r < 0.995	5A	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R method specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if %R < lower control limit (LCL) J (pos) if %R > upper control limit (UCL)	5A (H,L)[3]	Qualify all samples in run
Continuing Calibration Verification (CCV)	Immediately following ICV, every 10 samples, and end of run %R method specific	NFG [(1)] Method [(2)]	J(pos)/UJ(ND) if %R < LCL J(pos) if %R > UCL	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [(1)] Method [(2)]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994

Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG [(1)] Method [(2)]	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blanks: 7 Neg Blanks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review:** **#1 - Review MB, quaify as needed** **#2 - Review IB , qualify as needed** **#3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.
Precision and Accuracy					
Laboratory Control Sample (LCS)	One per matrix per batch (of ≤ 20 samples) %R within Method control limits (or Laboratory control limtis if none specified in method)	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if %R < LCL J (pos) if %R > UCL	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits.
Reference Materials (RM, CRM, SRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits

Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Where applicable to method; MSD may not be required One per matrix per batch (of ≤ 20 samples) For samples <4x spike level, %R within method control limits (or Laboratory control limtis if none specified in method)	NFG [1] Method [2]	J (pos)/UJ (ND) if %R < LCL J (pos) if %R > UCL	8 (H,L)3	Qualify all samples in batch No action if native analyte concentration ≥ 4x spike added. Qualify all samples in batch. QAPP may have overriding accuracy limits.
Laboratory Duplicate (or MS/MSD)	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Linear Range	Sample concentrations less than highest calibration standard	NFG [1] Method [2]	If result exceeds linear range & sample was not diluted J (pos)	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.
[2] SW846 or EPA Standard Methods
[3] "H" = high bias indicated; "L" = low bias indicated

(pos): Positive Result
(ND): Not Detected

ECOCHEM
Data Quality

APPENDIX B

QUALIFIED DATA SUMMARY TABLE

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB03-08-20160328	1603305-025A	SW6020A	Lead, Total	30	MG/KG		J	9
	GLB03-08-20160328	1603305-025A	SW6020A	Chromium, Total	12	MG/KG		J	9
	GLB03-08-20160328	1603305-025A	SW8082	Total PCBs	0.0944	MG/KG		J	1,13H
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1016	0.0944	MG/KG		J	1,13H
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB03-08-20160328	1603305-025A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB03-08-20160328	1603305-025A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	2930	UG/KG	B*	U	7
	GLB02-03-20160328	1603305-019A	SW6020A	Lead, Total	24.6	MG/KG		J	9
	GLB02-03-20160328	1603305-019A	SW6020A	Chromium, Total	34.2	MG/KG		J	9
	GLB02-03-20160328	1603305-019A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB02-03-20160328	1603305-019A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1690	UG/KG	B*	U	7
	GLB02-08-20160328	1603305-020A	SW6020A	Lead, Total	179	MG/KG		J	9
	GLB02-08-20160328	1603305-020A	SW6020A	Chromium, Total	67.7	MG/KG		J	9
	GLB02-08-20160328	1603305-020A	SW8082	Total PCBs	0.188	MG/KG		J	1
	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1260	0.0584	MG/KG		J	1
	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1254	0.104	MG/KG		J	1
	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1016	0.0251	MG/KG		J	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB02-08-20160328	1603305-020A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB02-08-20160328	1603305-020A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	2530	UG/KG	B*	U	7
	GLB02-17-20160328	1603305-022A	SW6020A	Lead, Total	152	MG/KG		J	9
	GLB02-17-20160328	1603305-022A	SW6020A	Chromium, Total	30.4	MG/KG		J	9
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1260		MG/KG		UJ	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1268		MG/KG		UJ	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1221		MG/KG		UJ	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1232		MG/KG		UJ	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1248		MG/KG		UJ	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1016	0.0977	MG/KG		J	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1262		MG/KG		UJ	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1242		MG/KG		UJ	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Total PCBs	0.759	MG/KG	D	J	1,13L
	GLB02-17-20160328	1603305-022A	SW8082	Aroclor 1254	0.661	MG/KG	D	J	1,13L
	GLB02-17-20160328	1603305-022A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	3170	UG/KG	B*	U	7
	GLB03-17-20160328	1603305-026A	SW6020A	Lead, Total	1.78	MG/KG		J	9
	GLB03-17-20160328	1603305-026A	SW6020A	Chromium, Total	12.9	MG/KG		J	9
	GLB03-17-20160328	1603305-026A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB03-17-20160328	1603305-026A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	2080	UG/KG	B*	U	7
	GLB02-20-20160328	1603305-023A	SW6020A	Lead, Total	148	MG/KG		J	9
	GLB02-20-20160328	1603305-023A	SW6020A	Chromium, Total	37.1	MG/KG		J	9
	GLB02-20-20160328	1603305-023A	SW8082	Total PCBs	0.362	MG/KG		J	1
	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1254	0.287	MG/KG		J	1
	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1221		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1016	0.0751	MG/KG		J	1
	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB02-20-20160328	1603305-023A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB02-20-20160328	1603305-023B	SW8260C	2,2-Dichloropropane		MG/KG		UJ	8L
	GLB02-20-20160328	1603305-023B	SW8260C	1,1,2,2-Tetrachloroethane		MG/KG		R	8L
	GLB02-20-20160328	1603305-023A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	3820	UG/KG	B*	U	7
	GLB11-06-20160328	1603305-028A	SW6020A	Chromium, Total	37.7	MG/KG		J	9
	GLB11-06-20160328	1603305-028A	SW6020A	Lead, Total	1890	MG/KG	D	J	9
	GLB11-06-20160328	1603305-028A	SW8082	Total PCBs	0.0833	MG/KG		J	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1254	0.0652	MG/KG		J	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB11-06-20160328	1603305-028A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB11-06-20160328	1603305-028A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	2230	UG/KG	B*	U	7
	GLB03-20-20160328	1603305-027A	SW6020A	Lead, Total	1.11	MG/KG		J	9
	GLB03-20-20160328	1603305-027A	SW6020A	Chromium, Total	10.7	MG/KG		J	9
	GLB03-20-20160328	1603305-027A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB03-20-20160328	1603305-027A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1940	UG/KG	B*	U	7
	GLB04-04-20160328	1603305-014A	SW6020A	Lead, Total	18.9	MG/KG		J	9
	GLB04-04-20160328	1603305-014A	SW6020A	Chromium, Total	56.9	MG/KG		J	9

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB04-04-20160328	1603305-014A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB04-04-20160328	1603305-014A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1250	UG/KG	B*	U	7
	GLB04-07-20160328	1603305-015A	SW6020A	Chromium, Total	170	MG/KG		J	9
	GLB04-07-20160328	1603305-015A	SW6020A	Lead, Total	4700	MG/KG	D	J	9
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1016	0.323	MG/KG		J	1
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB04-07-20160328	1603305-015A	SW8082	Total PCBs	1.28	MG/KG	D	J	1
	GLB04-07-20160328	1603305-015A	SW8082	Aroclor 1254	0.961	MG/KG	D	J	1
	GLB04-07-20160328	1603305-015A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	5020	UG/KG	B*	U	7
	GLB04-12-20160328	1603305-016A	SW6020A	Lead, Total	385	MG/KG		J	9
	GLB04-12-20160328	1603305-016A	SW6020A	Chromium, Total	19.1	MG/KG		J	9
	GLB04-12-20160328	1603305-016A	SW8082	Total PCBs	0.296	MG/KG		J	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1254	0.296	MG/KG		J	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB04-12-20160328	1603305-016A	SW8082	Aroclor 1242		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB04-12-20160328	1603305-016A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	2560	UG/KG	B*	U	7
	GLB04-16-20160328	1603305-017A	SW6020A	Lead, Total	4.61	MG/KG		J	9
	GLB04-16-20160328	1603305-017A	SW6020A	Chromium, Total	10.9	MG/KG		J	9
	GLB04-16-20160328	1603305-017A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB04-16-20160328	1603305-017A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1810	UG/KG	B*	U	7
	GLB05-04-20160328	1603305-009A	SW6020A	Lead, Total	1260	MG/KG		J	9
	GLB05-04-20160328	1603305-009A	SW6020A	Antimony, Total	3.6	MG/KG		J	8L
	GLB05-04-20160328	1603305-009A	SW6020A	Zinc, Total	370	MG/KG		J	8H
	GLB05-04-20160328	1603305-009A	SW8082	Total PCBs	0.654	MG/KG		J	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1254	0.301	MG/KG		J	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1016	0.354	MG/KG		J	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB05-04-20160328	1603305-009A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB05-04-20160328	1603305-009A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	3090	UG/KG	B*	U	7
	GLB05-12-20160328	1603305-011A	SW6020A	Lead, Total	2.09	MG/KG		J	9
	GLB05-12-20160328	1603305-011A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB05-12-20160328	1603305-011A	SW6020A	Zinc, Total	32.7	MG/KG		J	8H
	GLB05-12-20160328	1603305-011A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1221		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB05-12-20160328	1603305-011A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1320	UG/KG	B*	U	7
	GLB05-20-20160328	1603305-013A	SW6020A	Lead, Total	1.4	MG/KG		J	9
	GLB05-20-20160328	1603305-013A	SW6020A	Chromium, Total	12.6	MG/KG		J	9
	GLB05-20-20160328	1603305-013A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB05-20-20160328	1603305-013A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1340	UG/KG	B*	U	7
	GLB07-08-20160328	1603305-002A	SW6020A	Lead, Total	351	MG/KG	D	J	9
	GLB07-08-20160328	1603305-002A	SW6020A	Antimony, Total	2.98	MG/KG	D	J	8L
	GLB07-08-20160328	1603305-002A	SW6020A	Zinc, Total	395	MG/KG	D	J	8H
	GLB07-08-20160328	1603305-002A	SW7471B	Mercury, Total	0.0632	MG/KG		J	9
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB07-08-20160328	1603305-002A	SW8082	Total PCBs	0.653	MG/KG	D	J	1
	GLB07-08-20160328	1603305-002A	SW8082	Aroclor 1016	0.653	MG/KG	D	J	1
	GLB07-15-20160328	1603305-003A	SW6020A	Lead, Total	49	MG/KG		J	9
	GLB07-15-20160328	1603305-003A	SW6020A	Antimony, Total	0.255	MG/KG		J	8L
	GLB07-15-20160328	1603305-003A	SW6020A	Zinc, Total	86.3	MG/KG		J	8H

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB07-15-20160328	1603305-003A	SW7471B	Mercury, Total		MG/KG		UJ	9
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB07-15-20160328	1603305-003A	SW8082	Total PCBs	1.37	MG/KG	D	J	1
	GLB07-15-20160328	1603305-003A	SW8082	Aroclor 1254	1.37	MG/KG	D	J	1
	GLB07-15-20160328	1603305-003A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1560	UG/KG	B*	U	7
	GLB07-19-20160328	1603305-004A	SW6020A	Lead, Total	4.63	MG/KG		J	9
	GLB07-19-20160328	1603305-004A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB07-19-20160328	1603305-004A	SW6020A	Zinc, Total	34.9	MG/KG		J	8H
	GLB07-19-20160328	1603305-004A	SW7471B	Mercury, Total		MG/KG		UJ	9
	GLB07-19-20160328	1603305-004A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB07-19-20160328	1603305-004A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1300	UG/KG	B*	U	7
	GLB08-08-20160328	1603305-005A	SW6020A	Lead, Total	1.72	MG/KG		J	9
	GLB08-08-20160328	1603305-005A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB08-08-20160328	1603305-005A	SW6020A	Zinc, Total	30.3	MG/KG		J	8H
	GLB08-08-20160328	1603305-005A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1232		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB08-08-20160328	1603305-005A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1190	UG/KG	B*	U	7
	GLB08-20-20160328	1603305-008A	SW6020A	Lead, Total	2.17	MG/KG		J	9
	GLB08-20-20160328	1603305-008A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB08-20-20160328	1603305-008A	SW6020A	Zinc, Total	25.4	MG/KG		J	8H
	GLB08-20-20160328	1603305-008A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB08-20-20160328	1603305-008A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1220	UG/KG	B*	U	7
	GLB11-15-20160328	1603305-030A	SW6020A	Lead, Total	2.73	MG/KG		J	9
	GLB11-15-20160328	1603305-030A	SW6020A	Chromium, Total	21.3	MG/KG		J	9
	GLB11-15-20160328	1603305-030A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB11-15-20160328	1603305-030A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1620	UG/KG	B*	U	7
	GLB11-20-20160328	1603305-031A	SW6020A	Lead, Total	1.14	MG/KG		J	9
	GLB11-20-20160328	1603305-031A	SW6020A	Chromium, Total	11.8	MG/KG		J	9
	GLB11-20-20160328	1603305-031A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1260		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB11-20-20160328	1603305-031A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1250	UG/KG	B*	U	7
	GLB13-01-20160328	1603305-032A	SW6020A	Lead, Total	14.6	MG/KG		J	9
	GLB13-01-20160328	1603305-032A	SW6020A	Chromium, Total	30.6	MG/KG		J	9
	GLB13-01-20160328	1603305-032A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB13-01-20160328	1603305-032A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1460	UG/KG	B*	U	7
	GLB13-04-20160328	1603305-033A	SW6020A	Lead, Total	103	MG/KG		J	9
	GLB13-04-20160328	1603305-033A	SW6020A	Chromium, Total	23.5	MG/KG		J	9
	GLB13-04-20160328	1603305-033A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB13-04-20160328	1603305-033A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1610	UG/KG	B*	U	7
	GLB13-12-20160328	1603305-034A	SW6020A	Lead, Total	4.34	MG/KG		J	9

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603305	GLB13-12-20160328	1603305-034A	SW6020A	Chromium, Total	10.8	MG/KG		J	9
	GLB13-12-20160328	1603305-034A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB13-12-20160328	1603305-034A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1770	UG/KG	B*	U	7
	GLB08-12-20160328	1603305-006A	SW6020A	Lead, Total	1.28	MG/KG		J	9
	GLB08-12-20160328	1603305-006A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB08-12-20160328	1603305-006A	SW6020A	Zinc, Total	25.6	MG/KG		J	8H
	GLB08-12-20160328	1603305-006A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB08-12-20160328	1603305-006A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1220	UG/KG	B*	U	7
1603321	GLB01-07-20160329	1603321-015A	SW6020A	Lead, Total	115	MG/KG		J	9
	GLB01-07-20160329	1603321-015A	SW6020A	Antimony, Total	0.538	MG/KG		J	8L
	GLB01-07-20160329	1603321-015A	SW8082	Total PCBs		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1260		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1254		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1268		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1221		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1232		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1248		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1016		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603321	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1262		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8082	Aroclor 1242		MG/KG		UJ	1,8L
	GLB01-07-20160329	1603321-015A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1850	UG/KG	B*	U	7
	GLB06-04-20160329	1603321-006B	NWTPH-GX	Gasoline	7.34	MG/KG		J	8L,9
	GLB06-04-20160329	1603321-006A	SW6020A	Lead, Total	11.9	MG/KG		J	9
	GLB06-04-20160329	1603321-006A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB06-04-20160329	1603321-006A	SW8082	Total PCBs	0.625	MG/KG	D	J	1
	GLB06-04-20160329	1603321-006A	SW8082	Aroclor 1260	0.625	MG/KG	D	J	1
	GLB06-04-20160329	1603321-006A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1300	UG/KG	B*	U	7
	GLB01-14-20160329	1603321-017A	SW6020A	Lead, Total	13	MG/KG		J	9
	GLB01-14-20160329	1603321-017A	SW6020A	Antimony, Total	0.221	MG/KG		J	8L
	GLB01-14-20160329	1603321-017A	SW8082	Total PCBs	0.0278	MG/KG		J	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1260	0.0278	MG/KG		J	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB01-14-20160329	1603321-017A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB01-14-20160329	1603321-017A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	2060	UG/KG	B*	U	7
	GLB14-06-20160329	1603321-022A	SW6020A	Lead, Total	15.4	MG/KG		J	9
	GLB14-06-20160329	1603321-022A	SW6020A	Antimony, Total	1.19	MG/KG		J	8L
	GLB14-06-20160329	1603321-022A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1268		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603321	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB14-06-20160329	1603321-022A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	133	UG/KG	B	U	7
	GLB06-09-20160329	1603321-008A	SW6020A	Lead, Total	31	MG/KG		J	9
	GLB06-09-20160329	1603321-008A	SW6020A	Antimony, Total	0.212	MG/KG		J	8L
	GLB06-09-20160329	1603321-008A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB06-09-20160329	1603321-008A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1870	UG/KG	B*	U	7
	GLB06-14-20160329	1603321-009A	SW6020A	Lead, Total	6.2	MG/KG		J	9
	GLB06-14-20160329	1603321-009A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB06-14-20160329	1603321-009A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB06-14-20160329	1603321-009A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1960	UG/KG	B*	U	7
	GLB09-03-20160329	1603321-011A	SW6020A	Lead, Total	3.72	MG/KG		J	9
	GLB09-03-20160329	1603321-011A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB09-03-20160329	1603321-011A	SW8082	Total PCBs		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603321	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB09-03-20160329	1603321-011A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1320	UG/KG	B*	U	7
	GLB09-14-20160329	1603321-013A	SW6020A	Lead, Total	2.18	MG/KG		J	9
	GLB09-14-20160329	1603321-013A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB09-14-20160329	1603321-013A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB09-14-20160329	1603321-013A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1540	UG/KG	B*	U	7
	GLB09-20-20160329	1603321-014A	SW6020A	Lead, Total	1.22	MG/KG		J	9
	GLB09-20-20160329	1603321-014A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB09-20-20160329	1603321-014A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB09-20-20160329	1603321-014A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1490	UG/KG	B*	U	7

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603321	GLB10-04-20160329	1603321-019A	SW6020A	Lead, Total	86.6	MG/KG		J	9
	GLB10-04-20160329	1603321-019A	SW6020A	Antimony, Total	0.607	MG/KG		J	8L
	GLB10-04-20160329	1603321-019A	SW8082	Total PCBs	0.0256	MG/KG		J	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB10-04-20160329	1603321-019A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	2180	UG/KG	B*	U	7
	GLB10-08-20160329	1603321-020A	SW6020A	Lead, Total	50.3	MG/KG		J	9
	GLB10-08-20160329	1603321-020A	SW6020A	Antimony, Total	0.991	MG/KG		J	8L
	GLB10-08-20160329	1603321-020A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB10-08-20160329	1603321-020A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	2140	UG/KG	B*	U	7
	GLB12-04-20160329	1603321-001A	SW6020A	Antimony, Total	0.431	MG/KG		J	8L
	GLB12-04-20160329	1603321-001A	SW6020A	Arsenic, Total	6.44	MG/KG		J	9
	GLB12-04-20160329	1603321-001A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1016		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603321	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB12-04-20160329	1603321-001A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1530	UG/KG	B*	U	7
	GLB12-14-20160329	1603321-004A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB12-14-20160329	1603321-004A	SW6020A	Arsenic, Total	1.16	MG/KG		J	9
	GLB12-14-20160329	1603321-004A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB12-14-20160329	1603321-004A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1460	UG/KG	B*	U	7
	GLB14-02-20160329	1603321-021A	SW6020A	Lead, Total	3.7	MG/KG		J	9
	GLB14-02-20160329	1603321-021A	SW6020A	Antimony, Total	0.207	MG/KG		J	8L
	GLB14-02-20160329	1603321-021A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB14-02-20160329	1603321-021A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1750	UG/KG	B*	U	7
	GLB01-20-20160329	1603321-018A	SW6020A	Lead, Total	0.997	MG/KG		J	9
	GLB01-20-20160329	1603321-018A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB01-20-20160329	1603321-018A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1221		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603321	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB01-20-20160329	1603321-018A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1730	UG/KG	B*	U	7
	GLB14-12-20160329	1603321-023A	SW6020A	Lead, Total	25.9	MG/KG		J	9
	GLB14-12-20160329	1603321-023A	SW6020A	Antimony, Total	0.39	MG/KG		J	8L
	GLB14-12-20160329	1603321-023A	SW8082	Total PCBs	0.0441	MG/KG		J	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1254	0.0441	MG/KG		J	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB14-12-20160329	1603321-023A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB14-12-20160329	1603321-023A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	241	UG/KG	B	U	7
	GLB14-15-20160329	1603321-024A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1221		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB14-15-20160329	1603321-024A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW6020A	Antimony, Total		MG/KG		UJ	8L
	GLB12-20-20160329	1603321-005A	SW6020A	Arsenic, Total	1.3	MG/KG		J	9
	GLB12-20-20160329	1603321-005A	SW8082	Total PCBs		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1260		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1254		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1268		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1221		MG/KG		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1603321	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1232		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1248		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1016		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1262		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8082	Aroclor 1242		MG/KG		UJ	1
	GLB12-20-20160329	1603321-005A	SW8270DSIM	Bis(2-ethylhexyl) phthalate	1620	UG/KG	B*	U	7
1604206	FD1-20160420	1604206-016B	EPA200.8	Copper, Total	0.621	UG/L		J	9
	FD1-20160420	1604206-016B	EPA200.8	Antimony, Total	0.43	UG/L		J	9
	FD1-20160420	1604206-016I	NWTPH-GX	Gasoline		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Ethylbenzene		UG/L	MDL	UJ	1
	FD1-20160420	1604206-016I	SW8260C	Styrene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	cis-1,3-Dichloropropene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	trans-1,3-Dichloropropene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	n-Propylbenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	n-Butylbenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	4-Chlorotoluene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,4-Dichlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2-Dibromoethane (EDB)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2-Dichloroethane (EDC)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Methyl Isobutyl Ketone (MIBK)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,3,5-Trimethylbenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Bromobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Toluene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Chlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2,4-Trichlorobenzene		UG/L	MDL	UJ	1
	FD1-20160420	1604206-016I	SW8260C	Dibromochloromethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Tetrachloroethene (PCE)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	sec-Butylbenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,3-Dichloropropane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	cis-1,2-Dichloroethene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	trans-1,2-Dichloroethene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Methyl tert-butyl ether (MTBE)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	m,p-Xylene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,3-Dichlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Carbon tetrachloride		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,1-Dichloropropene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	FD1-20160420	1604206-016I	SW8260C	2-Hexanone		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	2,2-Dichloropropane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,1,1,2-Tetrachloroethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Acetone		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Chloroform		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Benzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,1,1-Trichloroethane (TCA)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Bromomethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Chloromethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Dibromomethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Chloroethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Vinyl chloride		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Methylene chloride		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Carbon disulfide		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Bromoform		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Bromodichloromethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,1-Dichloroethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,1-Dichloroethene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Trichlorofluoromethane (CFC-11)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Dichlorodifluoromethane (CFC-12)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2-Dichloropropane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	(MEK) 2-Butanone		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,1,2-Trichloroethane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Trichloroethene (TCE)		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,1,2,2-Tetrachloroethane		UG/L	MDL	UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2,3-Trichlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Hexachlorobutadiene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	o-Xylene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	2-Chlorotoluene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2-Dichlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2,4-Trimethylbenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2-Dibromo-3-chloropropane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	1,2,3-Trichloropropane		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	tert-Butylbenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Isopropylbenzene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Nitrobenzene		UG/L		R	1,10L

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	FD1-20160420	1604206-016I	SW8260C	4-Isopropyltoluene		UG/L		UJ	1
	FD1-20160420	1604206-016I	SW8260C	Naphthalene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	4-Nitrophenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	FD1-20160420	1604206-016E	SW8270D	4-Bromophenyl phenyl ether		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	bis(2-Ethylhexyl)adipate		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2,4-Dimethylphenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	1,4-Dichlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	4-Chloroaniline		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Phenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Bis(2-chloroethyl) ether		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Bis(2-chloroethoxy)methane		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Bis(2-ethylhexyl) phthalate	0.176	UG/L	BMDL J	UJ	7
	FD1-20160420	1604206-016E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Hexachlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	1,2,4-Trichlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2,4-Dinitrotoluene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Dimethylphthalate		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Dibenzofuran		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	1,3-Dichlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2,6-Dinitrotoluene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	N-Nitrosodi-n-propylamine		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Hexachloroethane		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	4-Chlorophenyl phenyl ether		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Hexachlorocyclopentadiene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Isophorone		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Diethylphthalate		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Di-n-butyl phthalate		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Benzyl Butylphthalate	0.037	UG/L	BMDL J	UJ	7
	FD1-20160420	1604206-016E	SW8270D	Carbazole		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Hexachlorobutadiene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	FD1-20160420	1604206-016E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2-Nitroaniline		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2-Nitrophenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2-Chloronaphthalene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	1,2-Dichlorobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2-Chlorophenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	1
	FD1-20160420	1604206-016E	SW8270D	Nitrobenzene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Anthracene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Pyrene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Benzo(b)fluoranthene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Fluoranthene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Benzo(k)fluoranthene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Acenaphthylene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Chrysene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Benzo(a)pyrene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Benz(a)anthracene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Acenaphthene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Phenanthrene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Fluorene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	1-Methylnaphthalene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Naphthalene	0.0746	UG/L		J	1
	FD1-20160420	1604206-016J	SW8270DSIM	2-Methylnaphthalene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Indeno(1,2,3-cd)pyrene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Dibenz(a,h)anthracene		UG/L		UJ	1
	FD1-20160420	1604206-016J	SW8270DSIM	Pentachlorophenol		UG/L		UJ	1
	FD2-20160421	1604206-017C	EPA200.8	Arsenic, Dissolved	19.5	UG/L	MDL	J	9
	FD2-20160421	1604206-017B	EPA200.8	Antimony, Total		UG/L		UJ	9
	FD2-20160421	1604206-017B	EPA200.8	Copper, Total	0.524	UG/L		J	9
	FD2-20160421	1604206-017B	EPA200.8	Zinc, Total	3.02	UG/L		J	9
	FD2-20160421	1604206-017I	SW8260C	Nitrobenzene		UG/L		R	10L
	FD2-20160421	1604206-017E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	FD2-20160421	1604206-017E	SW8270D	Bis(2-ethylhexyl) phthalate	0.148	UG/L	BMDL J	UJ	7
	FD2-20160421	1604206-017J	SW8270DSIM	Benzo(g,h,i)perylene	0.215	UG/L		J	9

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW16-20160421	1604206-015B	EPA200.8	Copper, Total		UG/L		UJ	9
	MW16-20160421	1604206-015B	EPA200.8	Antimony, Total	1.37	UG/L		J	9
	MW16-20160421	1604206-015I	SW8260C	Nitrobenzene		UG/L		R	10L
	MW16-20160421	1604206-015E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW16-20160421	1604206-015E	SW8270D	Bis(2-ethylhexyl) phthalate	0.159	UG/L	BMDL J	UJ	7
	MW16-20160421	1604206-015E	SW8270D	Benzyl Butylphthalate	0.053	UG/L	BMDL J	UJ	7
	MW07-20160421	1604206-003I	SW8260C	Nitrobenzene		UG/L		R	10L
	MW07-20160421	1604206-003E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW07-20160421	1604206-003E	SW8270D	Bis(2-ethylhexyl) phthalate	0.395	UG/L	BMDL J	UJ	7
	MW07-20160421	1604206-003J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	9
	MW07-20160421	1604206-003C	EPA200.8	Arsenic, Dissolved		UG/L		UJ	9
	MW07-20160421	1604206-003B	EPA200.8	Antimony, Total		UG/L		UJ	9
	MW07-20160421	1604206-003B	EPA200.8	Copper, Total	0.617	UG/L		J	9
	MW07-20160421	1604206-003B	EPA200.8	Zinc, Total	7.69	UG/L		J	9
	MW06-20160421	1604206-002B	EPA200.8	Copper, Total	1.83	UG/L		J	9
	MW06-20160421	1604206-002B	EPA200.8	Antimony, Total	0.542	UG/L		J	9
	MW06-20160421	1604206-002I	SW8260C	Nitrobenzene		UG/L		R	10L
	MW06-20160421	1604206-002E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW06-20160421	1604206-002E	SW8270D	Bis(2-ethylhexyl) phthalate	0.396	UG/L	BMDL J	UJ	7
	MW06-20160421	1604206-002E	SW8270D	Benzyl Butylphthalate	0.0467	UG/L	BMDL J	UJ	7
	MW06-20160421	1604206-002J	SW8270DSIM	Pentachlorophenol	0.453	UG/L		J	9
	MW08-20160421	1604206-004B	EPA200.8	Antimony, Total	1.75	UG/L		J	9
	MW08-20160421	1604206-004B	EPA200.8	Copper, Total	1.11	UG/L		J	9
	MW08-20160421	1604206-004I	SW8260C	Nitrobenzene		UG/L		R	10L
	MW08-20160421	1604206-004E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW08-20160421	1604206-004E	SW8270D	Bis(2-ethylhexyl) phthalate	0.436	UG/L	BMDL J	UJ	7
	MW08-20160421	1604206-004E	SW8270D	Benzyl Butylphthalate	0.052	UG/L	BMDL J	UJ	7
	MW09-20160421	1604206-005B	EPA200.8	Antimony, Total		UG/L		UJ	9
	MW09-20160421	1604206-005B	EPA200.8	Copper, Total	0.536	UG/L		J	9
	MW09-20160421	1604206-005I	SW8260C	Nitrobenzene		UG/L		R	10L
	MW09-20160421	1604206-005E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW09-20160421	1604206-005E	SW8270D	Bis(2-ethylhexyl) phthalate	0.372	UG/L	BMDL J	UJ	7
	MW09-20160421	1604206-005E	SW8270D	Benzyl Butylphthalate	0.0541	UG/L	BMDL J	UJ	7
	MW09D-20160421	1604206-006B	EPA200.8	Antimony, Total		UG/L		UJ	9
	MW09D-20160421	1604206-006B	EPA200.8	Copper, Total		UG/L		UJ	9
	MW09D-20160421	1604206-006I	SW8260C	Nitrobenzene		UG/L		R	10L

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW09D-20160421	1604206-006E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW09D-20160421	1604206-006E	SW8270D	Bis(2-ethylhexyl) phthalate	0.222	UG/L	BMDL J	UJ	7
	MW10-20160420	1604206-007B	EPA200.8	Antimony, Total	2.32	UG/L		J	9
	MW10-20160420	1604206-007B	EPA200.8	Copper, Total	3.39	UG/L		J	9
	MW10-20160420	1604206-007I	NWTPH-GX	Gasoline		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Ethylbenzene		UG/L	MDL	UJ	1
	MW10-20160420	1604206-007I	SW8260C	Styrene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	cis-1,3-Dichloropropene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	trans-1,3-Dichloropropene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	n-Propylbenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	n-Butylbenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	4-Chlorotoluene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,4-Dichlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2-Dibromoethane (EDB)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2-Dichloroethane (EDC)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Methyl Isobutyl Ketone (MIBK)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,3,5-Trimethylbenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Bromobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Toluene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Chlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2,4-Trichlorobenzene		UG/L	MDL	UJ	1
	MW10-20160420	1604206-007I	SW8260C	Dibromochloromethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Tetrachloroethene (PCE)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	sec-Butylbenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,3-Dichloropropane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	cis-1,2-Dichloroethene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	trans-1,2-Dichloroethene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Methyl tert-butyl ether (MTBE)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	m,p-Xylene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,3-Dichlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Carbon tetrachloride		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,1-Dichloropropene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	2-Hexanone		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	2,2-Dichloropropane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,1,1,2-Tetrachloroethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Acetone		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW10-20160420	1604206-007I	SW8260C	Chloroform		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Benzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,1,1-Trichloroethane (TCA)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Bromomethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Chloromethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Dibromomethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Chloroethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Vinyl chloride		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Methylene chloride		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Carbon disulfide		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Bromoform		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Bromodichloromethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,1-Dichloroethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,1-Dichloroethene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Trichlorofluoromethane (CFC-11)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Dichlorodifluoromethane (CFC-12)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2-Dichloropropane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	(MEK) 2-Butanone		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,1,2-Trichloroethane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Trichloroethene (TCE)		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,1,2,2-Tetrachloroethane		UG/L	MDL	UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2,3-Trichlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Hexachlorobutadiene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Naphthalene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	o-Xylene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	2-Chlorotoluene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2-Dichlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2,4-Trimethylbenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2-Dibromo-3-chloropropane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	1,2,3-Trichloropropane		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	tert-Butylbenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Isopropylbenzene		UG/L		UJ	1
	MW10-20160420	1604206-007I	SW8260C	Nitrobenzene		UG/L		R	1,10L
	MW10-20160420	1604206-007I	SW8260C	4-Isopropyltoluene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	4-Nitrophenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Benzyl alcohol		UG/L	*	R	10L

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW10-20160420	1604206-007E	SW8270D	4-Bromophenyl phenyl ether		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	bis(2-Ethylhexyl)adipate		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2,4-Dimethylphenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	1,4-Dichlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	4-Chloroaniline		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Phenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Bis(2-chloroethyl) ether		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Bis(2-chloroethoxy)methane		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Bis(2-ethylhexyl) phthalate	0.548	UG/L	BMDL J	UJ	7
	MW10-20160420	1604206-007E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Hexachlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	1,2,4-Trichlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2,4-Dinitrotoluene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Dimethylphthalate		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Dibenzofuran		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	1,3-Dichlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2,6-Dinitrotoluene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	N-Nitrosodi-n-propylamine		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Hexachloroethane		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	4-Chlorophenyl phenyl ether		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Hexachlorocyclopentadiene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Isophorone		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Diethylphthalate		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Di-n-butyl phthalate		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Benzyl Butylphthalate	0.0599	UG/L	BMDL J	UJ	7
	MW10-20160420	1604206-007E	SW8270D	Carbazole		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Hexachlorobutadiene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2-Nitroaniline		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2-Nitrophenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2-Chloronaphthalene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW10-20160420	1604206-007E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	1,2-Dichlorobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2-Chlorophenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	1
	MW10-20160420	1604206-007E	SW8270D	Nitrobenzene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Anthracene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Pyrene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Benzo(b)fluoranthene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Fluoranthene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Benzo(k)fluoranthene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Acenaphthylene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Chrysene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Benzo(a)pyrene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Benz(a)anthracene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Acenaphthene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Phenanthrene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Fluorene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	1-Methylnaphthalene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Naphthalene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	2-Methylnaphthalene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Indeno(1,2,3-cd)pyrene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Dibenz(a,h)anthracene		UG/L		UJ	1
	MW10-20160420	1604206-007J	SW8270DSIM	Pentachlorophenol		UG/L		UJ	1
	MW10D-20160420	1604206-008B	EPA200.8	Antimony, Total		UG/L		UJ	9
	MW10D-20160420	1604206-008B	EPA200.8	Copper, Total	4.21	UG/L		J	9
	MW10D-20160420	1604206-008I	NWTPH-GX	Gasoline		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Ethylbenzene		UG/L	MDL	UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Styrene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	cis-1,3-Dichloropropene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	trans-1,3-Dichloropropene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	n-Propylbenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	n-Butylbenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	4-Chlorotoluene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,4-Dichlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,2-Dibromoethane (EDB)		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW10D-20160420	1604206-008I	SW8260C	1,2-Dichloroethane (EDC)		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Methyl Isobutyl Ketone (MIBK)		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,3,5-Trimethylbenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Bromobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Toluene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Chlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,2,4-Trichlorobenzene		UG/L	MDL	UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Dibromochloromethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Tetrachloroethene (PCE)		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	sec-Butylbenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,3-Dichloropropane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	cis-1,2-Dichloroethene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	trans-1,2-Dichloroethene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Methyl tert-butyl ether (MTBE)		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	m,p-Xylene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,3-Dichlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Carbon tetrachloride		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,1-Dichloropropene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	2-Hexanone		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	2,2-Dichloropropane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,1,1,2-Tetrachloroethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Acetone		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Chloroform		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Benzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,1,1-Trichloroethane (TCA)		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Bromomethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Chloromethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Dibromomethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Chloroethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Vinyl chloride		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Methylene chloride		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Carbon disulfide		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Bromoform		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Bromodichloromethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,1-Dichloroethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,1-Dichloroethene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW10D-20160420	1604206-008I	SW8260C	Trichlorofluoromethane (CFC-11)		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Dichlorodifluoromethane (CFC-12)		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,2-Dichloropropane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	(MEK) 2-Butanone		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,1,2-Trichloroethane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Trichloroethene (TCE)		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,1,2,2-Tetrachloroethane		UG/L	MDL	UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,2,3-Trichlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Hexachlorobutadiene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Naphthalene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	o-Xylene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	2-Chlorotoluene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,2-Dichlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,2,4-Trimethylbenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,2-Dibromo-3-chloropropane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	1,2,3-Trichloropropane		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	tert-Butylbenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Isopropylbenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008I	SW8260C	Nitrobenzene		UG/L		R	1,10L
	MW10D-20160420	1604206-008I	SW8260C	4-Isopropyltoluene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	4-Nitrophenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW10D-20160420	1604206-008E	SW8270D	4-Bromophenyl phenyl ether		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	bis(2-Ethylhexyl)adipate		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2,4-Dimethylphenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	1,4-Dichlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	4-Chloroaniline		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Phenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Bis(2-chloroethyl) ether		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Bis(2-chloroethoxy)methane		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Bis(2-ethylhexyl) phthalate	0.422	UG/L	BMDL J	UJ	7
	MW10D-20160420	1604206-008E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Hexachlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	1,2,4-Trichlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW10D-20160420	1604206-008E	SW8270D	2,4-Dinitrotoluene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Dimethylphthalate		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Dibenzofuran		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	1,3-Dichlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2,6-Dinitrotoluene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	N-Nitrosodi-n-propylamine		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Hexachloroethane		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	4-Chlorophenyl phenyl ether		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Hexachlorocyclopentadiene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Isophorone		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Diethylphthalate		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Di-n-butyl phthalate		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Benzyl Butylphthalate	0.0358	UG/L	BMDL J	UJ	7
	MW10D-20160420	1604206-008E	SW8270D	Carbazole		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Hexachlorobutadiene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2-Nitroaniline		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2-Nitrophenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2-Chloronaphthalene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	1,2-Dichlorobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2-Chlorophenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	1
	MW10D-20160420	1604206-008E	SW8270D	Nitrobenzene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Anthracene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Pyrene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Benzo(b)fluoranthene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Fluoranthene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Benzo(k)fluoranthene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Acenaphthylene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Chrysene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Benzo(a)pyrene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Benz(a)anthracene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW10D-20160420	1604206-008J	SW8270DSIM	Acenaphthene	0.533	UG/L		J	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Phenanthrene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Fluorene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	1-Methylnaphthalene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Naphthalene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	2-Methylnaphthalene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Indeno(1,2,3-cd)pyrene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Dibenz(a,h)anthracene		UG/L		UJ	1
	MW10D-20160420	1604206-008J	SW8270DSIM	Pentachlorophenol		UG/L		UJ	1
	MW11-20160420	1604206-009B	EPA200.8	Copper, Total	1.32	UG/L		J	9
	MW11-20160420	1604206-009B	EPA200.8	Antimony, Total	0.404	UG/L		J	9
	MW11-20160420	1604206-009I	NWTPH-GX	Gasoline		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Ethylbenzene		UG/L	MDL	UJ	1
	MW11-20160420	1604206-009I	SW8260C	Styrene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	cis-1,3-Dichloropropene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	trans-1,3-Dichloropropene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	n-Propylbenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	n-Butylbenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	4-Chlorotoluene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,4-Dichlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,2-Dibromoethane (EDB)		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,2-Dichloroethane (EDC)		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Methyl Isobutyl Ketone (MIBK)		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,3,5-Trimethylbenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Bromobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Toluene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Chlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,2,4-Trichlorobenzene		UG/L	MDL	UJ	1
	MW11-20160420	1604206-009I	SW8260C	Dibromochloromethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Tetrachloroethene (PCE)		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	sec-Butylbenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,3-Dichloropropane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	cis-1,2-Dichloroethene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	trans-1,2-Dichloroethene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Methyl tert-butyl ether (MTBE)		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW11-20160420	1604206-009I	SW8260C	m,p-Xylene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,3-Dichlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Carbon tetrachloride		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,1-Dichloropropene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	2-Hexanone		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	2,2-Dichloropropane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,1,1,2-Tetrachloroethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Acetone		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Chloroform		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Benzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,1,1-Trichloroethane (TCA)		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Bromomethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Chloromethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Dibromomethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Chloroethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Vinyl chloride		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Methylene chloride		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Carbon disulfide		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Bromoform		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Bromodichloromethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,1-Dichloroethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,1-Dichloroethene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Trichlorofluoromethane (CFC-11)		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Dichlorodifluoromethane (CFC-12)		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,2-Dichloropropane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	(MEK) 2-Butanone		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,1,2-Trichloroethane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Trichloroethene (TCE)		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,1,2,2-Tetrachloroethane		UG/L	MDL	UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,2,3-Trichlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Hexachlorobutadiene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Naphthalene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	o-Xylene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	2-Chlorotoluene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,2-Dichlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,2,4-Trimethylbenzene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW11-20160420	1604206-009I	SW8260C	1,2-Dibromo-3-chloropropane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	1,2,3-Trichloropropane		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	tert-Butylbenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Isopropylbenzene		UG/L		UJ	1
	MW11-20160420	1604206-009I	SW8260C	Nitrobenzene		UG/L		R	1,10L
	MW11-20160420	1604206-009I	SW8260C	4-Isopropyltoluene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	4-Nitrophenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW11-20160420	1604206-009E	SW8270D	4-Bromophenyl phenyl ether		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	bis(2-Ethylhexyl)adipate		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2,4-Dimethylphenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	1,4-Dichlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	4-Chloroaniline		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Phenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Bis(2-chloroethyl) ether		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Bis(2-chloroethoxy)methane		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Bis(2-ethylhexyl) phthalate	0.191	UG/L	BMDL J	UJ	7
	MW11-20160420	1604206-009E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Hexachlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	1,2,4-Trichlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2,4-Dinitrotoluene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Dimethylphthalate		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Dibenzofuran		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	1,3-Dichlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2,6-Dinitrotoluene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	N-Nitrosodi-n-propylamine		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Hexachloroethane		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	4-Chlorophenyl phenyl ether		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Hexachlorocyclopentadiene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Isophorone		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Diethylphthalate		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW11-20160420	1604206-009E	SW8270D	Di-n-butyl phthalate		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Benzyl Butylphthalate	0.0431	UG/L	BMDL J	UJ	7
	MW11-20160420	1604206-009E	SW8270D	Carbazole		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Hexachlorobutadiene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2-Nitroaniline		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2-Nitrophenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2-Chloronaphthalene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	1,2-Dichlorobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2-Chlorophenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	1
	MW11-20160420	1604206-009E	SW8270D	Nitrobenzene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Anthracene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Pyrene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Benzo(b)fluoranthene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Fluoranthene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Benzo(k)fluoranthene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Acenaphthylene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Chrysene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Benzo(a)pyrene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Benz(a)anthracene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Acenaphthene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Phenanthrene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Fluorene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	1-Methylnaphthalene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Naphthalene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	2-Methylnaphthalene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Indeno(1,2,3-cd)pyrene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Dibenz(a,h)anthracene		UG/L		UJ	1
	MW11-20160420	1604206-009J	SW8270DSIM	Pentachlorophenol		UG/L		UJ	1
	MW12-20160420	1604206-010B	EPA200.8	Copper, Total	1.05	UG/L		J	9
	MW12-20160420	1604206-010B	EPA200.8	Antimony, Total	0.429	UG/L		J	9
	MW12-20160420	1604206-010I	NWTPH-GX	Gasoline		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Ethylbenzene		UG/L	MDL	UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW12-20160420	1604206-010I	SW8260C	Styrene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	cis-1,3-Dichloropropene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	trans-1,3-Dichloropropene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	n-Propylbenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	n-Butylbenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	4-Chlorotoluene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,4-Dichlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2-Dibromoethane (EDB)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2-Dichloroethane (EDC)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Methyl Isobutyl Ketone (MIBK)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,3,5-Trimethylbenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Bromobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Toluene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Chlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2,4-Trichlorobenzene		UG/L	MDL	UJ	1
	MW12-20160420	1604206-010I	SW8260C	Dibromochloromethane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Tetrachloroethene (PCE)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	sec-Butylbenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,3-Dichloropropane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	cis-1,2-Dichloroethene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	trans-1,2-Dichloroethene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Methyl tert-butyl ether (MTBE)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	m,p-Xylene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,3-Dichlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Carbon tetrachloride		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,1-Dichloropropene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	2-Hexanone		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	2,2-Dichloropropane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,1,1,2-Tetrachloroethane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Acetone		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Chloroform		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Benzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,1,1-Trichloroethane (TCA)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Bromomethane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Chloromethane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Dibromomethane		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW12-20160420	1604206-010I	SW8260C	Chloroethane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Vinyl chloride		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Methylene chloride		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Carbon disulfide		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Bromoform		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Bromodichloromethane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,1-Dichloroethane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,1-Dichloroethene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Trichlorofluoromethane (CFC-11)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Dichlorodifluoromethane (CFC-12)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2-Dichloropropane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	(MEK) 2-Butanone		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,1,2-Trichloroethane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Trichloroethene (TCE)		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,1,2,2-Tetrachloroethane		UG/L	MDL	UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2,3-Trichlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Hexachlorobutadiene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Naphthalene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	o-Xylene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	2-Chlorotoluene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2-Dichlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2,4-Trimethylbenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2-Dibromo-3-chloropropane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	1,2,3-Trichloropropane		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	tert-Butylbenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Isopropylbenzene		UG/L		UJ	1
	MW12-20160420	1604206-010I	SW8260C	Nitrobenzene		UG/L		R	1,10L
	MW12-20160420	1604206-010I	SW8260C	4-Isopropyltoluene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	4-Nitrophenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW12-20160420	1604206-010E	SW8270D	4-Bromophenyl phenyl ether		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	bis(2-Ethylhexyl)adipate		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2,4-Dimethylphenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	1,4-Dichlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	4-Chloroaniline		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW12-20160420	1604206-010E	SW8270D	Phenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Bis(2-chloroethyl) ether		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Bis(2-chloroethoxy)methane		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Bis(2-ethylhexyl) phthalate	0.639	UG/L	BMDL J	UJ	7
	MW12-20160420	1604206-010E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Hexachlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	1,2,4-Trichlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2,4-Dinitrotoluene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Dimethylphthalate		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Dibenzofuran		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	1,3-Dichlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2,6-Dinitrotoluene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	N-Nitrosodi-n-propylamine		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Hexachloroethane		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	4-Chlorophenyl phenyl ether		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Hexachlorocyclopentadiene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Isophorone		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Diethylphthalate		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Di-n-butyl phthalate		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Benzyl Butylphthalate	0.0665	UG/L	BMDL J	UJ	7
	MW12-20160420	1604206-010E	SW8270D	Carbazole		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Hexachlorobutadiene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2-Nitroaniline		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2-Nitrophenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2-Chloronaphthalene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	1,2-Dichlorobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2-Chlorophenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	1
	MW12-20160420	1604206-010E	SW8270D	Nitrobenzene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Anthracene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW12-20160420	1604206-010J	SW8270DSIM	Pyrene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Benzo(b)fluoranthene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Fluoranthene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Benzo(k)fluoranthene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Acenaphthylene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Chrysene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Benzo(a)pyrene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Benz(a)anthracene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Acenaphthene	0.201	UG/L		J	1
	MW12-20160420	1604206-010J	SW8270DSIM	Phenanthrene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Fluorene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	1-Methylnaphthalene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Naphthalene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	2-Methylnaphthalene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Indeno(1,2,3-cd)pyrene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Dibenz(a,h)anthracene		UG/L		UJ	1
	MW12-20160420	1604206-010J	SW8270DSIM	Pentachlorophenol		UG/L		UJ	1
	MW12D-20160420	1604206-011B	EPA200.8	Antimony, Total		UG/L		UJ	9
	MW12D-20160420	1604206-011B	EPA200.8	Copper, Total	0.884	UG/L		J	9
	MW12D-20160420	1604206-011I	NWTPH-GX	Gasoline		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Ethylbenzene		UG/L	MDL	UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Styrene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	cis-1,3-Dichloropropene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	trans-1,3-Dichloropropene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	n-Propylbenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	n-Butylbenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	4-Chlorotoluene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,4-Dichlorobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,2-Dibromoethane (EDB)		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,2-Dichloroethane (EDC)		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Methyl Isobutyl Ketone (MIBK)		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,3,5-Trimethylbenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Bromobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Toluene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Chlorobenzene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW12D-20160420	1604206-011I	SW8260C	1,2,4-Trichlorobenzene		UG/L	MDL	UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Dibromochloromethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Tetrachloroethene (PCE)		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	sec-Butylbenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,3-Dichloropropane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	cis-1,2-Dichloroethene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	trans-1,2-Dichloroethene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Methyl tert-butyl ether (MTBE)		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	m,p-Xylene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,3-Dichlorobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Carbon tetrachloride		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,1-Dichloropropene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	2-Hexanone		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	2,2-Dichloropropane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,1,1,2-Tetrachloroethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Acetone		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Chloroform		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Benzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,1,1-Trichloroethane (TCA)		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Bromomethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Chloromethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Dibromomethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Chloroethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Vinyl chloride		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Methylene chloride		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Carbon disulfide		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Bromoform		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Bromodichloromethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,1-Dichloroethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,1-Dichloroethene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Trichlorofluoromethane (CFC-11)		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Dichlorodifluoromethane (CFC-12)		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,2-Dichloropropane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	(MEK) 2-Butanone		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,1,2-Trichloroethane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Trichloroethene (TCE)		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW12D-20160420	1604206-011I	SW8260C	1,1,2,2-Tetrachloroethane		UG/L	MDL	UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,2,3-Trichlorobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Hexachlorobutadiene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Naphthalene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	o-Xylene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	2-Chlorotoluene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,2-Dichlorobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,2,4-Trimethylbenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,2-Dibromo-3-chloropropane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	1,2,3-Trichloropropane		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	tert-Butylbenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Isopropylbenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011I	SW8260C	Nitrobenzene		UG/L		R	1,10L
	MW12D-20160420	1604206-011I	SW8260C	4-Isopropyltoluene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	4-Nitrophenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW12D-20160420	1604206-011E	SW8270D	4-Bromophenyl phenyl ether		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	bis(2-Ethylhexyl)adipate		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2,4-Dimethylphenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	1,4-Dichlorobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	4-Chloroaniline		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Phenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Bis(2-chloroethyl) ether		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Bis(2-chloroethoxy)methane		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Bis(2-ethylhexyl) phthalate	0.483	UG/L	BMDL J	UJ	7
	MW12D-20160420	1604206-011E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Hexachlorobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	1,2,4-Trichlorobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2,4-Dinitrotoluene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Dimethylphthalate		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Dibenzofuran		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	1,3-Dichlorobenzene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW12D-20160420	1604206-011E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2,6-Dinitrotoluene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	N-Nitrosodi-n-propylamine		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Hexachloroethane		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	4-Chlorophenyl phenyl ether		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Hexachlorocyclopentadiene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Isophorone		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Diethylphthalate		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Di-n-butyl phthalate		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Benzyl Butylphthalate	0.0484	UG/L	BMDL J	UJ	7
	MW12D-20160420	1604206-011E	SW8270D	Carbazole		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Hexachlorobutadiene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2-Nitroaniline		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2-Nitrophenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2-Chloronaphthalene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	1,2-Dichlorobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2-Chlorophenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	1
	MW12D-20160420	1604206-011E	SW8270D	Nitrobenzene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Anthracene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Pyrene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Benzo(b)fluoranthene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Fluoranthene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Benzo(k)fluoranthene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Acenaphthylene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Chrysene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Benzo(a)pyrene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Benz(a)anthracene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Acenaphthene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Phenanthrene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Fluorene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	1-Methylnaphthalene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Naphthalene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	2-Methylnaphthalene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW12D-20160420	1604206-011J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Indeno(1,2,3-cd)pyrene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Dibenz(a,h)anthracene		UG/L		UJ	1
	MW12D-20160420	1604206-011J	SW8270DSIM	Pentachlorophenol		UG/L		UJ	1
	MW13-20160421	1604206-012B	EPA200.8	Antimony, Total		UG/L		UJ	9
	MW13-20160421	1604206-012B	EPA200.8	Copper, Total		UG/L		UJ	9
	MW13-20160421	1604206-012I	SW8260C	Nitrobenzene		UG/L		R	10L
	MW13-20160421	1604206-012E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW13-20160421	1604206-012E	SW8270D	Bis(2-ethylhexyl) phthalate	0.228	UG/L	BMDL J	UJ	7
	MW13-20160421	1604206-012E	SW8270D	Benzyl Butylphthalate	0.039	UG/L	BMDL J	UJ	7
	MW14-20160421	1604206-013I	SW8260C	Nitrobenzene		UG/L		R	10L
	MW14-20160421	1604206-013E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW14-20160421	1604206-013E	SW8270D	Bis(2-ethylhexyl) phthalate	0.376	UG/L	BMDL J	UJ	7
	MW14-20160421	1604206-013B	EPA200.8	Antimony, Total		UG/L		UJ	9
	MW14-20160421	1604206-013B	EPA200.8	Copper, Total	1.47	UG/L		J	9
	MW05-20160420	1604206-001B	EPA200.8	Antimony, Total	0.496	UG/L		J	9
	MW05-20160420	1604206-001B	EPA200.8	Copper, Total	1.05	UG/L		J	9
	MW05-20160420	1604206-001I	NWTPH-GX	Gasoline		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Ethylbenzene		UG/L	MDL	UJ	1
	MW05-20160420	1604206-001I	SW8260C	Styrene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	cis-1,3-Dichloropropene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	trans-1,3-Dichloropropene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	n-Propylbenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	n-Butylbenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	4-Chlorotoluene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,4-Dichlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2-Dibromoethane (EDB)		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2-Dichloroethane (EDC)		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Methyl Isobutyl Ketone (MIBK)		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,3,5-Trimethylbenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Bromobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Toluene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Chlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2,4-Trichlorobenzene		UG/L	MDL	UJ	1
	MW05-20160420	1604206-001I	SW8260C	Dibromochloromethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Tetrachloroethene (PCE)		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW05-20160420	1604206-001I	SW8260C	sec-Butylbenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,3-Dichloropropane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	cis-1,2-Dichloroethene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	trans-1,2-Dichloroethene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Methyl tert-butyl ether (MTBE)		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	m,p-Xylene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,3-Dichlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Carbon tetrachloride		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,1-Dichloropropene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	2-Hexanone		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	2,2-Dichloropropane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,1,1,2-Tetrachloroethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Acetone		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Chloroform		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Benzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,1,1-Trichloroethane (TCA)		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Bromomethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Chloromethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Dibromomethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Chloroethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Vinyl chloride		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Methylene chloride		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Carbon disulfide		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Bromoform		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Bromodichloromethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,1-Dichloroethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,1-Dichloroethene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Trichlorofluoromethane (CFC-11)		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Dichlorodifluoromethane (CFC-12)		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2-Dichloropropane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	(MEK) 2-Butanone		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,1,2-Trichloroethane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Trichloroethene (TCE)		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,1,2,2-Tetrachloroethane		UG/L	MDL	UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2,3-Trichlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Hexachlorobutadiene		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW05-20160420	1604206-001I	SW8260C	Naphthalene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	o-Xylene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	2-Chlorotoluene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2-Dichlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2,4-Trimethylbenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2-Dibromo-3-chloropropane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	1,2,3-Trichloropropane		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	tert-Butylbenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Isopropylbenzene		UG/L		UJ	1
	MW05-20160420	1604206-001I	SW8260C	Nitrobenzene		UG/L		R	1,10L
	MW05-20160420	1604206-001I	SW8260C	4-Isopropyltoluene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	4-Nitrophenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW05-20160420	1604206-001E	SW8270D	4-Bromophenyl phenyl ether		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	bis(2-Ethylhexyl)adipate		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2,4-Dimethylphenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	1,4-Dichlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	4-Chloroaniline		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Phenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Bis(2-chloroethyl) ether		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Bis(2-chloroethoxy)methane		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Bis(2-ethylhexyl) phthalate	0.49	UG/L	BMDL J	UJ	7
	MW05-20160420	1604206-001E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Hexachlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	1,2,4-Trichlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2,4-Dinitrotoluene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Dimethylphthalate		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Dibenzofuran		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	1,3-Dichlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2,6-Dinitrotoluene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	N-Nitrosodi-n-propylamine		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW05-20160420	1604206-001E	SW8270D	Hexachloroethane		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	4-Chlorophenyl phenyl ether		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Hexachlorocyclopentadiene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Isophorone		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Diethylphthalate		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Di-n-butyl phthalate		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Benzyl Butylphthalate		UG/L	MDL	UJ	1
	MW05-20160420	1604206-001E	SW8270D	Carbazole		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Hexachlorobutadiene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2-Nitroaniline		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2-Nitrophenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2-Chloronaphthalene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	1,2-Dichlorobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2-Chlorophenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	1
	MW05-20160420	1604206-001E	SW8270D	Nitrobenzene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Anthracene	0.0577	UG/L		J	1
	MW05-20160420	1604206-001J	SW8270DSIM	Pyrene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Indeno(1,2,3-cd)pyrene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Benzo(b)fluoranthene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Fluoranthene	0.0837	UG/L		J	1
	MW05-20160420	1604206-001J	SW8270DSIM	Benzo(k)fluoranthene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Acenaphthylene	0.0585	UG/L		J	1
	MW05-20160420	1604206-001J	SW8270DSIM	Chrysene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Benzo(a)pyrene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Dibenz(a,h)anthracene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Benz(a)anthracene		UG/L		UJ	1
	MW05-20160420	1604206-001J	SW8270DSIM	Acenaphthene	3.28	UG/L		J	1
	MW05-20160420	1604206-001J	SW8270DSIM	Phenanthrene	0.544	UG/L		J	1
	MW05-20160420	1604206-001J	SW8270DSIM	Fluorene	0.529	UG/L		J	1
	MW05-20160420	1604206-001J	SW8270DSIM	1-Methylnaphthalene	1.03	UG/L		J	1
	MW05-20160420	1604206-001J	SW8270DSIM	Naphthalene	0.304	UG/L		J	1
	MW05-20160420	1604206-001J	SW8270DSIM	2-Methylnaphthalene	0.575	UG/L		J	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW05-20160420	1604206-001J	SW8270DSIM	Pentachlorophenol		UG/L		UJ	1
	MW15-20160420	1604206-014B	EPA200.8	Copper, Total		UG/L		UJ	9
	MW15-20160420	1604206-014B	EPA200.8	Antimony, Total	0.389	UG/L		J	9
	MW15-20160420	1604206-014I	NWTPH-GX	Gasoline		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Ethylbenzene		UG/L	MDL	UJ	1
	MW15-20160420	1604206-014I	SW8260C	Styrene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	cis-1,3-Dichloropropene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	trans-1,3-Dichloropropene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	n-Propylbenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	n-Butylbenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	4-Chlorotoluene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,4-Dichlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2-Dibromoethane (EDB)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2-Dichloroethane (EDC)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Methyl Isobutyl Ketone (MIBK)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,3,5-Trimethylbenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Bromobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Toluene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Chlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2,4-Trichlorobenzene		UG/L	MDL	UJ	1
	MW15-20160420	1604206-014I	SW8260C	Dibromochloromethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Tetrachloroethene (PCE)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	sec-Butylbenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,3-Dichloropropane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	cis-1,2-Dichloroethene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	trans-1,2-Dichloroethene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Methyl tert-butyl ether (MTBE)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	m,p-Xylene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,3-Dichlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Carbon tetrachloride		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,1-Dichloropropene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	2-Hexanone		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	2,2-Dichloropropane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,1,1,2-Tetrachloroethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Acetone		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Chloroform		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW15-20160420	1604206-014I	SW8260C	Benzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,1,1-Trichloroethane (TCA)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Bromomethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Chloromethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Dibromomethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Chloroethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Vinyl chloride		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Methylene chloride		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Carbon disulfide		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Bromoform		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Bromodichloromethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,1-Dichloroethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,1-Dichloroethene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Trichlorofluoromethane (CFC-11)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Dichlorodifluoromethane (CFC-12)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2-Dichloropropane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	(MEK) 2-Butanone		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,1,2-Trichloroethane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Trichloroethene (TCE)		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,1,2,2-Tetrachloroethane		UG/L	MDL	UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2,3-Trichlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Hexachlorobutadiene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Naphthalene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	o-Xylene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	2-Chlorotoluene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2-Dichlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2,4-Trimethylbenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2-Dibromo-3-chloropropane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	1,2,3-Trichloropropane		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	tert-Butylbenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Isopropylbenzene		UG/L		UJ	1
	MW15-20160420	1604206-014I	SW8260C	Nitrobenzene		UG/L		R	1,10L
	MW15-20160420	1604206-014I	SW8260C	4-Isopropyltoluene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	4-Nitrophenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Benzyl alcohol		UG/L	*	R	10L
	MW15-20160420	1604206-014E	SW8270D	4-Bromophenyl phenyl ether		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW15-20160420	1604206-014E	SW8270D	bis(2-Ethylhexyl)adipate		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2,4-Dimethylphenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	4-Methylphenol (p-cresol)		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	1,4-Dichlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	4-Chloroaniline		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Phenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Bis(2-chloroethyl) ether		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Bis(2-chloroethoxy)methane		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Bis(2-ethylhexyl) phthalate	0.19	UG/L	BMDL J	UJ	7
	MW15-20160420	1604206-014E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Hexachlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	1,2,4-Trichlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2,4-Dichlorophenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2,4-Dinitrotoluene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Dimethylphthalate		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Dibenzofuran		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2,4-Dinitrophenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	4,6-Dinitro-2-methylphenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	1,3-Dichlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	4-Chloro-3-methylphenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2,6-Dinitrotoluene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	N-Nitrosodi-n-propylamine		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Hexachloroethane		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	4-Chlorophenyl phenyl ether		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Hexachlorocyclopentadiene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Isophorone		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Diethylphthalate		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Di-n-butyl phthalate		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Benzyl Butylphthalate	0.18	UG/L	BMDL J	UJ	7
	MW15-20160420	1604206-014E	SW8270D	Carbazole		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Hexachlorobutadiene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2,4,6-Trichlorophenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2-Nitroaniline		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2-Nitrophenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2-Chloronaphthalene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2-Methylphenol (o-cresol)		UG/L		UJ	1

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1604206	MW15-20160420	1604206-014E	SW8270D	1,2-Dichlorobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2-Chlorophenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	2,4,5-Trichlorophenol		UG/L		UJ	1
	MW15-20160420	1604206-014E	SW8270D	Nitrobenzene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Anthracene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Pyrene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Benzo(b)fluoranthene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Fluoranthene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Benzo(k)fluoranthene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Acenaphthylene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Chrysene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Benzo(a)pyrene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Benz(a)anthracene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Acenaphthene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Phenanthrene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Fluorene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	1-Methylnaphthalene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Naphthalene	0.105	UG/L		J	1
	MW15-20160420	1604206-014J	SW8270DSIM	2-Methylnaphthalene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Benzo(g,h,i)perylene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Indeno(1,2,3-cd)pyrene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Dibenz(a,h)anthracene		UG/L		UJ	1
	MW15-20160420	1604206-014J	SW8270DSIM	Pentachlorophenol		UG/L		UJ	1
1606375	CB01-20160628	1606375-002A	SW6020A	Lead, Total	103	MG/KG		J	9
	CB01-20160628	1606375-002A	SW6020A	Antimony, Total	1	MG/KG		J	8L
	CB01-20160628	1606375-002B	SW8260C	Vinyl acetate		MG/KG	Q	R	8L
	CB01-20160628	1606375-002B	SW8260C	Dichlorodifluoromethane (CFC-12)		MG/KG		UJ	8L
	CB01-20160628	1606375-002B	SW8260C	1,1,2,2-Tetrachloroethane		MG/KG		UJ	8L
	CB01-20160628	1606375-002A	SW8270D	4-Nitrophenol	67.9	UG/KG		J	9
	CB01-20160628	1606375-002A	SW8270D	2,4-Dinitrophenol		UG/KG	*	R	10L
	CB01-20160628	1606375-002A	SW8270D	4,6-Dinitro-2-methylphenol		UG/KG	*	R	10L
	CB01-20160628	1606375-002A	SW8270D	Pentachlorophenol		UG/KG	*	R	10L
	CB01-20160628	1606375-002A	SW8270D	2,4,6-Trichlorophenol		UG/KG	*	UJ	10L
	CB01-20160628	1606375-002A	SW8270D	2-Nitrophenol		UG/KG		UJ	10L
	CB12-20160628	1606375-001A	NWTPH-DX	Heavy Oil	676	MG/KG		J	9
	CB12-20160628	1606375-001A	SW6020A	Lead, Total	137	MG/KG		J	9

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1606375	CB12-20160628	1606375-001A	SW6020A	Antimony, Total	0.858	MG/KG		J	8L
	CB12-20160628	1606375-001A	SW8270D	Benzyl alcohol	16.8	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	4-Bromophenyl phenyl ether		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	bis(2-Ethylhexyl)adipate		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	1,4-Dichlorobenzene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	4-Chloroaniline		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Bis(2-chloroethyl) ether		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Bis(2-chloroethoxy)methane		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	bis (2-Ethylhexyl) phthalate	2250	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Di-n-octyl phthalate	27.6	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Hexachlorobenzene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Anthracene	21.2	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	1,2,4-Trichlorobenzene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	2,4-Dinitrotoluene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Pyrene	212	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Dimethylphthalate	45	UG/KG	B	J	13L
	CB12-20160628	1606375-001A	SW8270D	Dibenzofuran	11.7	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Benzo (g,h,I) perylene	91.4	UG/KG	I	J	13L
	CB12-20160628	1606375-001A	SW8270D	Indeno (1,2,3-cd) pyrene	54.1	UG/KG	I	J	13L
	CB12-20160628	1606375-001A	SW8270D	Benzo (b) fluoranthene	104	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Fluoranthene	267	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Benzo (k) fluoranthene	26.7	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Acenaphthylene	4.28	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Chrysene	181	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Benzo (a) pyrene	44.7	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	2,4-Dinitrophenol		UG/KG	*	R	10L
	CB12-20160628	1606375-001A	SW8270D	4,6-Dinitro-2-methylphenol		UG/KG	*	R	10L
	CB12-20160628	1606375-001A	SW8270D	Dibenz (a,h) anthracene	19.4	UG/KG	I	J	13L
	CB12-20160628	1606375-001A	SW8270D	1,3-Dichlorobenzene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Benz (a) anthracene	64.7	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	2,6-Dinitrotoluene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	N-Nitrosodi-n-propylamine		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Hexachloroethane		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	4-Chlorophenyl phenyl ether		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Hexachlorocyclopentadiene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Isophorone		UG/KG		R	13L

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1606375	CB12-20160628	1606375-001A	SW8270D	Acenaphthene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Diethylphthalate	4.81	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Di-n-butylphthalate	185	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Phenanthrene	139	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Butyl Benzylphthalate	118	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Fluorene	15.3	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Carbazole	18.8	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Hexachlorobutadiene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Pentachlorophenol	27.7	UG/KG	*	J	10L
	CB12-20160628	1606375-001A	SW8270D	2,4,6-Trichlorophenol		UG/KG	*	UJ	10L
	CB12-20160628	1606375-001A	SW8270D	2-Nitroaniline		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	2-Nitrophenol		UG/KG		R	10L,13L
	CB12-20160628	1606375-001A	SW8270D	1-Methylnaphthalene	5.35	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	Naphthalene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	2-Methylnaphthalene	11.3	UG/KG		J	13L
	CB12-20160628	1606375-001A	SW8270D	2-Chloronaphthalene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	1,2-Dichlorobenzene		UG/KG		R	13L
	CB12-20160628	1606375-001A	SW8270D	Nitrobenzene		UG/KG		R	13L
1609147	MW-13-20160913	1609147-002E	SW8270D	Bis(2-ethylhexyl) phthalate	0.0926	UG/L	JMDL	J	8L
	FD1-20160913	1609147-005G	EPA1631E	Mercury, Total			#	R	8L,9,14
	FD1-20160913	1609147-005H	EPA1631E	Mercury, Dissolved	35			J	9,14
	FD1-20160913	1609147-005C	EPA200.8	Arsenic, Dissolved	7.49	UG/L	MDL	J	9
	FD1-20160913	1609147-005B	EPA200.8	Nickel, Total	0.959	UG/L		J	9
	FD1-20160913	1609147-005B	EPA200.8	Zinc, Total	2.07	UG/L		J	9
	FD1-20160913	1609147-005E	SW8270D	Chrysene		UG/L		DNR	14
	FD1-20160913	1609147-005E	SW8270D	Benz[a]anthracene		UG/L		DNR	14
	FD1-20160913	1609147-005E	SW8270DSIM	Pyrene	0.237	UG/L	BMDL	U	7
	FD1-20160913	1609147-005E	SW8270DSIM	Benzo(g,h,i)perylene	0.554	UG/L	BQMDL	U	7
	MW-09-20160913	1609147-004G	EPA1631E	Mercury, Total			#	R	8L,9,14
	MW-09-20160913	1609147-004H	EPA1631E	Mercury, Dissolved	72.2		D	J	9,14
	MW-09-20160913	1609147-004E	SW8270D	Chrysene		UG/L		DNR	14
	MW-09-20160913	1609147-004E	SW8270D	Benz[a]anthracene		UG/L		DNR	14
	MW-09-20160913	1609147-004E	SW8270DSIM	Pyrene	0.0636	UG/L	BJMDL	U	7
	MW-09-20160913	1609147-004E	SW8270DSIM	Benzo(g,h,i)perylene	0.238	UG/L	BQMDL	U	7
	MW-13-20160913	1609147-002G	EPA1631E	Mercury, Total			#	R	8L,9
	MW-13-20160913	1609147-002H	EPA1631E	Mercury, Dissolved				UJ	9

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1609147	MW-13-20160913	1609147-002C	EPA200.8	Arsenic, Dissolved	3.68	UG/L	MDL	J	9
	MW-13-20160913	1609147-002B	EPA200.8	Nickel, Total	1.52	UG/L		J	9
	MW-13-20160913	1609147-002B	EPA200.8	Zinc, Total	5.25	UG/L		J	9
	MW-13-20160913	1609147-002E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	8L
	MW-13-20160913	1609147-002E	SW8270D	Chrysene		UG/L		DNR	14
	MW-13-20160913	1609147-002E	SW8270D	Benz[a]anthracene		UG/L		DNR	14
	MW-13-20160913	1609147-002E	SW8270DSIM	Benzo(g,h,i)perylene		UG/L	QMDL	UJ	8L
	MW-13-20160913	1609147-002E	SW8270DSIM	Benzo(b)fluoranthene		UG/L	MDL	UJ	8L
	MW-13-20160913	1609147-002E	SW8270DSIM	Benzo(k)fluoranthene		UG/L	QMDL	UJ	8L
	MW-13-20160913	1609147-002E	SW8270DSIM	Benzo(a)pyrene		UG/L	QMDL	UJ	8L
	MW-13-20160913	1609147-002E	SW8270DSIM	Dibenz(a,h)anthracene		UG/L	QMDL	UJ	8L
	MW-14-20160913	1609147-001G	EPA1631E	Mercury, Total			#	R	8L,9
	MW-14-20160913	1609147-001H	EPA1631E	Mercury, Dissolved	0.648			J	9
	MW-14-20160913	1609147-001C	EPA200.8	Antimony, Dissolved	1.09	UG/L		J	14
	MW-14-20160913	1609147-001B	EPA200.8	Antimony, Total		UG/L		UJ	14
	MW-14-20160913	1609147-001F	NWTPH-DX	Diesel (Fuel Oil)	991	UG/L		J	13L
	MW-14-20160913	1609147-001F	NWTPH-DX	Heavy Oil	1370	UG/L		J	13L
	MW-14-20160913	1609147-001E	SW8270D	Bis(2-ethylhexyl) phthalate	0.274	UG/L	JMDL	J	9
	MW-14-20160913	1609147-001E	SW8270D	Chrysene		UG/L		DNR	14
	MW-14-20160913	1609147-001E	SW8270D	Benz[a]anthracene		UG/L		DNR	14
	MW-14-20160913	1609147-001E	SW8270DSIM	Anthracene	0.137	UG/L	MDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	Pyrene	0.606	UG/L	BMDL	UJ	7,9
	MW-14-20160913	1609147-001E	SW8270DSIM	Benzo(g,h,i)perylene	0.181	UG/L	BQMDL	UJ	7,9
	MW-14-20160913	1609147-001E	SW8270DSIM	Fluoranthene	0.359	UG/L	MDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	Chrysene	0.116	UG/L	MDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	Dibenz(a,h)anthracene	0.0171	UG/L	JQMDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	Benz(a)anthracene	0.0627	UG/L	JMDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	Acenaphthene	0.662	UG/L	MDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	Phenanthrene	1.01	UG/L	MDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	Fluorene	0.561	UG/L	MDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	Naphthalene	0.136	UG/L	MDL	J	9
	MW-14-20160913	1609147-001E	SW8270DSIM	2-Methylnaphthalene	0.163	UG/L	MDL	J	9
	MW-15-20160913	1609147-003G	EPA1631E	Mercury, Total	2.26		#	J	8L,9,14
	MW-15-20160913	1609147-003H	EPA1631E	Mercury, Dissolved	105		D	J	9,14
	MW-15-20160913	1609147-003E	SW8270D	Chrysene		UG/L		DNR	14
	MW-15-20160913	1609147-003E	SW8270D	Benz[a]anthracene		UG/L		DNR	14

Qualified Data Summary Table
2016 Duwamish Marine Center

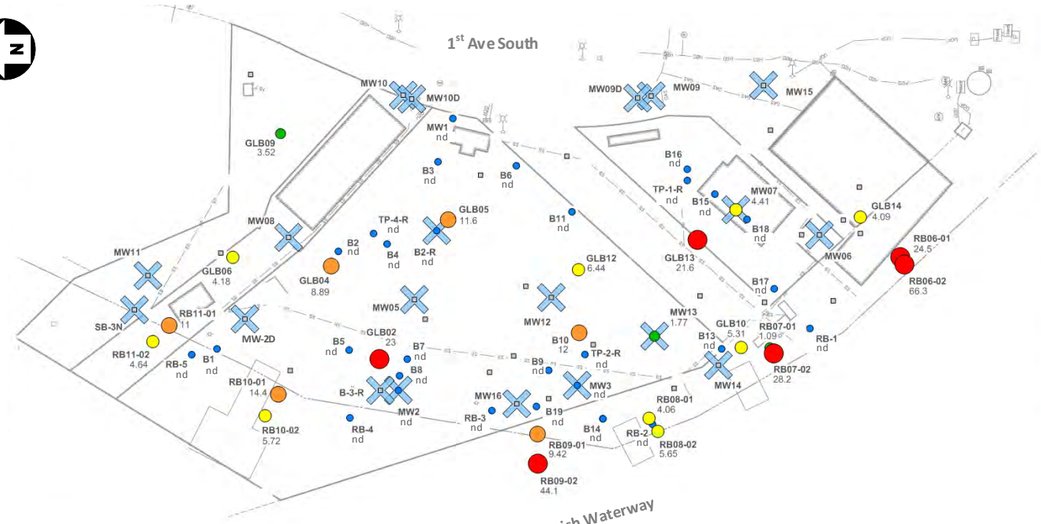
SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1609147	MW-15-20160913	1609147-003E	SW8270DSIM	Pyrene	0.217	UG/L	BMDL	U	7
	MW-15-20160913	1609147-003E	SW8270DSIM	Benzo(g,h,i)perylene	0.801	UG/L	BQMDL	U	7
1609166	MW06-20160914	1609166-002C	EPA200.8	Zinc, Dissolved	8.09	UG/L		J	14
	MW06-20160914	1609166-002B	EPA200.8	Zinc, Total	5.53	UG/L		J	14
	MW06-20160914	1609166-002E	SW8270D	Bis(2-ethylhexyl) phthalate	0.078	UG/L	JMDL	J	8L
	MW06-20160914	1609166-002E	SW8270D	Di-n-octyl phthalate		UG/L		UJ	8L
	MW06-20160914	1609166-002E	SW8270DSIM	Benzo(g,h,i)perylene		UG/L	QMDL	UJ	8L
	MW06-20160914	1609166-002E	SW8270DSIM	Benzo(b)fluoranthene		UG/L	MDL	UJ	8L
	MW06-20160914	1609166-002E	SW8270DSIM	Dibenz(a,h)anthracene		UG/L	QMDL	UJ	8L
	MW16-20160914	1609166-001C	EPA200.8	Copper, Dissolved	1.33	UG/L		J	14
	MW16-20160914	1609166-001B	EPA200.8	Copper, Total		UG/L		UJ	14
	MW16-20160914	1609166-001I	SW8260CSIM	1,4-Dioxane		UG/L		R	13
1609184	FD2-20160915	1609184-001C	EPA200.8	Silver, Dissolved	1.92	UG/L	DMDL	J	9
	FD2-20160915	1609184-001C	EPA200.8	Antimony, Dissolved	2.43	UG/L	DMDL	J	9,14
	FD2-20160915	1609184-001C	EPA200.8	Arsenic, Dissolved	4.04	UG/L	DJMDL	J	9
	FD2-20160915	1609184-001C	EPA200.8	Cadmium, Dissolved	0.0925	UG/L	DJMDL	J	9
	FD2-20160915	1609184-001C	EPA200.8	Copper, Dissolved	1.83	UG/L	DJMDL	J	9,14
	FD2-20160915	1609184-001C	EPA200.8	Selenium, Dissolved	4	UG/L	DJMDL	J	9
	FD2-20160915	1609184-001B	EPA200.8	Silver, Total	2.3	UG/L	DBMDL	J	9
	FD2-20160915	1609184-001B	EPA200.8	Antimony, Total	0.84	UG/L	DJMDL	J	9,14
	FD2-20160915	1609184-001B	EPA200.8	Beryllium, Total	0.05	UG/L	DJMDL	J	9
	FD2-20160915	1609184-001B	EPA200.8	Cadmium, Total		UG/L	DMDL	UJ	9
	FD2-20160915	1609184-001B	EPA200.8	Copper, Total		UG/L	DMDL	UJ	9,14
	FD2-20160915	1609184-001B	EPA200.8	Zinc, Total	18.1	UG/L	DMDL	J	9
	MW05-20160915	1609184-005I	SW8260CSIM	1,4-Dioxane		UG/L		UJ	8L
	MW11-20160915	1609184-003C	EPA200.8	Silver, Dissolved		UG/L	DMDL	UJ	9
	MW11-20160915	1609184-003C	EPA200.8	Antimony, Dissolved	0.453	UG/L	DJMDL	J	9
	MW11-20160915	1609184-003C	EPA200.8	Arsenic, Dissolved	2.06	UG/L	DJMDL	J	9
	MW11-20160915	1609184-003C	EPA200.8	Cadmium, Dissolved		UG/L	DMDL	UJ	9
	MW11-20160915	1609184-003C	EPA200.8	Copper, Dissolved		UG/L	DMDL	UJ	9
	MW11-20160915	1609184-003C	EPA200.8	Selenium, Dissolved	8.56	UG/L	DMDL	J	9
	MW11-20160915	1609184-003B	EPA200.8	Silver, Total		UG/L	DMDL	UJ	9
	MW11-20160915	1609184-003B	EPA200.8	Antimony, Total	0.558	UG/L	DJMDL	J	9
	MW11-20160915	1609184-003B	EPA200.8	Beryllium, Total	0.0175	UG/L	DJMDL	J	9
	MW11-20160915	1609184-003B	EPA200.8	Cadmium, Total	4.26	UG/L	DMDL	J	9
	MW11-20160915	1609184-003B	EPA200.8	Copper, Total	12.1	UG/L	DMDL	J	9

Qualified Data Summary Table
2016 Duwamish Marine Center

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Lab Flag	Validation Qualifier	Validation Reason
1609184	MW11-20160915	1609184-003B	EPA200.8	Zinc, Total	113	UG/L	DMDL	J	9
1609207	MW09D-20160916	1609207-001B	EPA200.8	Antimony, Total	0.451	UG/L		J	9
	MW10-20160916	1609207-002C	EPA200.8	Antimony, Dissolved	1.02	UG/L		J	14
	MW10-20160916	1609207-002B	EPA200.8	Antimony, Total	0.72	UG/L		J	9,14
	MW10D-20160916	1609207-003B	EPA200.8	Antimony, Total		UG/L		UJ	9

APPENDIX L

Supplemental Figures



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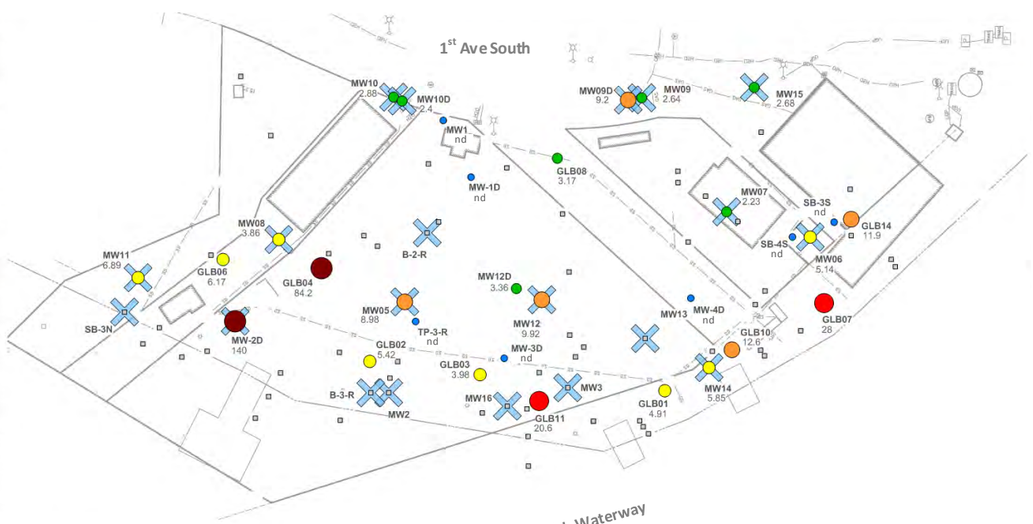

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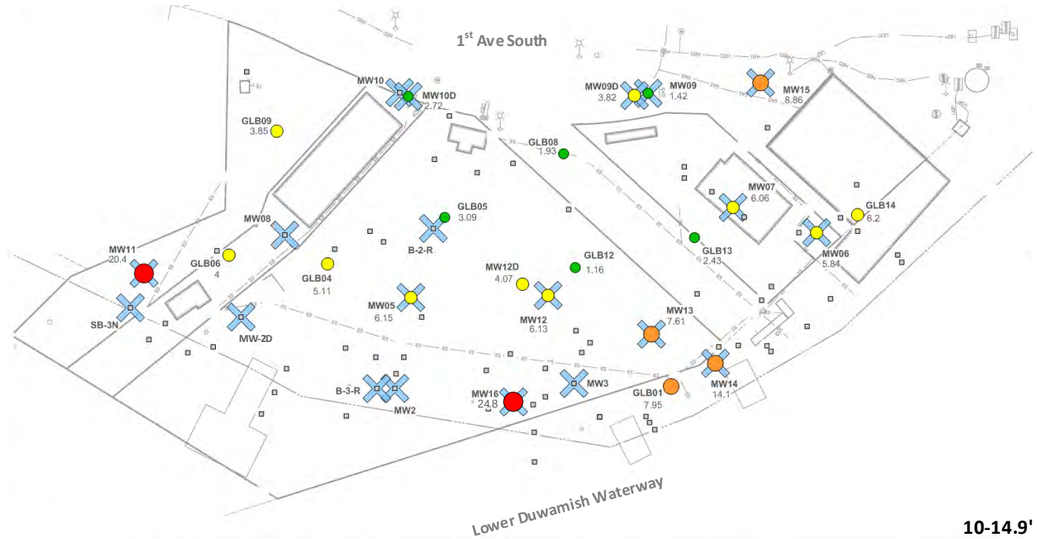

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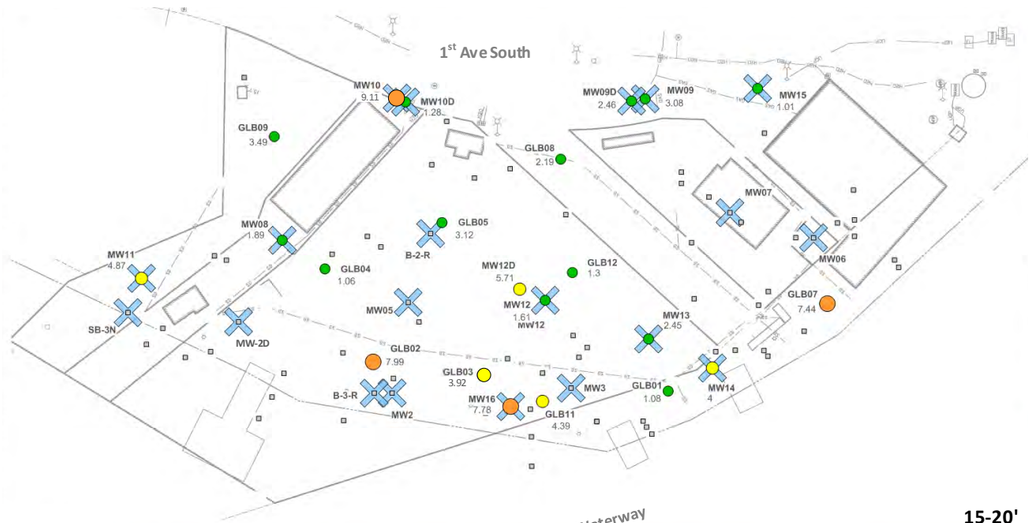

15-20'

Legend

GLB12 40.8 — Sample Location Identification, Highest Concentration within Interval

- Arsenic Not Analyzed
- Arsenic Not Detected
- Arsenic Detected Less than 3.65 mg/kg
- Arsenic Detected Greater than 3.65 mg/kg and Less than the Most Conservative Selected Cleanup Level (7.3 mg/kg)
- Arsenic Detected Greater than 7.3 mg/kg and Less than 14.6 mg/kg
- Arsenic Detected Greater than 14.6 mg/kg and Less than 73 mg/kg
- Arsenic Detected Greater than 73 mg/kg
- Sampling Location Where Arsenic Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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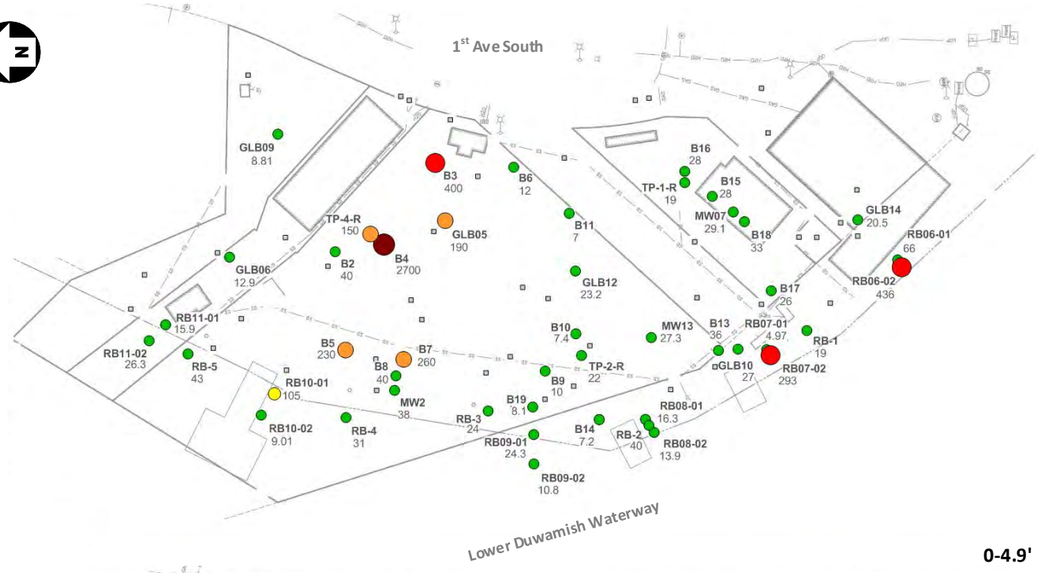
Arsenic Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

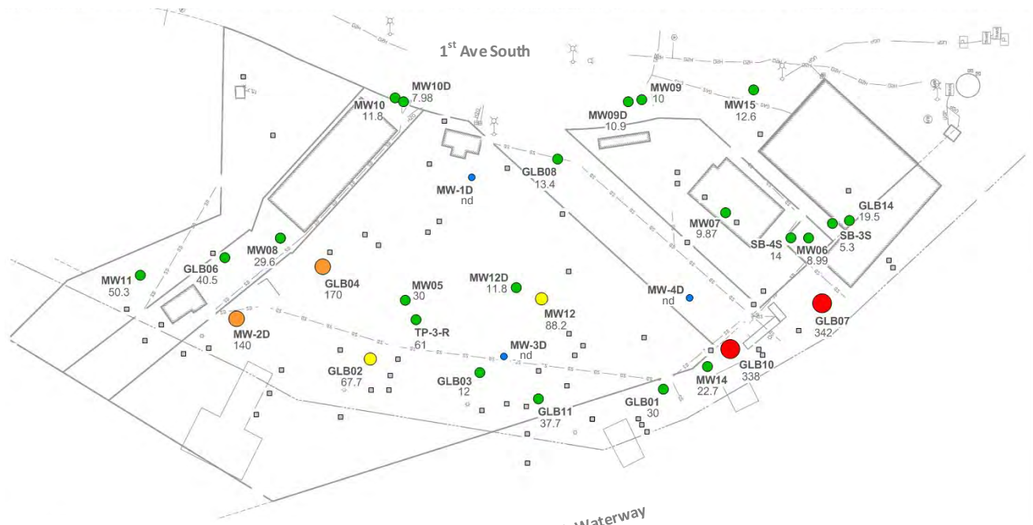
Figure 11-1a

Project File: 01-0979-G-F11-1a_Arsenic in Soil.vsd

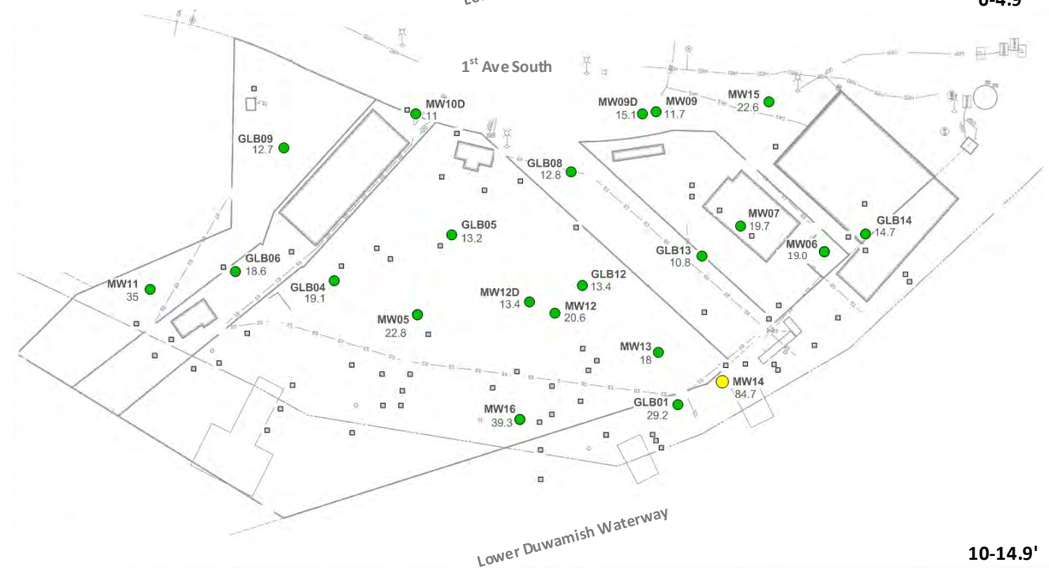
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



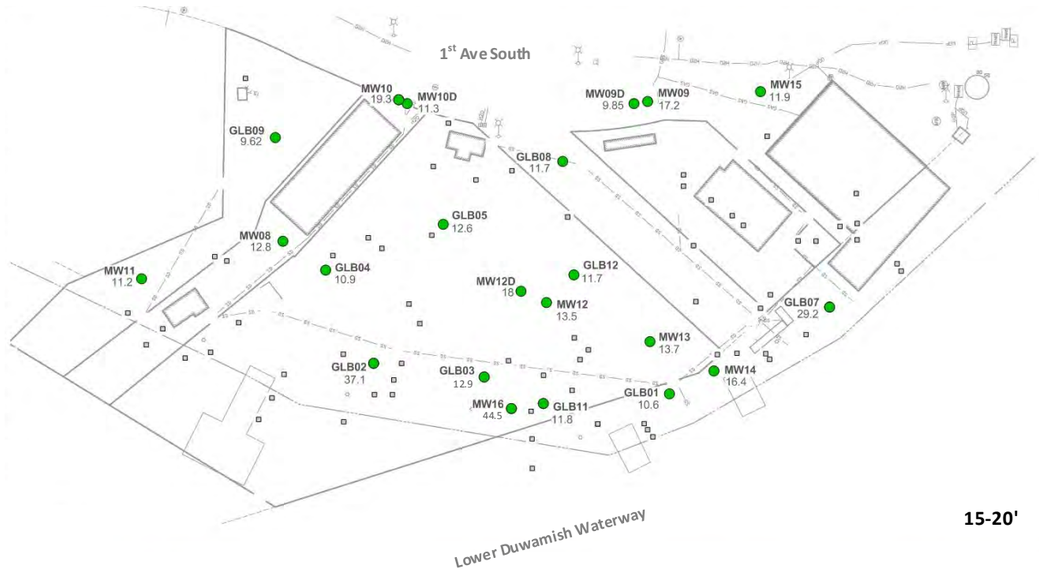
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- Chromium Not Analyzed
- Chromium Not Detected
- Chromium Detected Less than 67.5 mg/kg
- Chromium Detected Greater than 67.5 mg/kg and Below the Most Conservative Selected Cleanup Level (135 mg/kg)
- Chromium Detected Greater than 135 mg/kg and Less than 270 mg/kg
- Chromium Detected Greater than 270 mg/kg and Less than 1,350 mg/kg
- Chromium Detected Greater than 1,350 mg/kg
- Sampling Location Where Chromium Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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Chromium Concentrations in Soil

Duwamish Marine Center Property

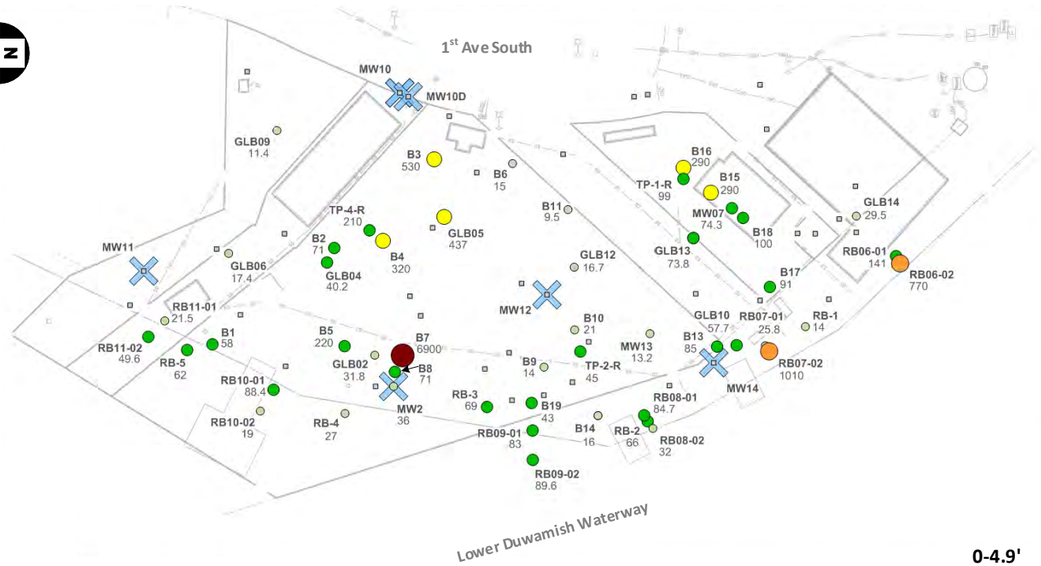
6365 First Avenue South

Seattle, Washington

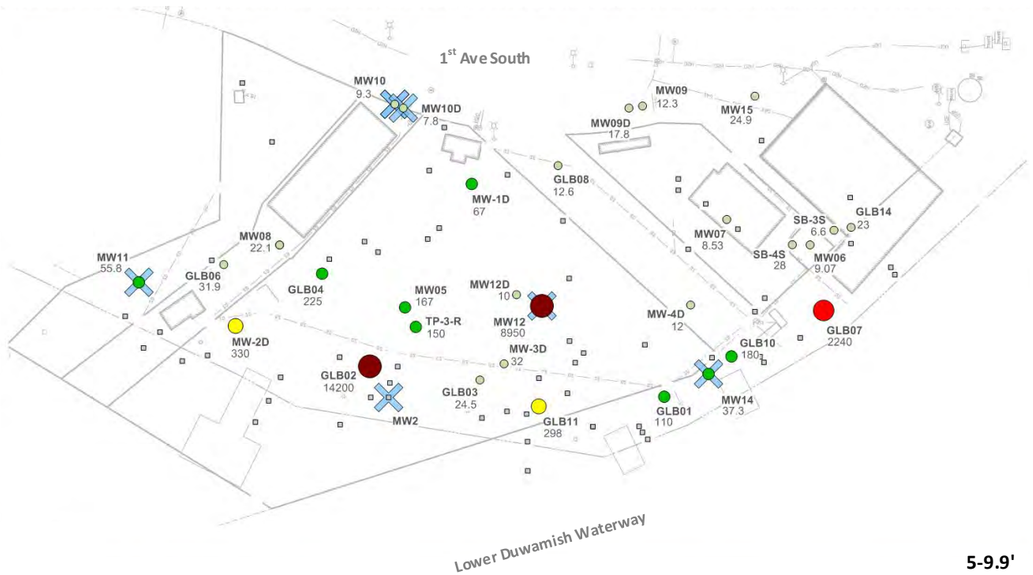
Figure 11-2a

Project File: 01-0979-G-F11-2a_Chromium in Soil.vsd

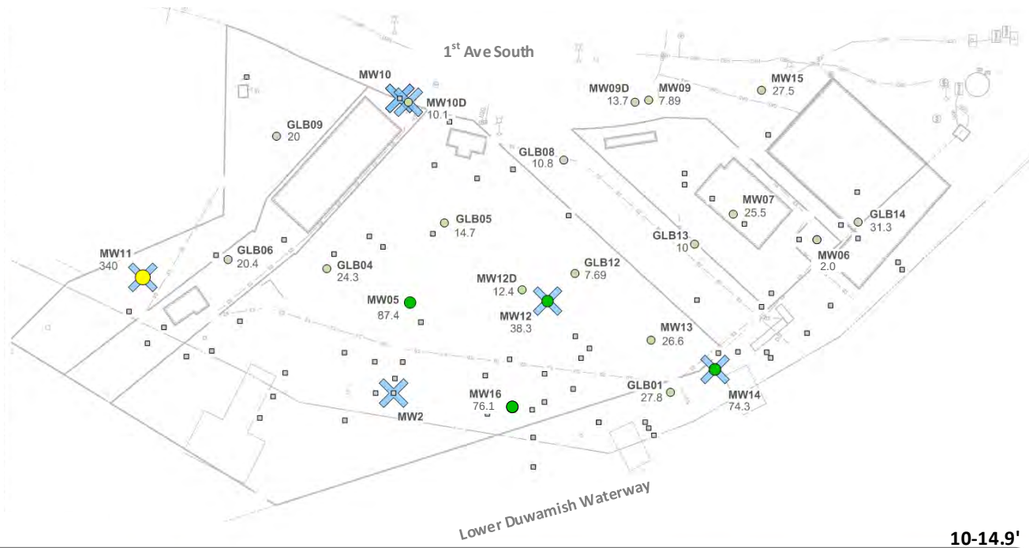
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



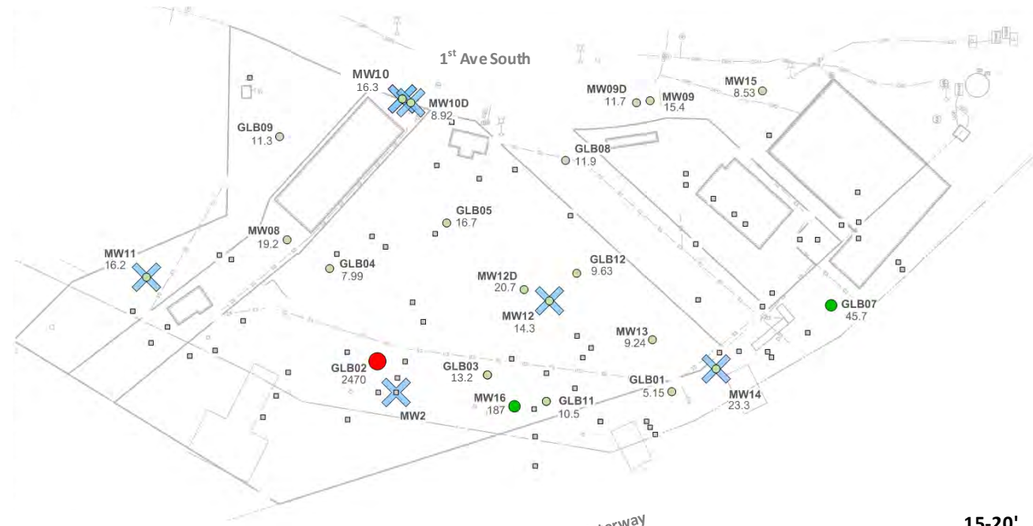
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- Copper Not Analyzed
- Copper Not Detected
- Copper Detected Less than 36.4 mg/kg (Background Concentration for Copper)
- Copper Detected Greater than 36.4 mg/kg and Less than 225 mg/kg
- Copper Detected Greater than 225 mg/kg and Less than the Most Conservative Selected Cleanup Level (550 mg/kg)
- Copper Detected Greater than 550 mg/kg and Less than 1,100 mg/kg
- Copper Detected Greater than 1,100 mg/kg and Less than 5,500 mg/kg
- Copper Detected Greater than 5,500 mg/kg
- Sampling Location Where Copper Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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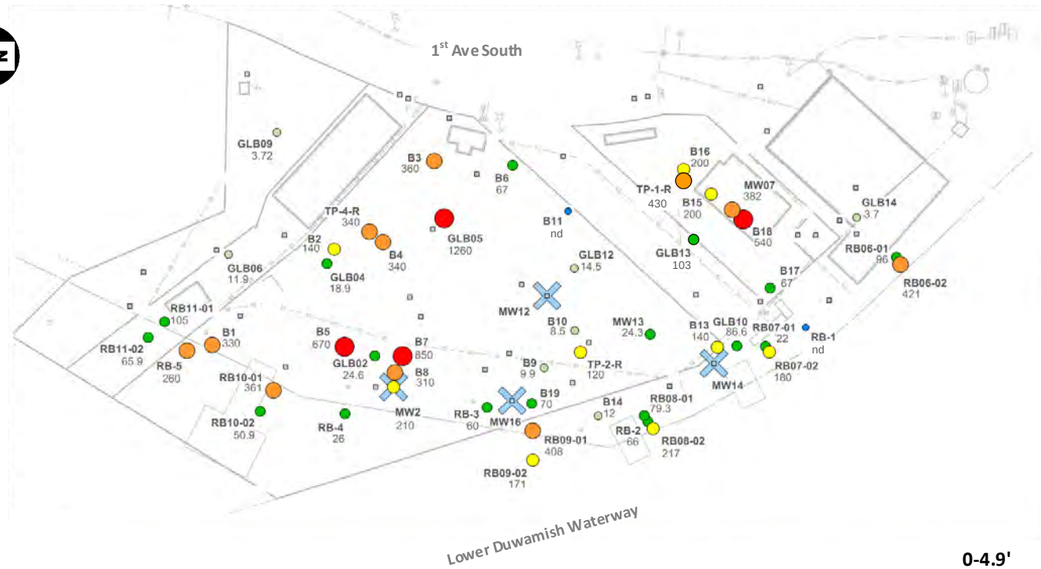
Copper Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

Figure 11-3a

Project File: 01-0979-G-F11-3a_Copper in Soil.vsd

Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



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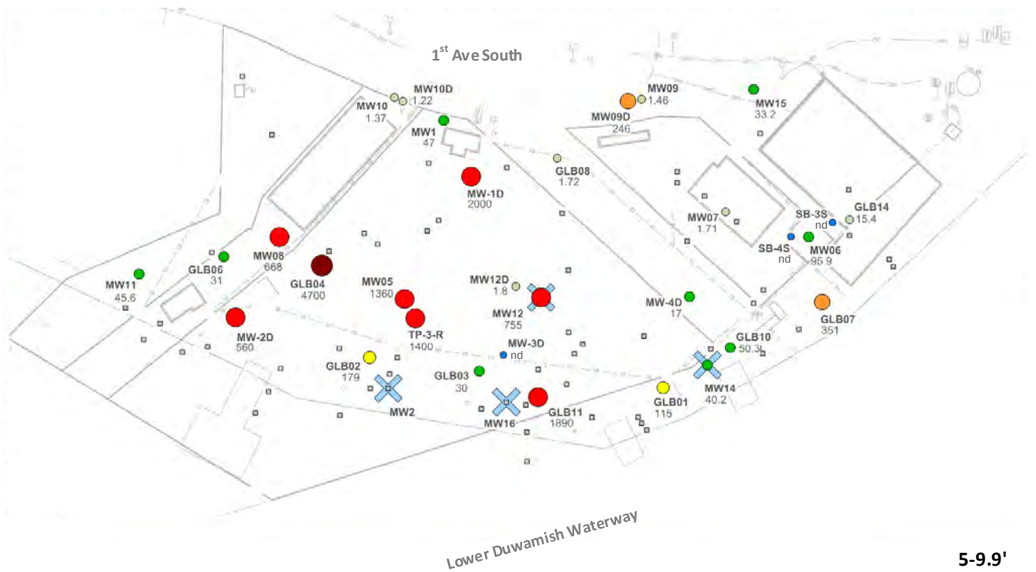
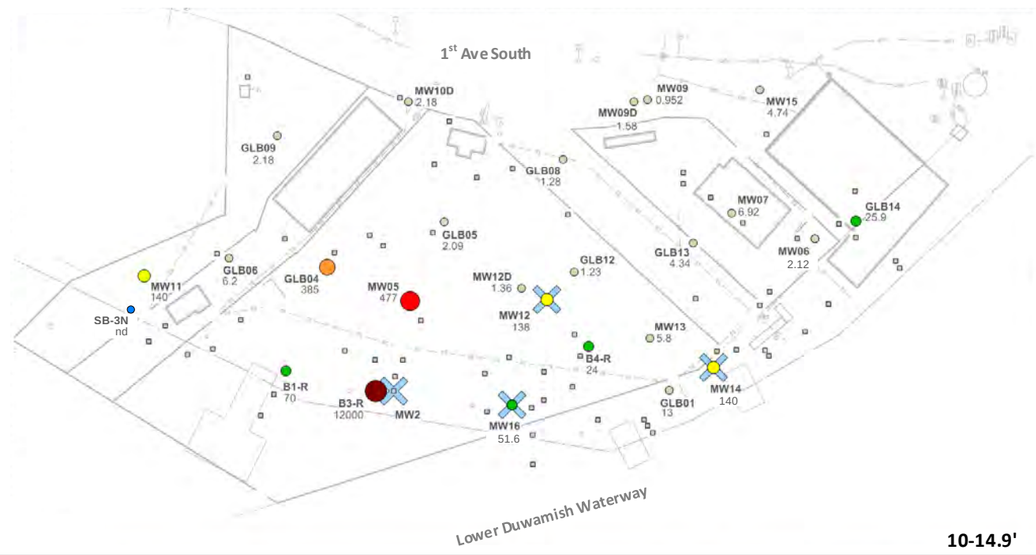
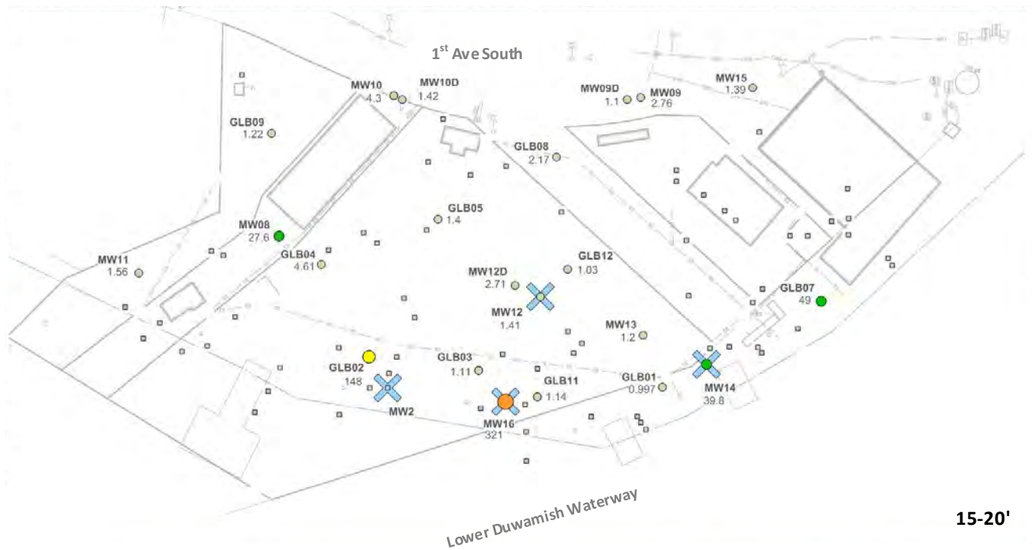


5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- Lead Not Analyzed
- Lead Not Detected
- Lead Detected Less than 16.8 mg/kg (Background Concentration for Copper)
- Lead Detected Greater than 16.8 mg/kg and Less than 110 mg/kg
- Lead Detected Greater than 110 mg/kg and Less than the Most Conservative Selected Cleanup Level (220 mg/kg)
- Lead Detected Greater than 220 mg/kg and Less than 440 mg/kg
- Lead Detected Greater than 440 mg/kg and Less than 2,200 mg/kg
- Lead Detected Greater than 2,200 mg/kg
- Sampling Location Where Lead Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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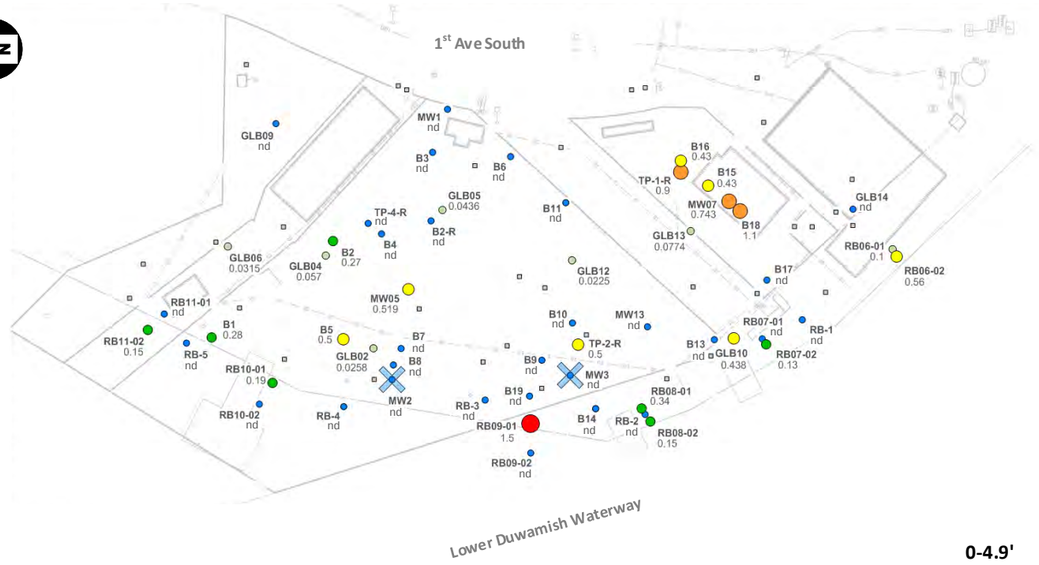
Lead Concentrations in Soil
Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

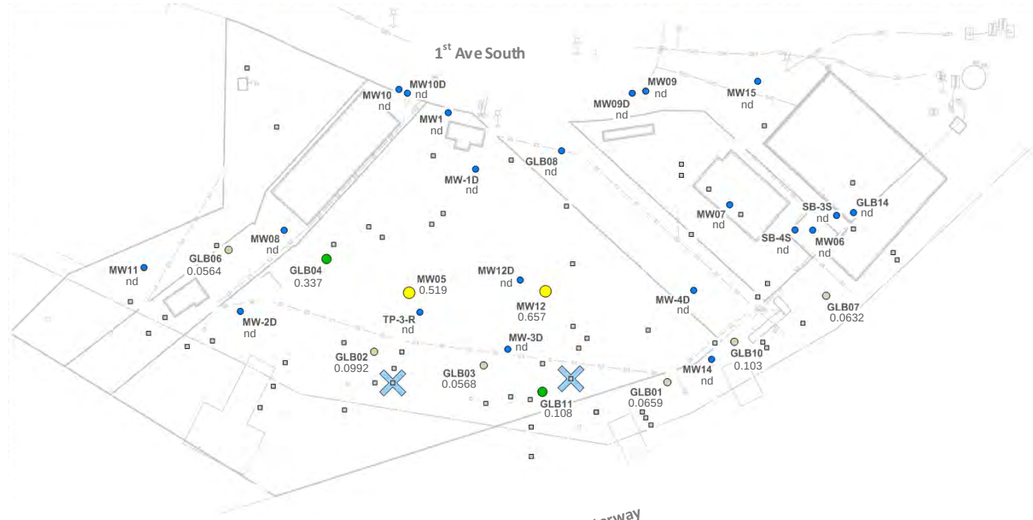
Figure 11-4a

Project File: 01-0979-G-F11-4a_Lead in Soil.vsd

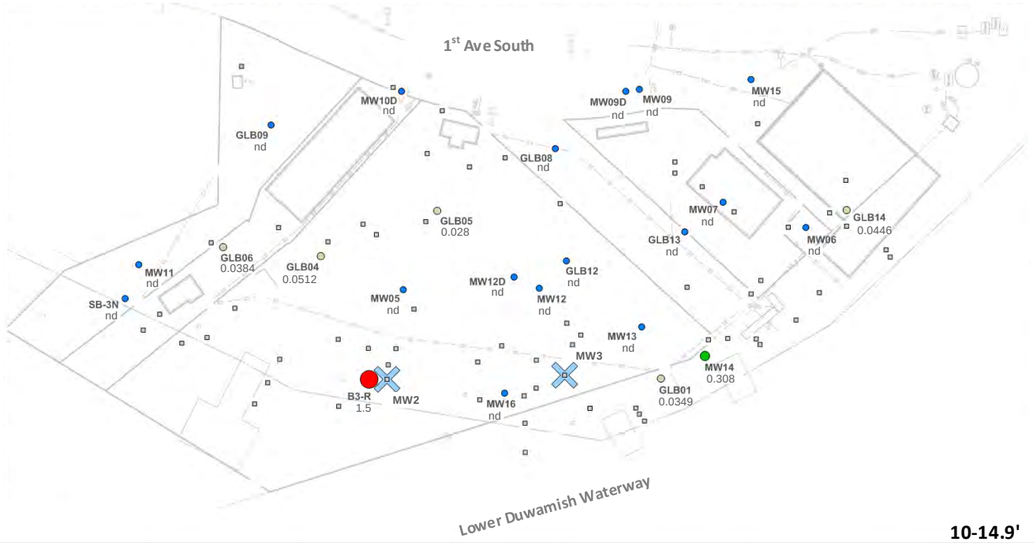
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



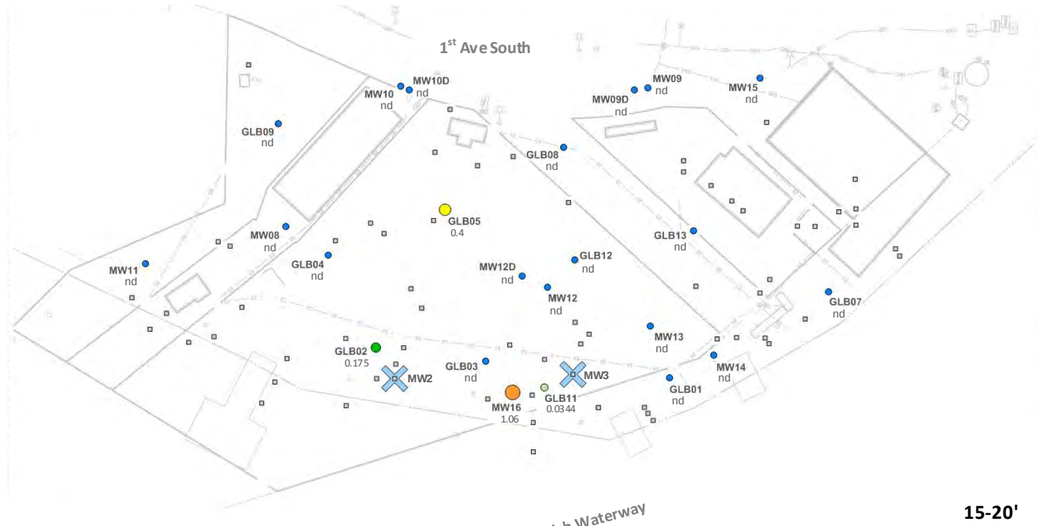
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- Mercury Not Analyzed
- Mercury Not Detected
- Mercury Detected Less than 0.105 mg/kg (Saturated Soil. Protective of Groundwater)
- Mercury Detected Greater than 0.105 mg/kg and Less than 0.35 mg/kg
- Mercury Detected Greater than 0.35 mg/kg and Less than the Most Conservative Selected Cleanup Level (0.7 mg/kg)
- Mercury Detected Greater than 0.7 mg/kg and Less than 1.4 mg/kg
- Mercury Detected Greater than 1.4 mg/kg and Less than 7 mg/kg
- Mercury Detected Greater than 7 mg/kg
- Sampling Location Where Mercury Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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Mercury Concentrations in Soil

Duwamish Marine Center Property

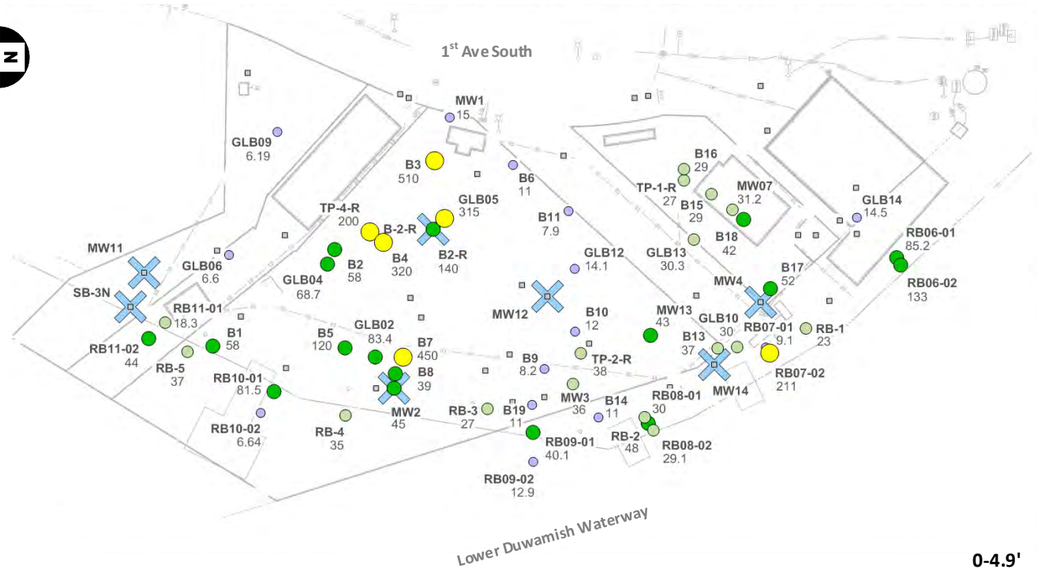
6365 First Avenue South

Seattle, Washington

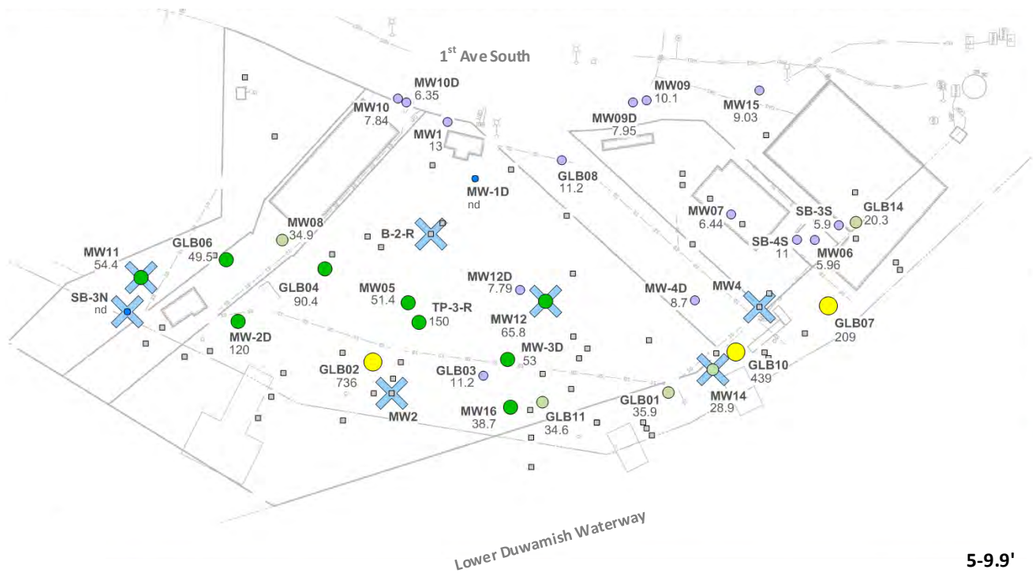
Figure 11-5a

Project File: 01-0979-G-F11-5a_Mercury in Soil.vsd

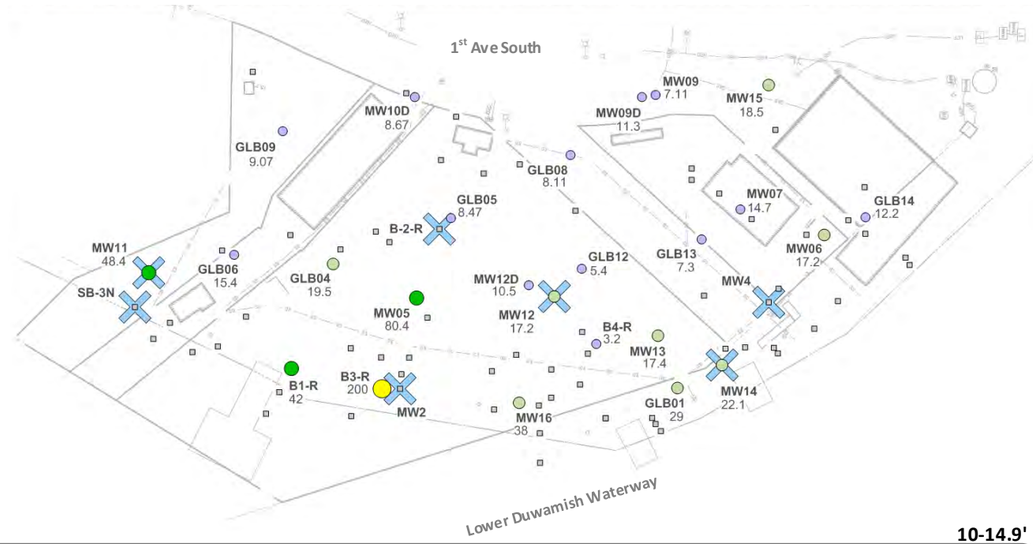
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



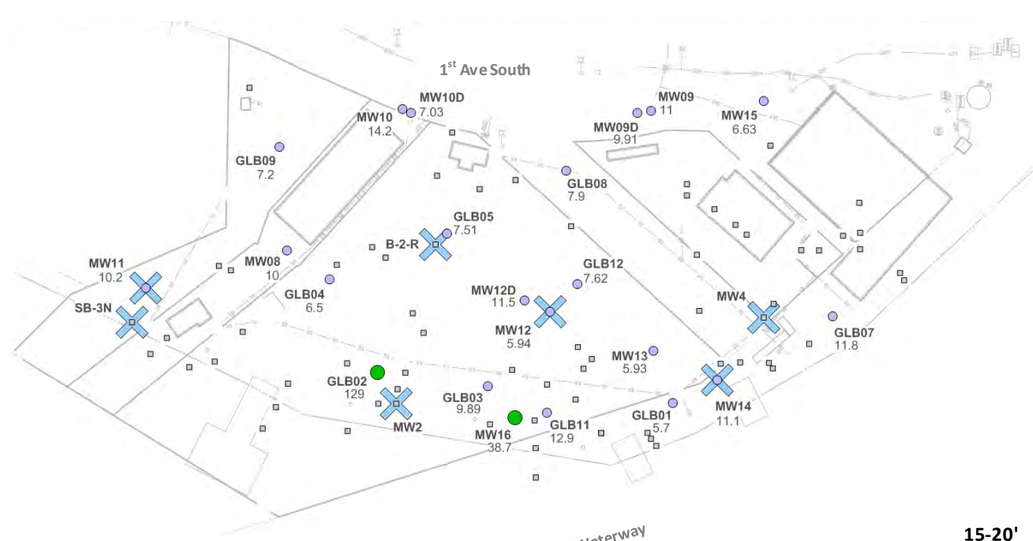
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- Nickel Not Analyzed
- Nickel Not Detected
- Nickel Detected Less than 16 mg/kg
- Nickel Detected Greater than 16 mg/kg and Less than 38.2 mg/kg
- Nickel Detected Greater than 38.2 mg/kg and Less than 152.8 mg/kg
- Nickel Detected Greater than 152.8 mg/kg
- Sampling Location Where Nickel Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

g-logics

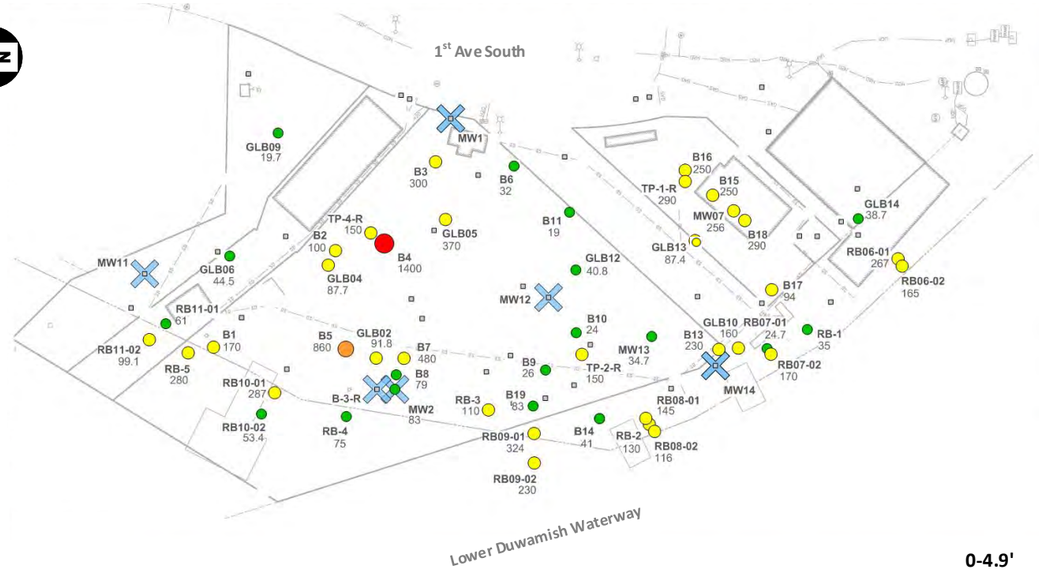
Nickel Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

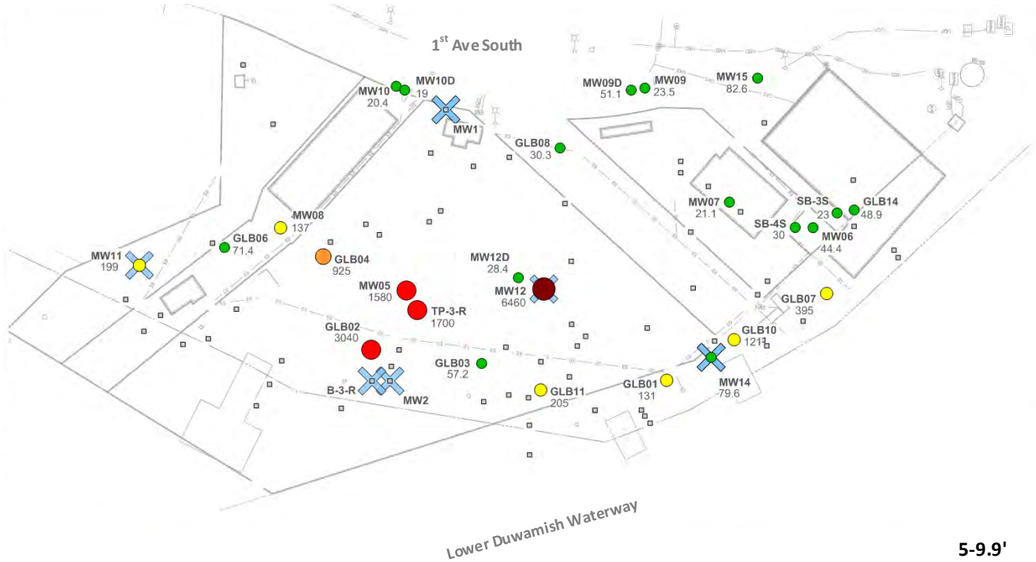
Figure 11-6a

Project File: 01-0979-G-F11-6a_Nickel in Soil.vsd

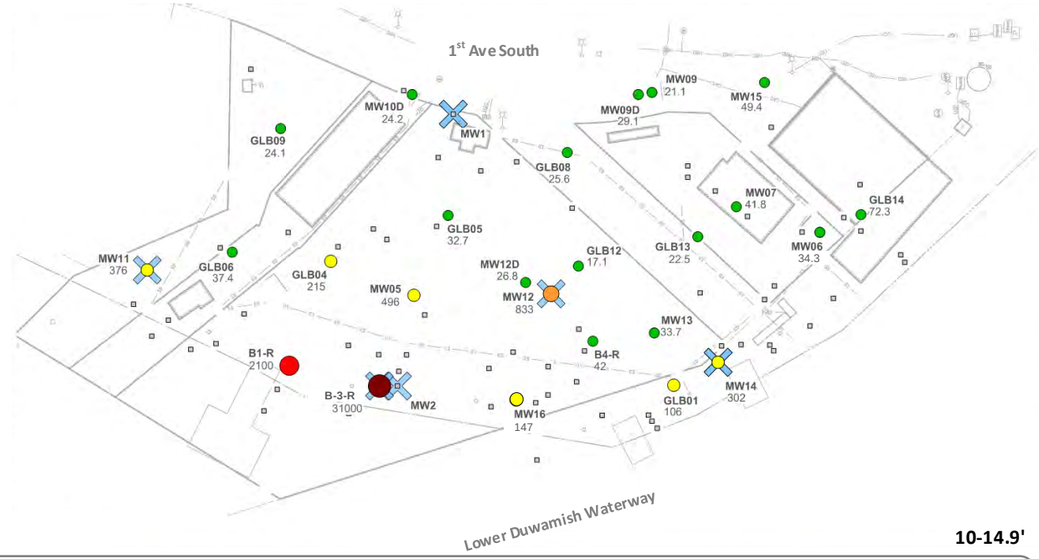
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



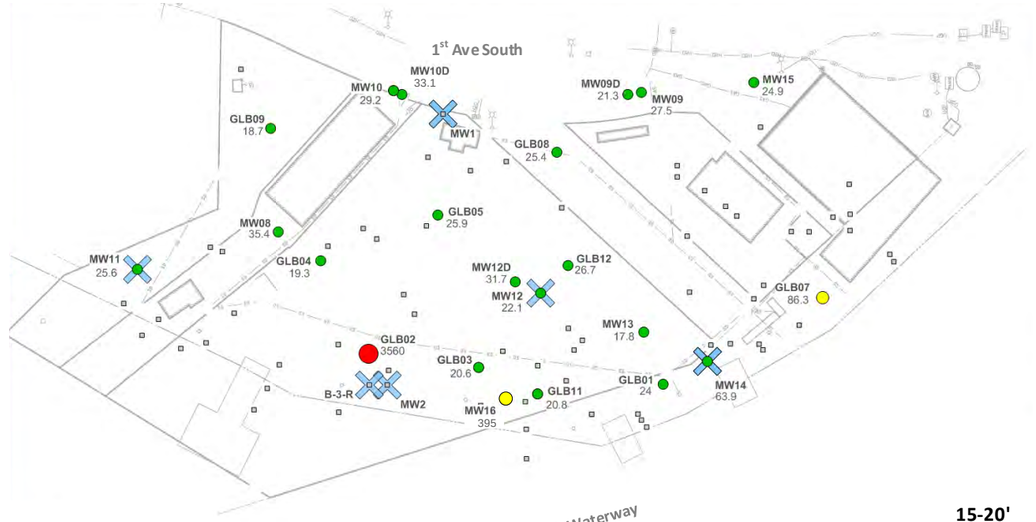
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 40.8 — Sample Location Identification / Highest Concentration within Interval

- Zinc Not Analyzed
- Zinc Not Detected
- Zinc Detected Less than 85.1 mg/kg (Background Concentration for Zinc)
- Zinc Detected Greater than 85.1 mg/kg and Less than the Most Conservative Selected Cleanup Level (570 mg/kg)
- Zinc Detected Greater than 570 mg/kg and Less than 1,140 mg/kg
- Zinc Detected Greater than 1,140 mg/kg and Less than 5,700 mg/kg
- Zinc Detected Greater than 5,700 mg/kg
- Sampling Location Where Zinc Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

g-logics

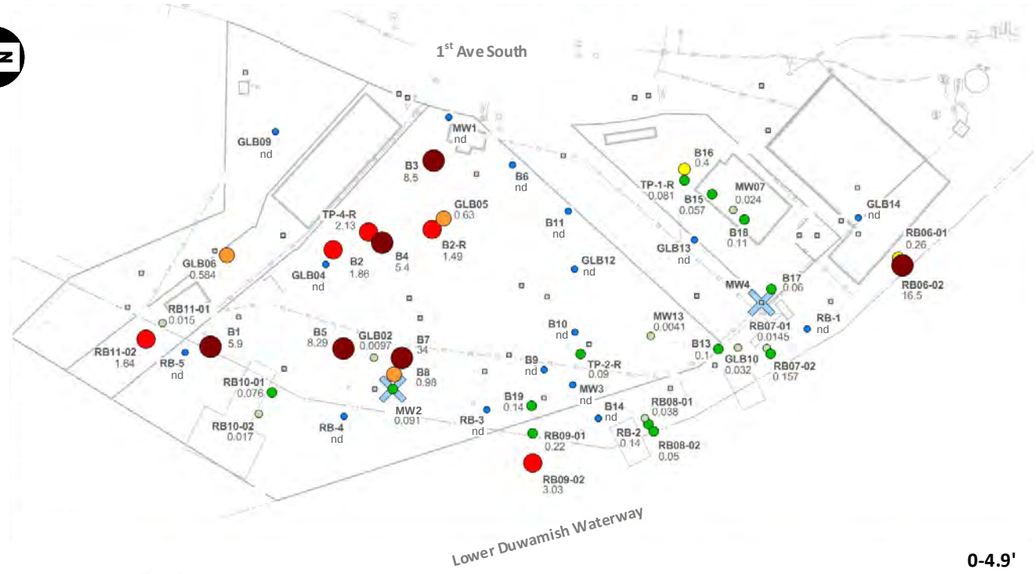
Zinc Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

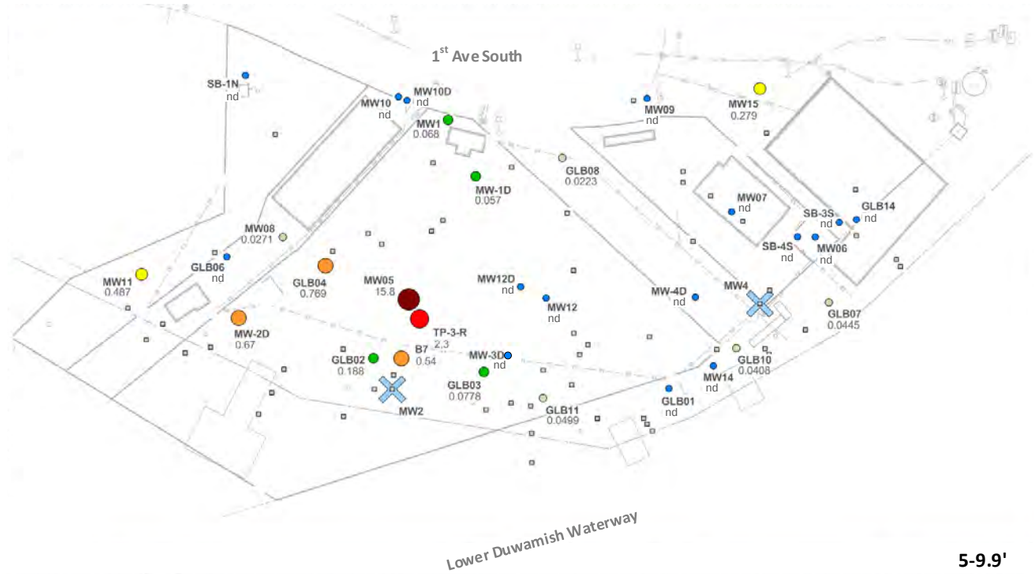
Figure 11-7a

Project File: 01-0979-G-F11-7a_Zinc in Soil.vsd

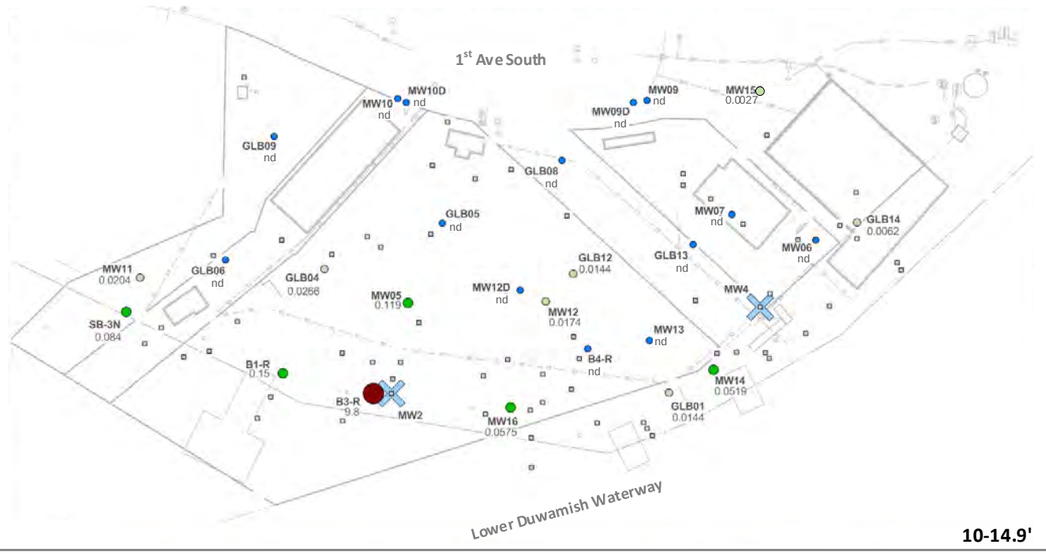
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



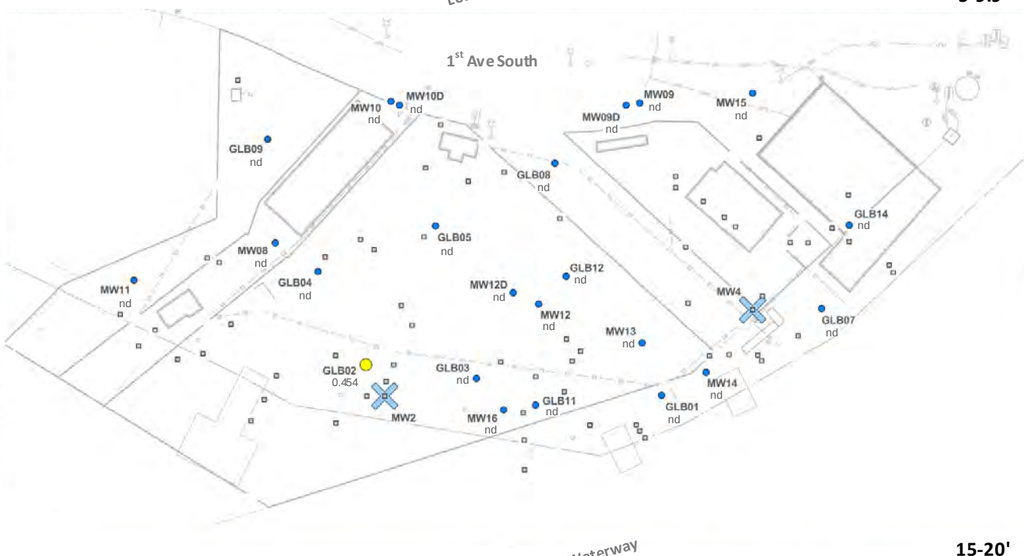
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- Total PCBs Not Analyzed
- Total PCBs Not Detected
- Total PCBs Detected Less than 0.05 mg/kg
- Total PCBs Detected Greater than 0.05 mg/kg and Less than 0.25 mg/kg (half the selected Cleanup Level)
- Total PCBs Detected Greater than 0.25 mg/kg and Less than the Most Conservative Selected Cleanup Level (0.5 mg/kg)
- Total PCBs Detected Greater than 0.5 mg/kg and Less than 1.0 mg/kg
- Total PCBs Detected Greater than 1.0 mg/kg and Less than 5.0 mg/kg
- Total PCBs Detected Greater than 5.0 mg/kg
- Sampling Location Where Total PCBs Were Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

g-logics

Total PCB Concentrations in Soil

Duwamish Marine Center Property

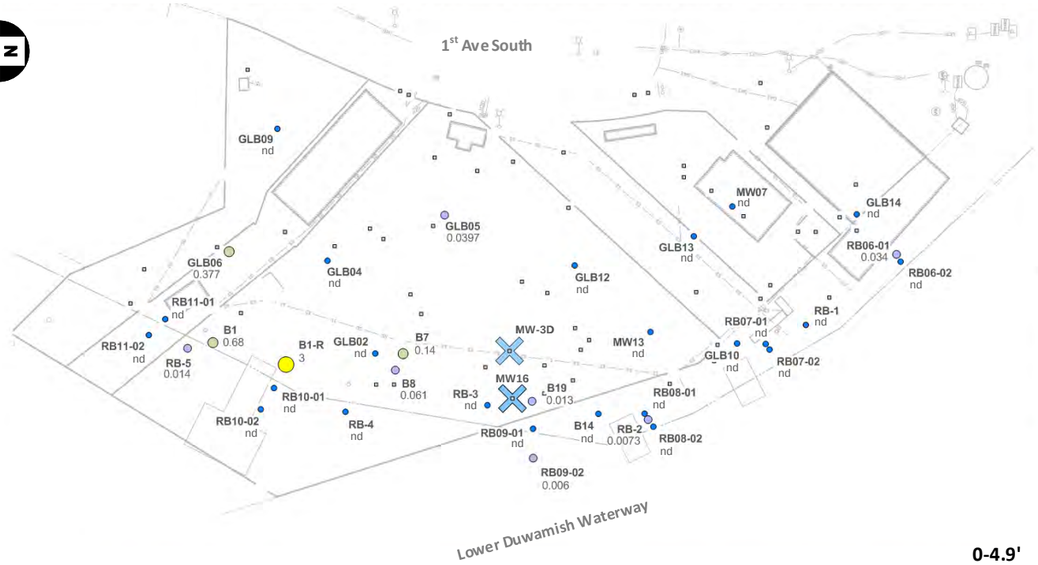
6365 First Avenue South

Seattle, Washington

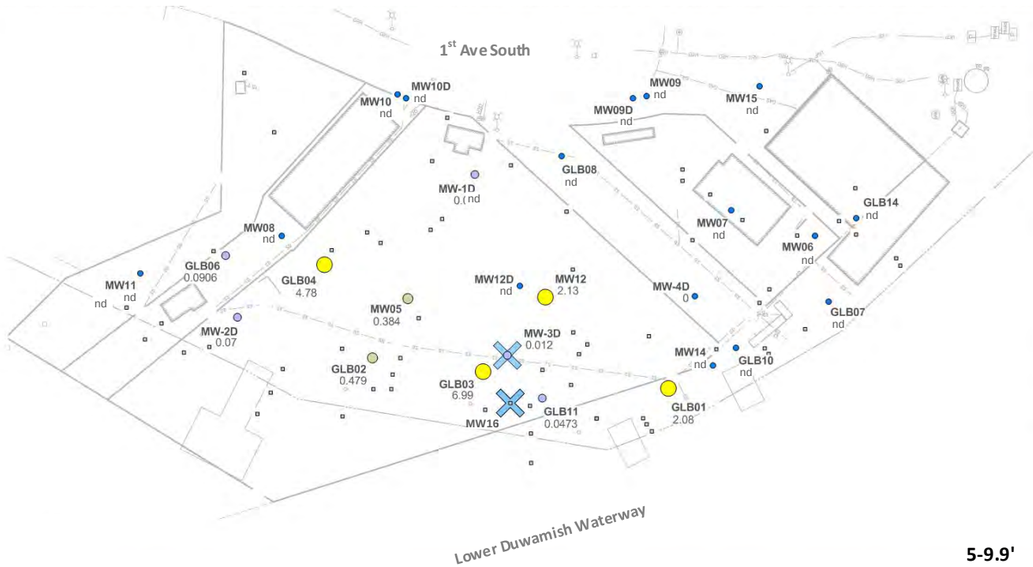
Figure 11-8a

Project File: 01-0979-G-F11-8a_Total PCB Aroclors in Soil.vsd

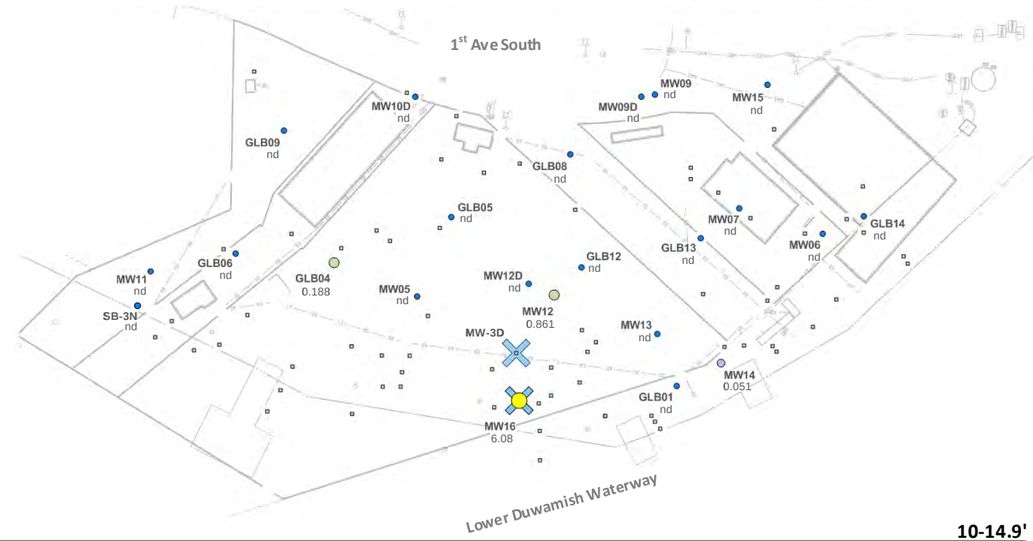
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



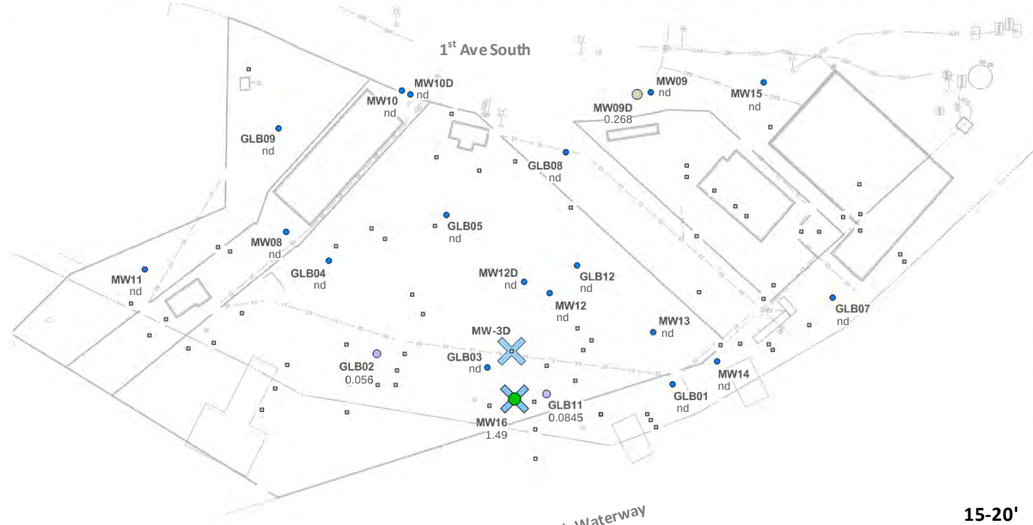
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- Acenaphthene Not Analyzed
- Acenaphthene Not Detected
- Acenaphthene Detected Less than 0.1 mg/kg
- Acenaphthene Detected Greater than 0.1 mg/kg and Less than 1 mg/kg
- Acenaphthene Detected Greater than 1 mg/kg and Less than 2 mg/kg
- Acenaphthene Detected Greater than 2 mg/kg
- Sampling Location Where Acenaphthene Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Note: All Acenaphthene Concentrations in Soil were Below the Most Conservative Selected Cleanup Level (4,800 mg/kg).

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

g-logics

Acenaphthene Concentrations in Soil

Duwamish Marine Center Property

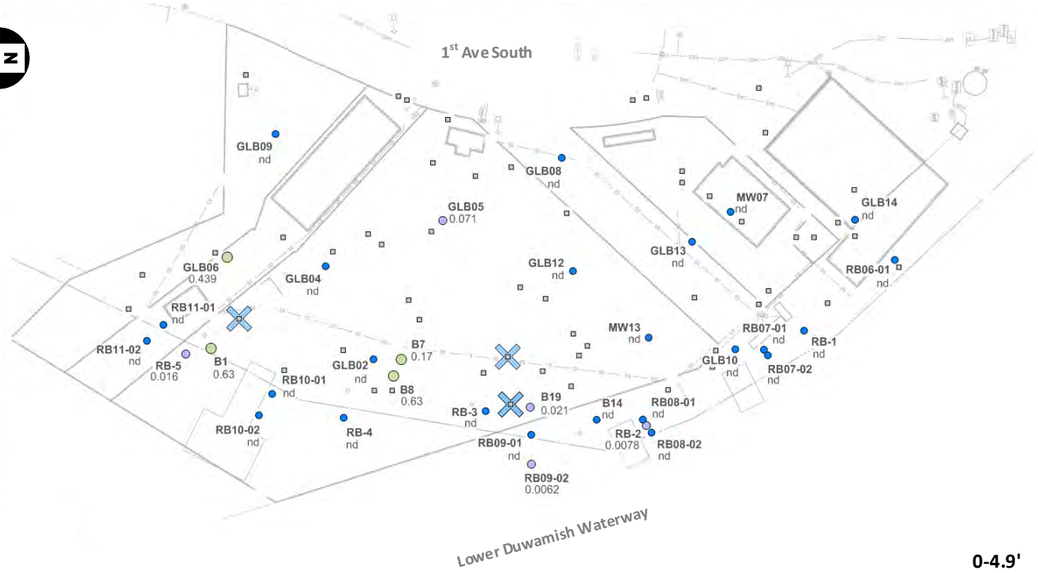
6365 First Avenue South

Seattle, Washington

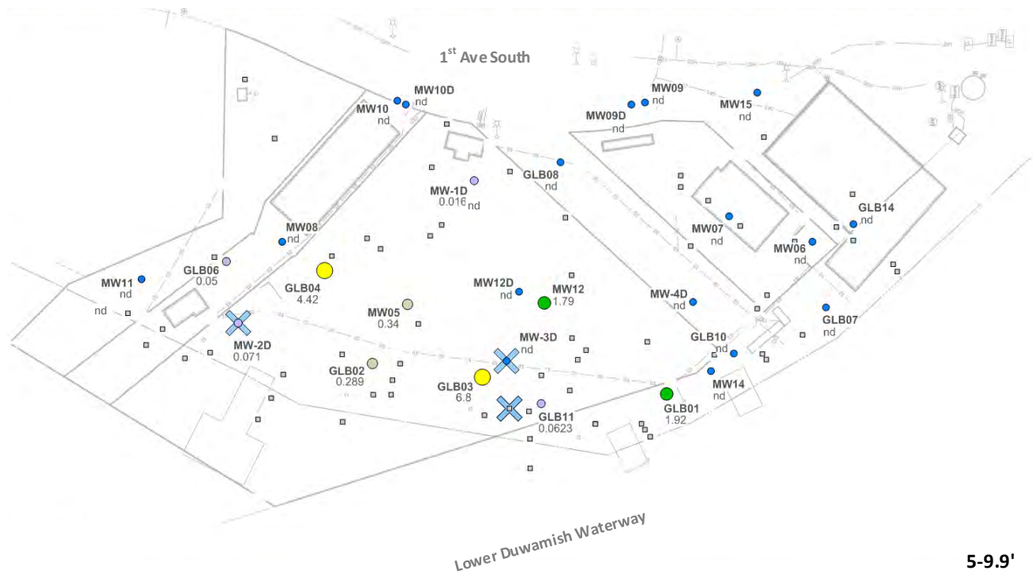
Figure 11-9a

Project File: 01-0979-G-F11-9a_Acenaphthene in Soil.vsd

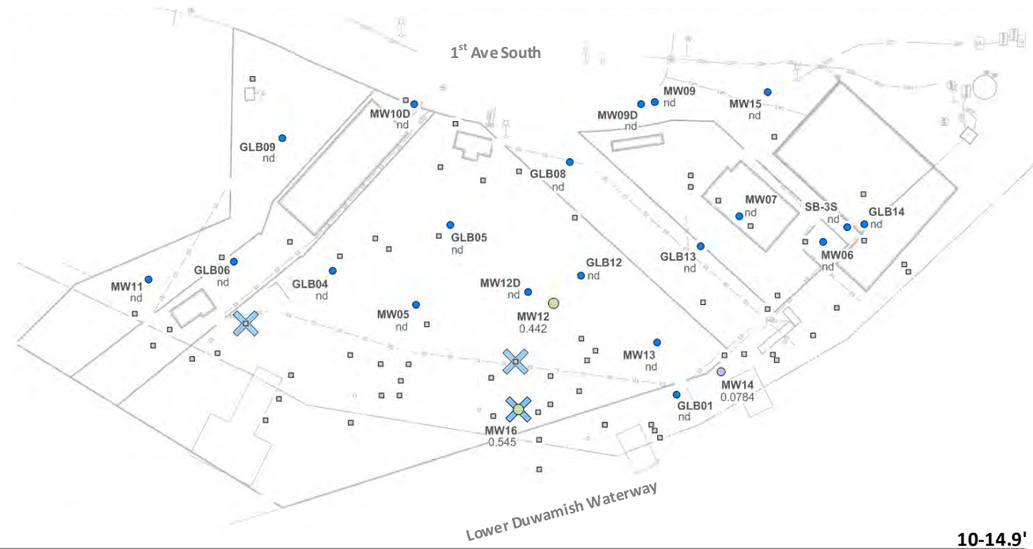
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



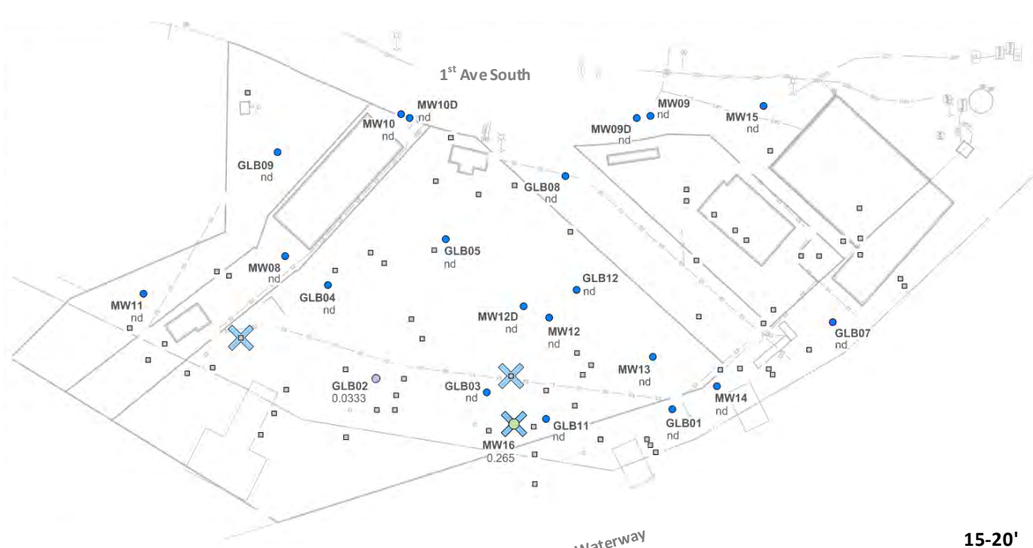
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- Fluorene Not Analyzed
- Fluorene Not Detected
- Fluorene Detected Less than 0.1 mg/kg
- Fluorene Detected Greater than 0.1 mg/kg and Less than 1 mg/kg
- Fluorene Detected Greater than 1 mg/kg and Less than 2 mg/kg
- Fluorene Detected Greater than 2 mg/kg
- Sampling Location Where Fluorene Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Note: All Fluorene Concentrations in Soil were Below the Most Conservative Selected Cleanup Level (3,200 mg/kg).

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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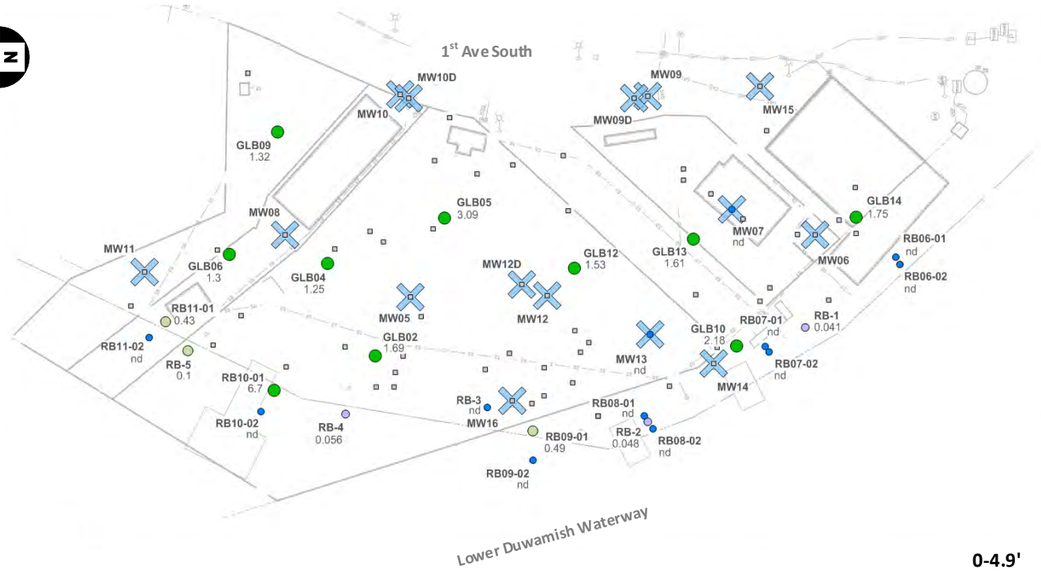
Fluorene Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

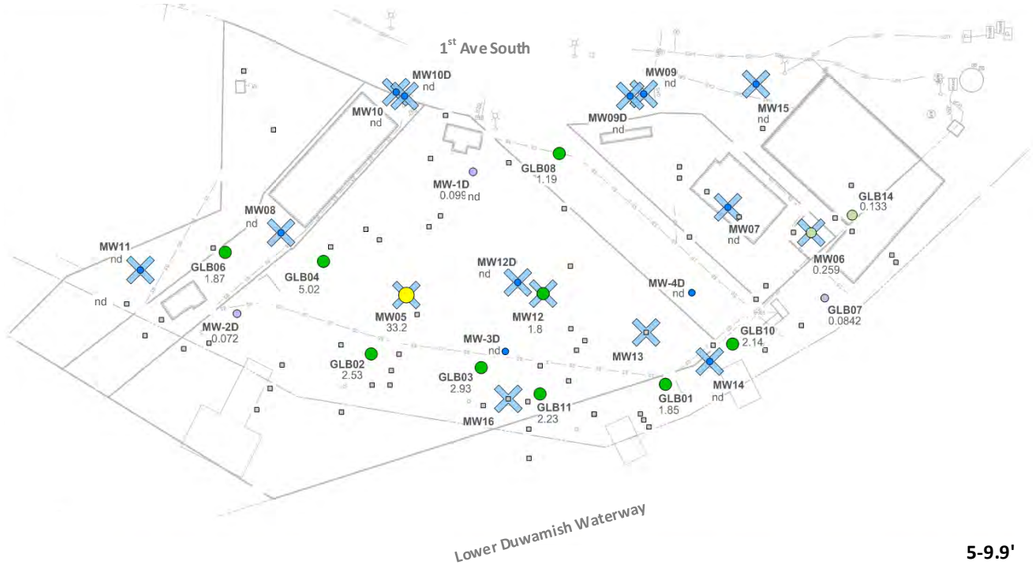
Figure 11-10a

Project File: 01-0979-G-F11-10a_Fluorene in Soil.vsd

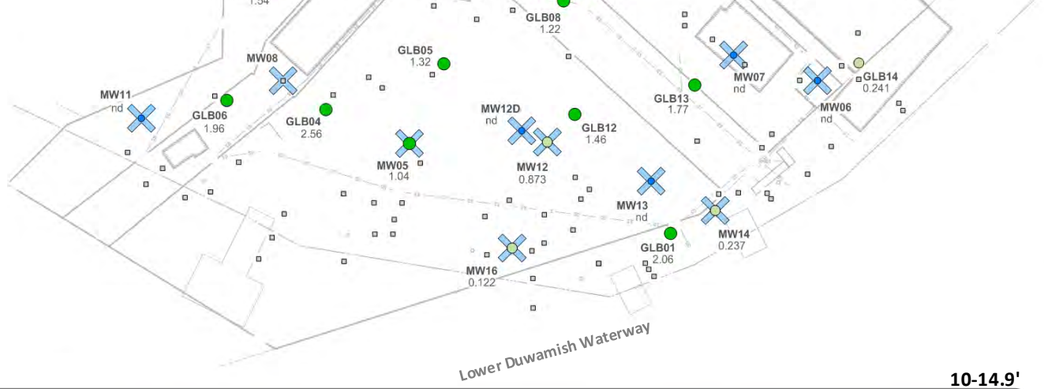
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



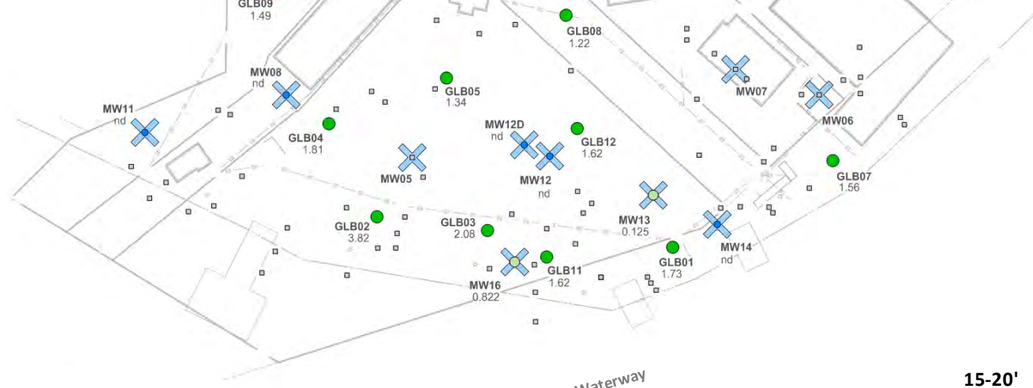
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 40.8 — Sample Location Identification / Highest Concentration within Interval

- Bis(2-ethylhexyl)phthalate Not Analyzed
- Bis(2-ethylhexyl)phthalate Not Detected
- Bis(2-ethylhexyl)phthalate Detected Less than 0.1 mg/kg
- Bis(2-ethylhexyl)phthalate Detected Greater than 0.1 mg/kg and Less than 1 mg/kg
- Bis(2-ethylhexyl)phthalate Detected Greater than 1 mg/kg and Less than 10 mg/kg
- Bis(2-ethylhexyl)phthalate Detected Greater than 10 mg/kg
- Sampling Location Where Bis(2-ethylhexyl)phthalate Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Note: All Bis(2-ethylhexyl)phthalate Concentrations in Soil were Below the Most Conservative Selected Cleanup Level (71.4 mg/kg).

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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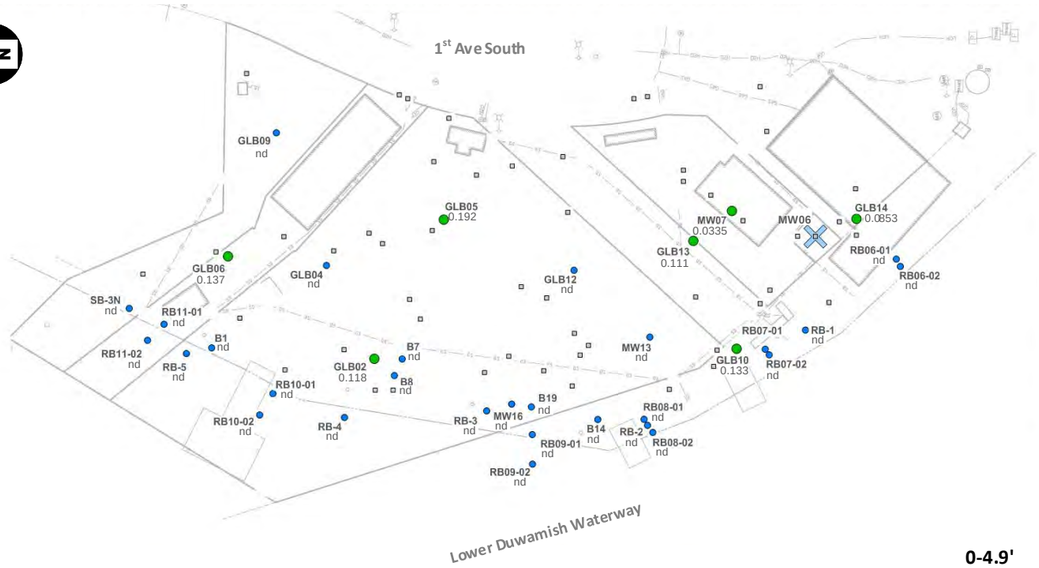
Bis(2-ethylhexyl)phthalate Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

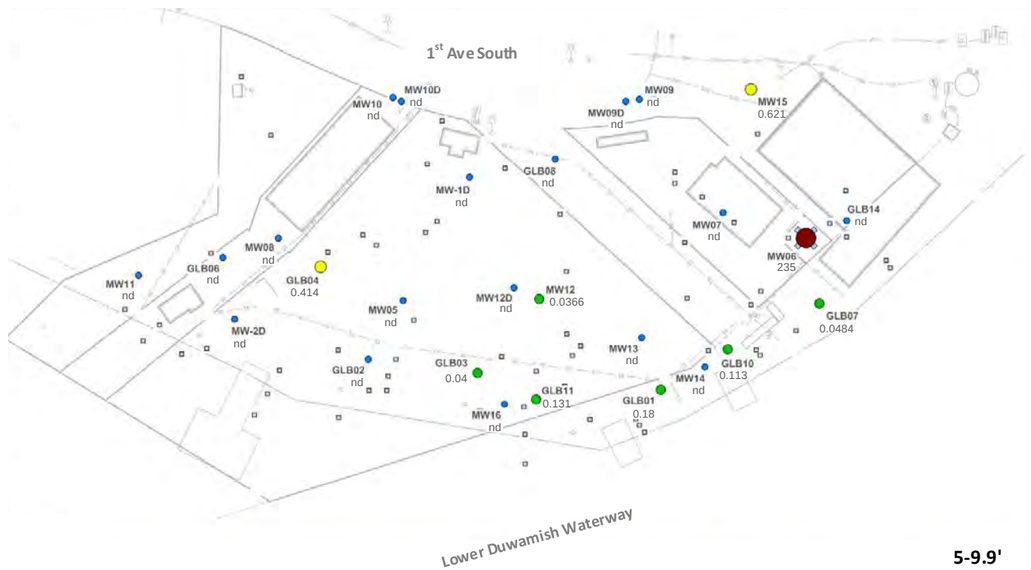
Figure 11-11a

Project File: 01-0979-G-F11-11a_Bis(2-ethylhexyl)phthalate in Soil.vsd

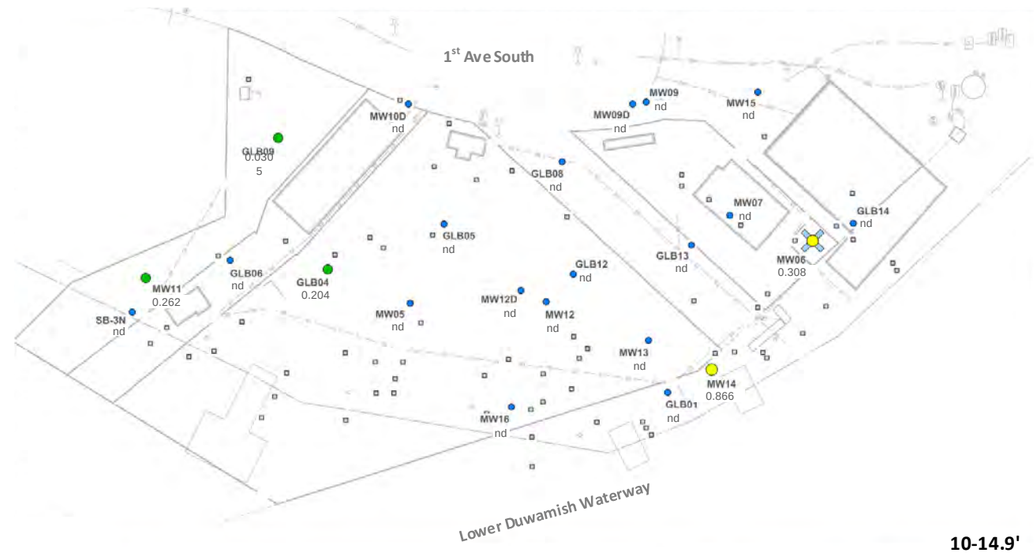
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



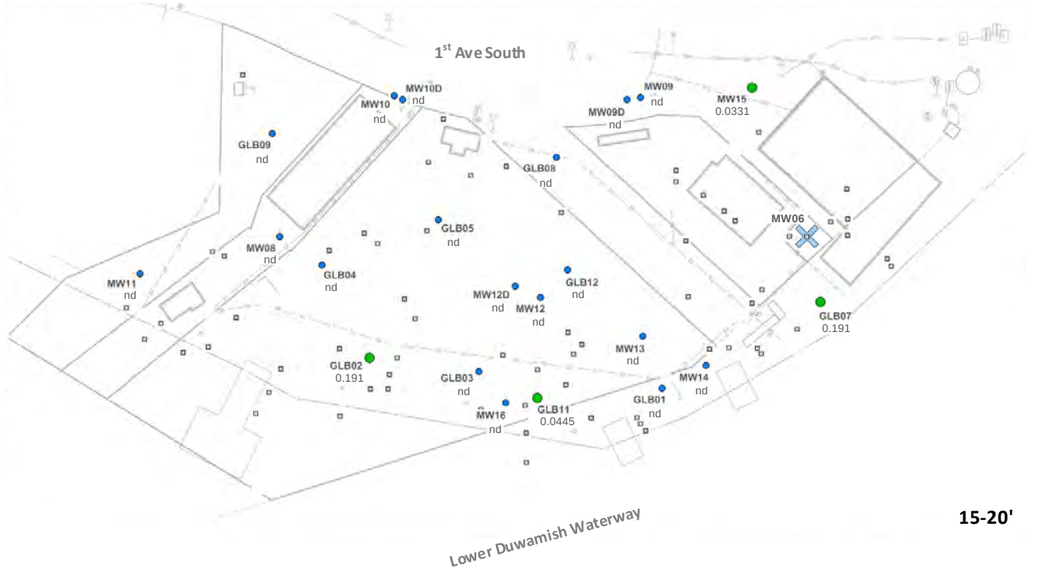
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12
40.8
Sample Location Identification
Highest Concentration within Interval

- Pentachlorophenol Not Analyzed
- Pentachlorophenol Not Detected
- Pentachlorophenol Detected Less than 0.25 mg/kg (one-tenth the selected Cleanup Level)
- Pentachlorophenol Detected Greater than 0.25 mg/kg and Less than the Most Conservative Selected Cleanup Level (2.5 mg/kg)
- Pentachlorophenol Detected Greater than 0.5 mg/kg and Less than 1.0 mg/kg
- Pentachlorophenol Detected Greater than 1.0 mg/kg and Less than 5.0 mg/kg
- Pentachlorophenol Detected Greater than 5.0 mg/kg
- Sampling Location Where Pentachlorophenol Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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Pentachlorophenol Concentrations in Soil

Duwamish Marine Center Property

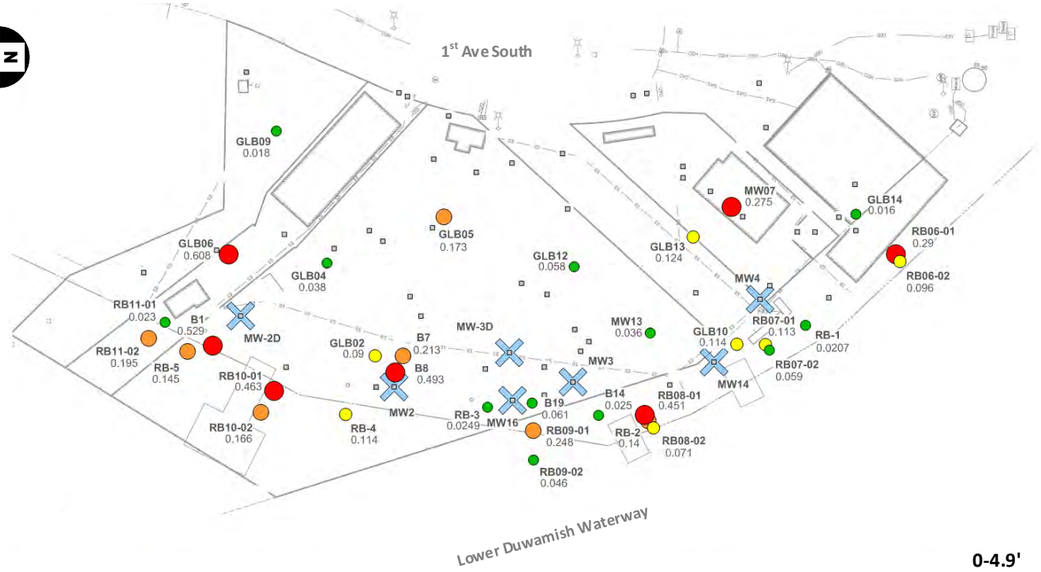
6365 First Avenue South

Seattle, Washington

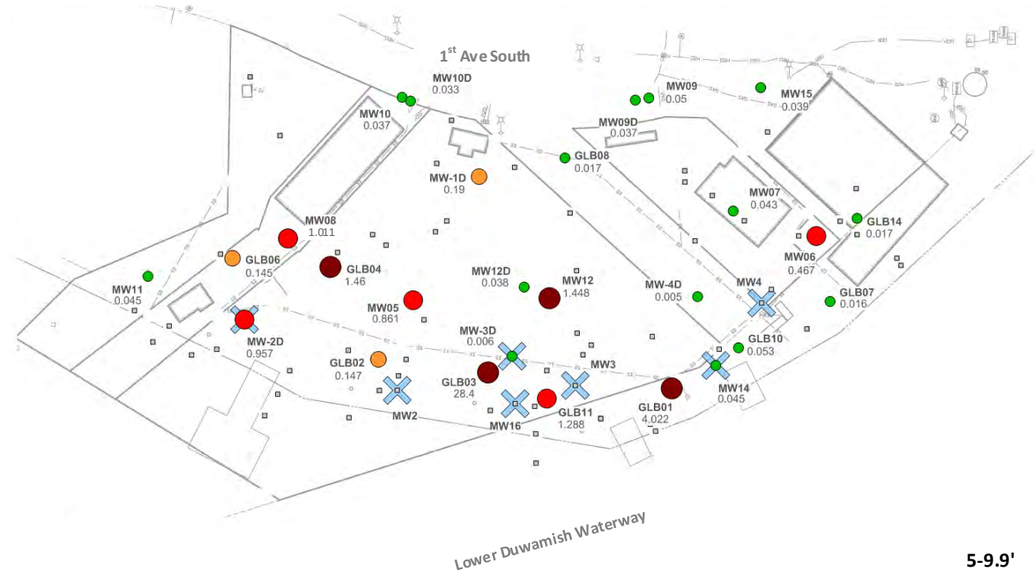
Figure 11-12a

Project File: 01-0979-G-F11-12a_Pentachlorophenol in Soil.vsd

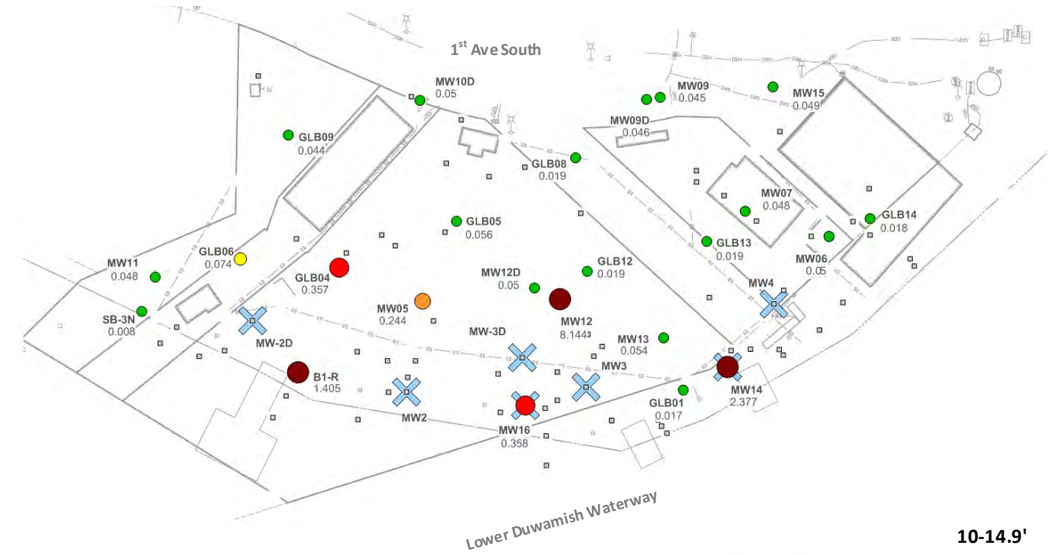
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



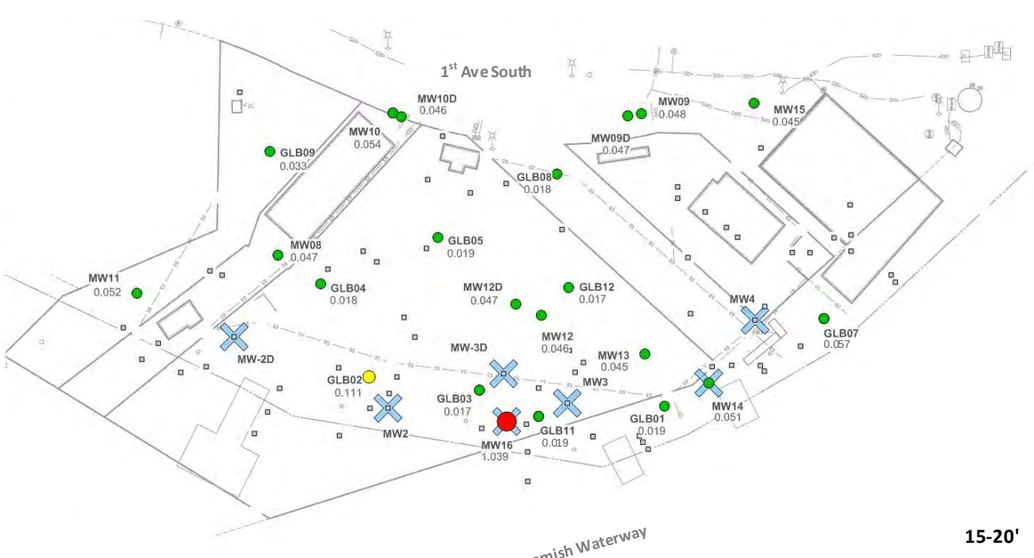
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 — Sample Location Identification
40.8 — Highest Concentration within Interval

- Total cPAH TEQ Not Analyzed
- Total cPAH TEQ Not Detected
- Total cPAH TEQ Detected Less than 0.068 mg/kg
- Total cPAH TEQ Detected Greater than 0.068 mg/kg and Less than the Most Conservative Selected Cleanup Level (0.137 mg/kg)
- Total cPAH TEQ Detected Greater than 0.137 mg/kg and Less than 0.274 mg/kg
- Total cPAH TEQ Detected Greater than 0.274 mg/kg and Less than 1.37 mg/kg
- Total cPAH TEQ Detected Greater than 1.37 mg/kg
- Sampling Location Where Total cPAH TEQ Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

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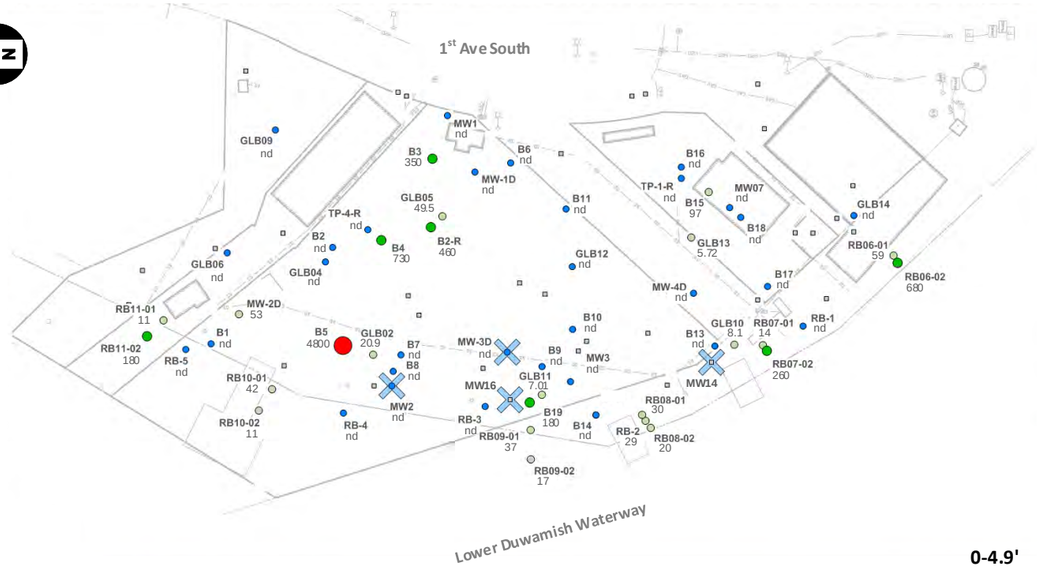
Total cPAH TEQ Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

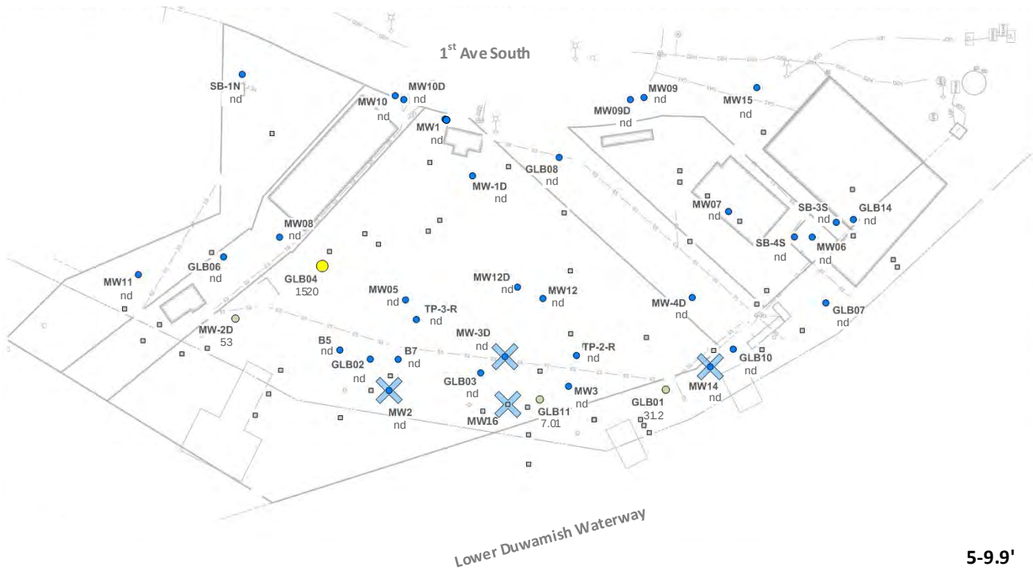
Figure 11-13a

Project File: 01-0979-G-F11-13a_cPAHs in Soilx.vsd

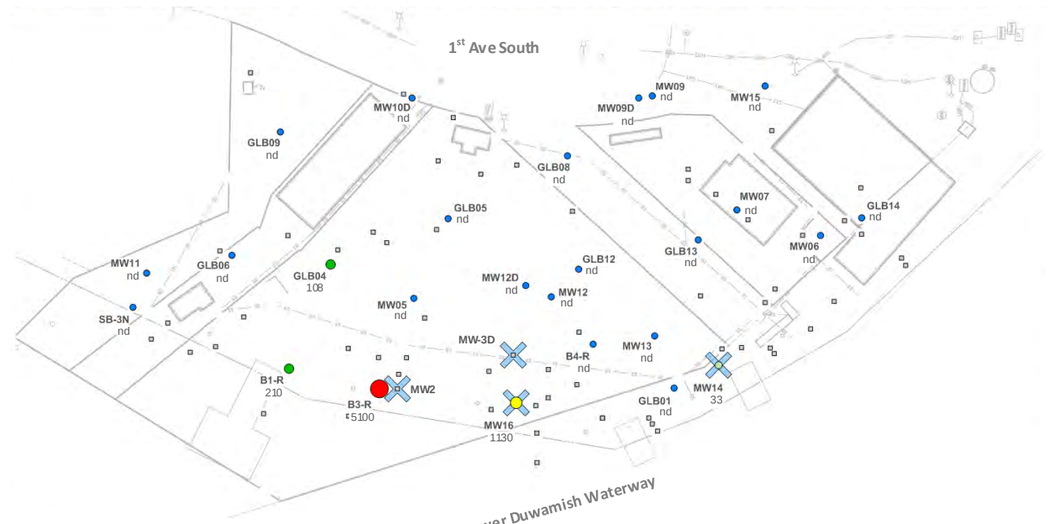
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



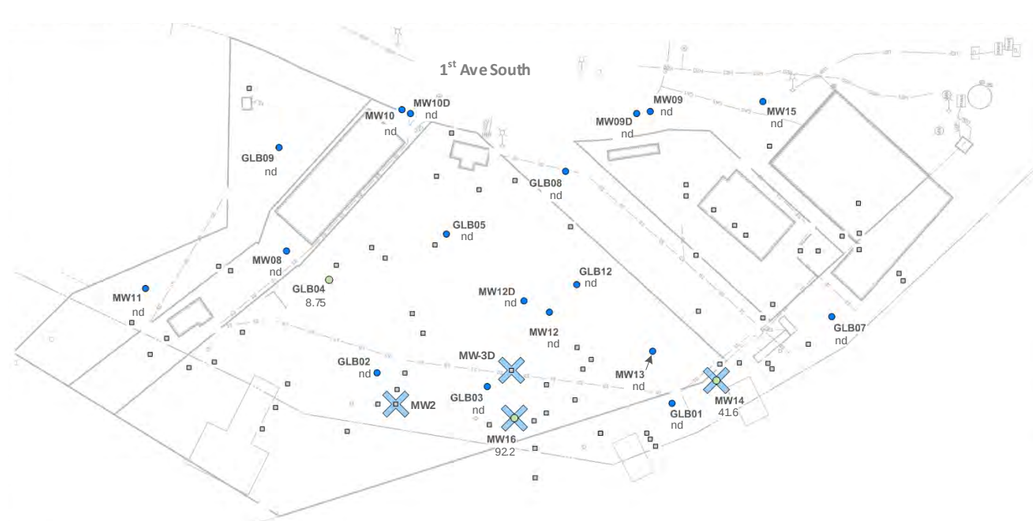
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 40.8 — Sample Location Identification / Highest Concentration within Interval

- DRO Not Analyzed
- DRO Not Detected
- DRO Detected Less than 100 mg/kg
- DRO Detected Greater than 100 mg/kg and Less than 1,000 mg/kg
- DRO Detected Greater than 1,000 mg/kg and Less than the Most Conservative Selected Cleanup Level (2,000 mg/kg)
- DRO Detected Greater than 2,000 mg/kg and Less than 4,000 mg/kg
- DRO Detected Greater than 4,000 mg/kg and Less than 15,000 mg/kg
- DRO Detected Greater than 15,000 mg/kg
- Sampling Location Where DRO Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

g-logics

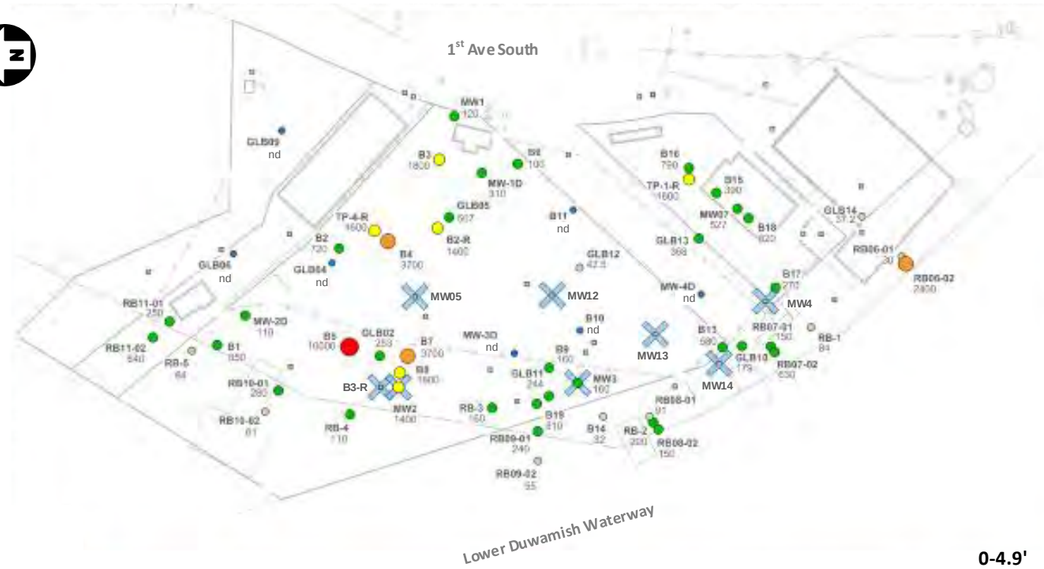
Diesel-Range Organics Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

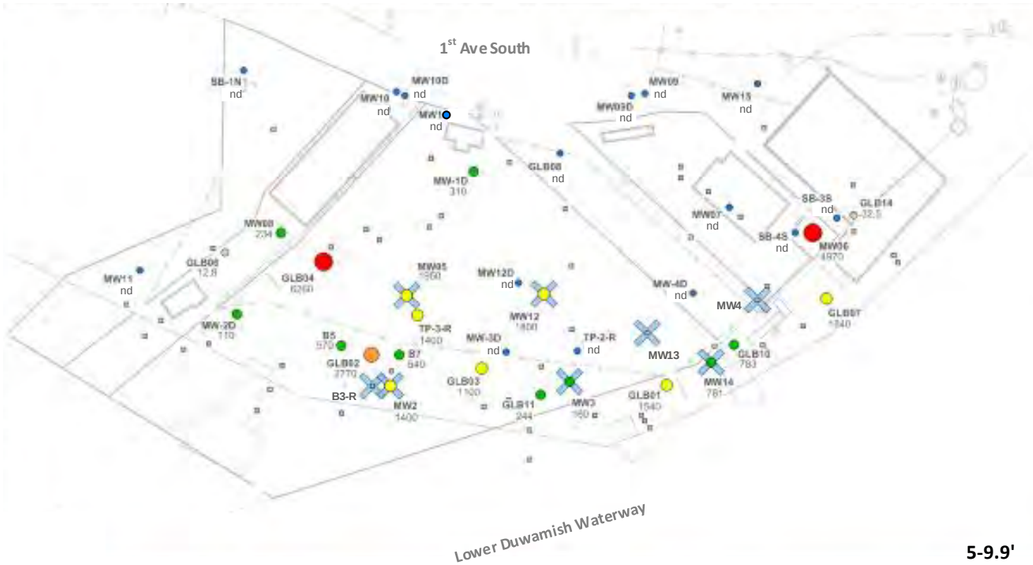
Figure 11-14a

Project File: 01-0979-G-F11-14a_DRO in Soil.vsd

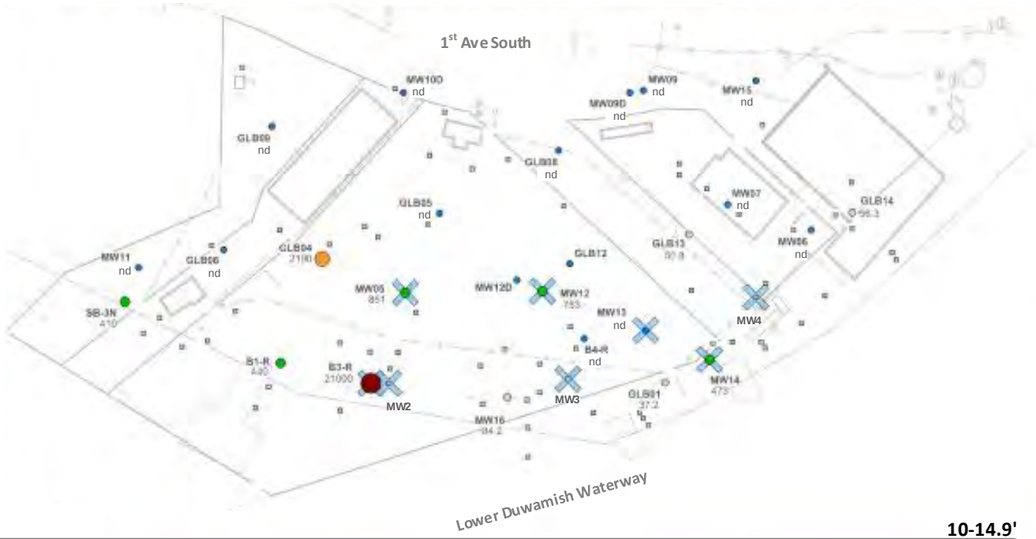
Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



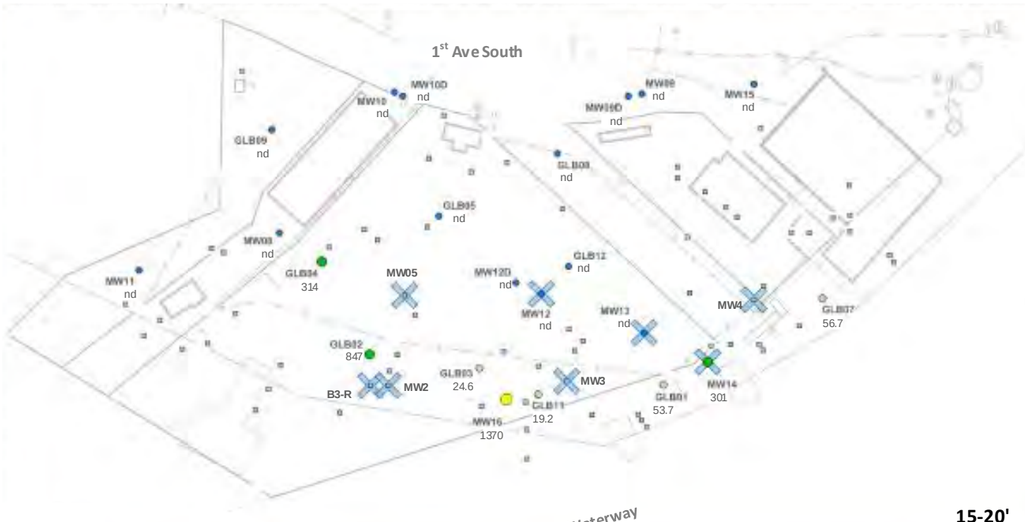
0-4.9'



5-9.9'



10-14.9'



15-20'

Legend

GLB12 / 40.8 — Sample Location Identification / Highest Concentration within Interval

- ORO Not Analyzed
- ORO Not Detected
- ORO Detected Less than 100 mg/kg
- ORO Detected Greater than 100 mg/kg and Less than 1,000 mg/kg
- ORO Detected Greater than 1,000 mg/kg and Less than the Most Conservative Selected Cleanup Level (2,000 mg/kg)
- ORO Detected Greater than 2,000 mg/kg and Less than 4,000 mg/kg
- ORO Detected Greater than 4,000 mg/kg and Less than 15,000 mg/kg
- ORO Detected Greater than 15,000 mg/kg
- Sampling Location Where ORO Was Detected in Groundwater Above Applicable Groundwater Cleanup Levels (see Table 2)

Approximate Drawing Scale: 1" = 150'

0 ft. 90 ft. 150 ft. 300 ft.

Notes:
-See Table 1 for Cleanup Levels and Screening Criteria.
-"RB" Indicates a Riverbank Sediment Sample, Shown for Comparison Purposes.
-This Figure Contains Information in Color. Black & White Photocopies May Not be Suitable for Review.

g-logics

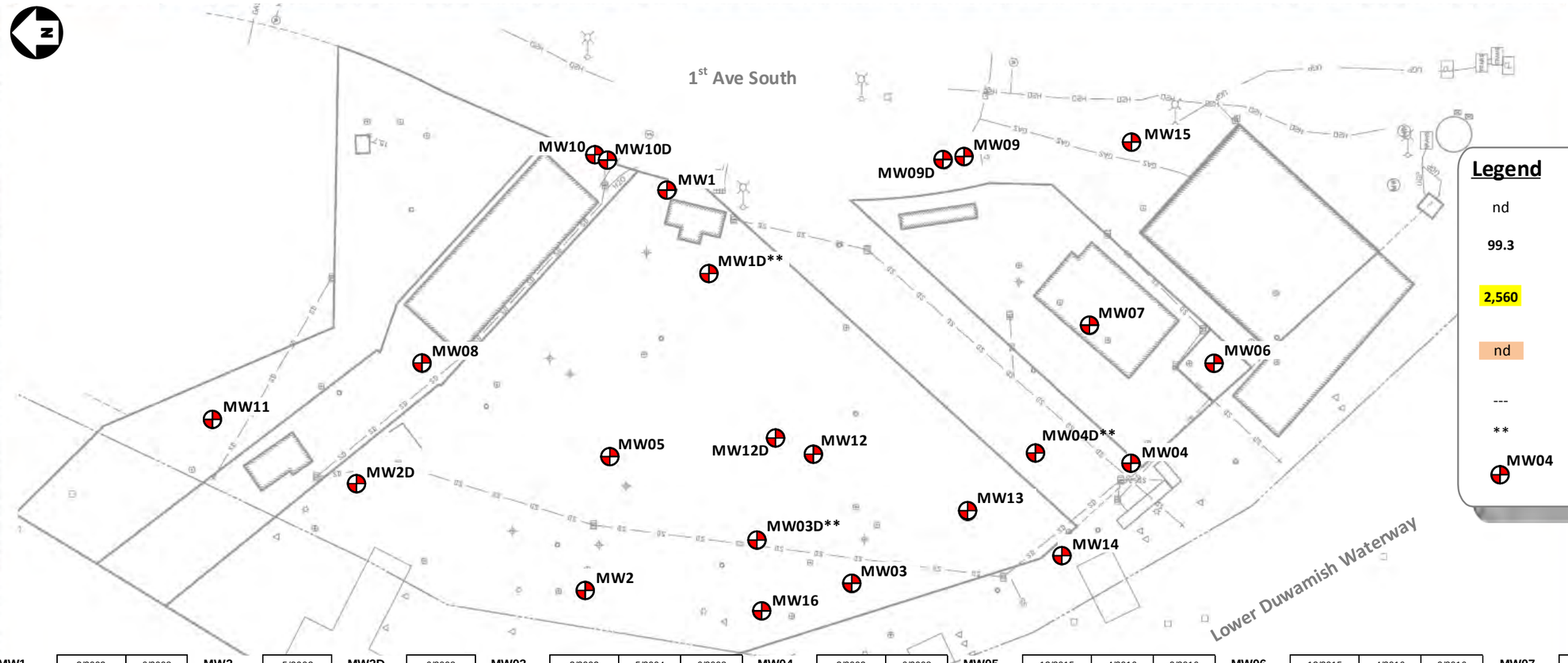
Oil-Range Organics Concentrations in Soil

Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

Figure 11-15a

Project File: 01-0979-G-F11-15a_ORO in Soil.vsd

Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



Legend

nd	Contaminants Not Detected
99.3	Contaminant Detected Less than the Most Conservative Selected Cleanup Level
2,560	Contaminant Detected Greater than the Most Conservative Selected Cleanup Level
nd	Laboratory Method Reporting Limit is Greater Than the Most Conservative Selected Cleanup Level
---	Not Sampled/Analyzed
**	No Data Analyzed for this Location
MW04	Groundwater Monitoring Well Location

MW1	3/2002	6/2008
Arsenic	nd	nd
Copper	49.0	nd
Lead	59.0	nd
Mercury	nd	nd
Nickel	nd	nd
Zinc	500	150

MW2	5/2002
Arsenic	220
Copper	810
Lead	2,100
Mercury	2
Nickel	240
Zinc	2,000

MW2D	6/2008
Arsenic	4.0
Copper	nd
Lead	1.4
Mercury	nd
Nickel	nd
Zinc	nd

MW03	3/2002	5/2004	6/2008
Arsenic	12.0	---	15.0
Copper	140	---	nd
Lead	89.0	---	nd
Mercury	1	0.5	---
Nickel	nd	---	nd
Zinc	150	---	nd

MW04	3/2002	6/2008
Arsenic	8.0	nd
Copper	45.0	nd
Lead	7.0	nd
Mercury	nd	nd
Nickel	37.0	32.0
Zinc	nd	nd

MW05	12/2015	4/2016	9/2016
Arsenic	---	0.824	0.385
Copper	---	1.05	nd
Lead	---	1.44	nd
Mercury	---	0.000967	nd
Nickel	---	5.25	5.84
Zinc	---	4.20	2.57

MW06	12/2015	4/2016	9/2016
Arsenic	1.92	0.579	2.89
Copper	nd	1.83	0.508
Lead	nd	nd	nd
Mercury	---	0.000955	0.00120
Nickel	1.59	0.933	1.32
Zinc	1.50	6.41	5.53

MW07	12/2015	4/2016	9/2016
Arsenic	41.4	29.4	38.3
Copper	0.587	0.617	nd
Lead	3.370	nd	nd
Mercury	nd	nd	nd
Nickel	0.761	nd	0.697
Zinc	nd	7.69	2.49

MW08	12/2015	4/2016	9/2016
Arsenic	1.14	0.819	1.59
Copper	1.49	1.11	0.597
Lead	6.54	1.10	1.41
Mercury	0.002	0.00943	0.00153
Nickel	1.80	1.09	1.10
Zinc	3.98	14.7	3.61

MW09	12/2015	4/2016	9/2016
Arsenic	1.47	0.661	nd
Copper	0.671	0.536	nd
Lead	nd	nd	nd
Mercury	nd	nd	nd
Nickel	0.706	0.609	nd
Zinc	nd	2.17	4.11

MW09D	12/2015	4/2016	9/2016
Arsenic	nd	0.104	0.488
Copper	nd	nd	0.674
Lead	nd	nd	nd
Mercury	nd	nd	nd
Nickel	0.643	0.670	nd
Zinc	nd	nd	nd

MW10	12/2015	4/2016	9/2016
Arsenic	1.24	1.51	2.41
Copper	2.20	3.39	6.76
Lead	nd	nd	nd
Merucy	nd	0.00232	0.00381
Nickel	nd	0.982	2.79
Zinc	nd	5.45	4.06

MW10D	12/2015	4/2016	9/2016
Arsenic	2.07	1.90	1.78
Copper	nd	4.21	0.760
Lead	nd	1.76	nd
Mercury	nd	nd	nd
Nickel	nd	1.93	nd
Zinc	nd	37.0	2.20

MW11	12/2015	4/2016	9/2016
Arsenic	1.95	1.24	4.45
Copper	nd	1.32	12.1
Lead	0.325	nd	nd
Mercury	nd	nd	nd
Nickel	8.47	10.2	8
Zinc	24.2	30.9	113

MW12	12/2015	4/2016	9/2016
Arsenic	58.9	40.9	28.0
Copper	35.7	1.05	2.74
Lead	40.8	nd	3.27
Mercury	nd	nd	0.00185
Nickel	9.01	2.14	0.796
Zinc	153	28.8	8.84

MW12D	12/2015	4/2016	9/2016
Arsenic	nd	0.240	nd
Copper	nd	0.884	nd
Lead	nd	nd	nd
Mercury	nd	0.000601	nd
Nickel	0.506	1.43	0.686
Zinc	nd	4.64	1.99

MW13	12/2015	4/2016	9/2016
Arsenic	35.3	27.0	34.7
Copper	1.44	nd	nd
Lead	1.18	nd	nd
Mercury	nd	nd	nd
Nickel	0.850	0.676	1.520
Zinc	nd	3.13	5.25

MW14	12/2015	4/2016	9/2016
Arsenic	21.8	5.35	11.5
Copper	5.22	1.47	nd
Lead	52.0	31.1	116
Mercury	nd	nd	nd
Nickel	5.9	5.7	68.1
Zinc	102	127	1,640

MW15	12/2015	4/2016	9/2016
Arsenic	2.14	2.89	5.69
Copper	nd	nd	1.78
Lead	nd	nd	1.70
Mercury	nd	0.000697	0.00226
Nickel	0.798	1.75	0.710
Zinc	19.0	14.8	7.54

MW16	12/2015	4/2016	9/2016
Arsenic	8.24	5.46	5.79
Copper	3.00	nd	nd
Lead	29.7	nd	2.84
Mercury	0.00315	0.00062	0.00141
Nickel	2.09	1.09	1.070
Zinc	nd	5.91	5.94

Project File: 01-0979-G F12a Metal Concentrations in Groundwater.vsd

g-logics

Approximate Drawing Scale: 1" = 80'

0 ft. 48 ft. 80 ft. 160 ft.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

Metal Concentrations in Groundwater

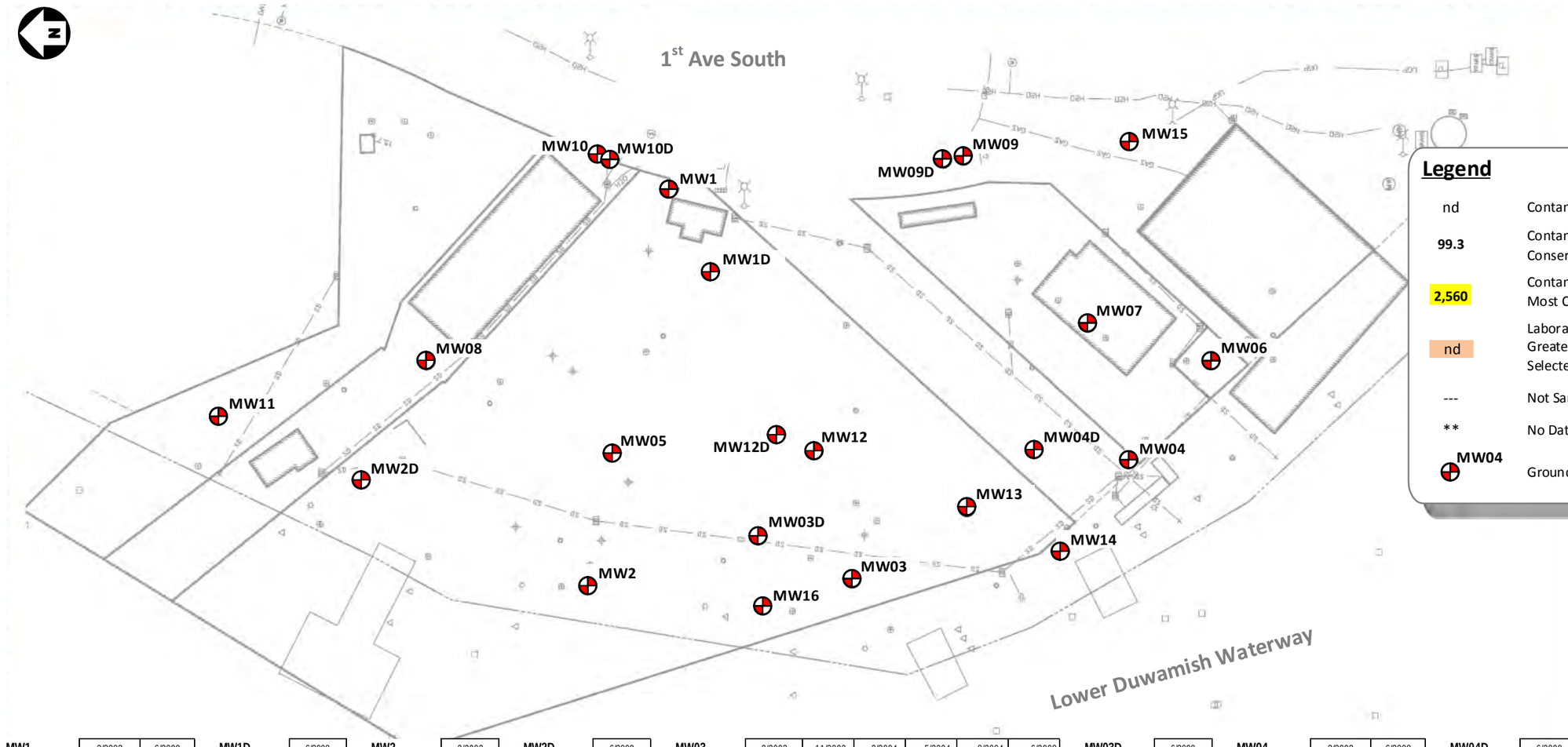
Duwamish Marine Center Property

6365 First Avenue South

Seattle, Washington

Figure 12a

Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.



Legend

nd	Contaminants Not Detected
99.3	Contaminant Detected Less than the Most Conservative Selected Cleanup Level
2,560	Contaminant Detected Greater than the Most Conservative Selected Cleanup Level
nd	Laboratory Method Reporting Limit is Greater Than the Most Conservative Selected Cleanup Level
---	Not Sampled/Analyzed
**	No Data Analyzed for this Location
MW04	Groundwater Monitoring Well Location

MW1	3/2002	6/2008
Chrysene	nd	nd
Pentachlorophenol	---	---
Total PCBs	nd	nd

MW1D	6/2008
Chrysene	nd
Pentachlorophenol	---
Total PCBs	nd

MW2	3/2002
Chrysene	15.0
Pentachlorophenol	---
Total PCBs	0.28

MW2D	6/2008
Chrysene	0.22
Pentachlorophenol	---
Total PCBs	nd

MW03	3/2002	11/2003	2/2004	5/2004	8/2004	6/2008
Chrysene	0.140	---	---	---	---	nd
Pentachlorophenol	---	---	---	---	---	---
Total PCBs	nd	nd	nd	nd	nd	nd

MW03D	6/2008
Chrysene	0.15
Pentachlorophenol	---
Total PCBs	nd

MW04	3/2002	6/2008
Chrysene	0.031	nd
Pentachlorophenol	---	---
Total PCBs	0.95	nd

MW04D	6/2008
Chrysene	nd
Pentachlorophenol	---
Total PCBs	nd

MW05	12/2015	4/2016	9/2016
Chrysene	---	nd	nd
Pentachlorophenol	---	nd	nd
Total PCBs	---	nd	nd

MW06	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	3.66	0.453	0.134
Total PCBs	nd	nd	nd

MW07	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW08	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW09	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW09D	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW10	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW10D	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW11	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW12	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW12D	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW13	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW14	12/2015	4/2016	9/2016
Chrysene	nd	0.0321	0.116
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW15	12/2015	4/2016	9/2016
Chrysene	nd	nd	nd
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

MW16	12/2015	4/2016	9/2016
Chrysene	0.0842	0.061	0.0432
Pentachlorophenol	nd	nd	nd
Total PCBs	nd	nd	nd

g-logics

Approximate Drawing Scale: 1" = 80'

0 ft. 48 ft. 80 ft. 160 ft.

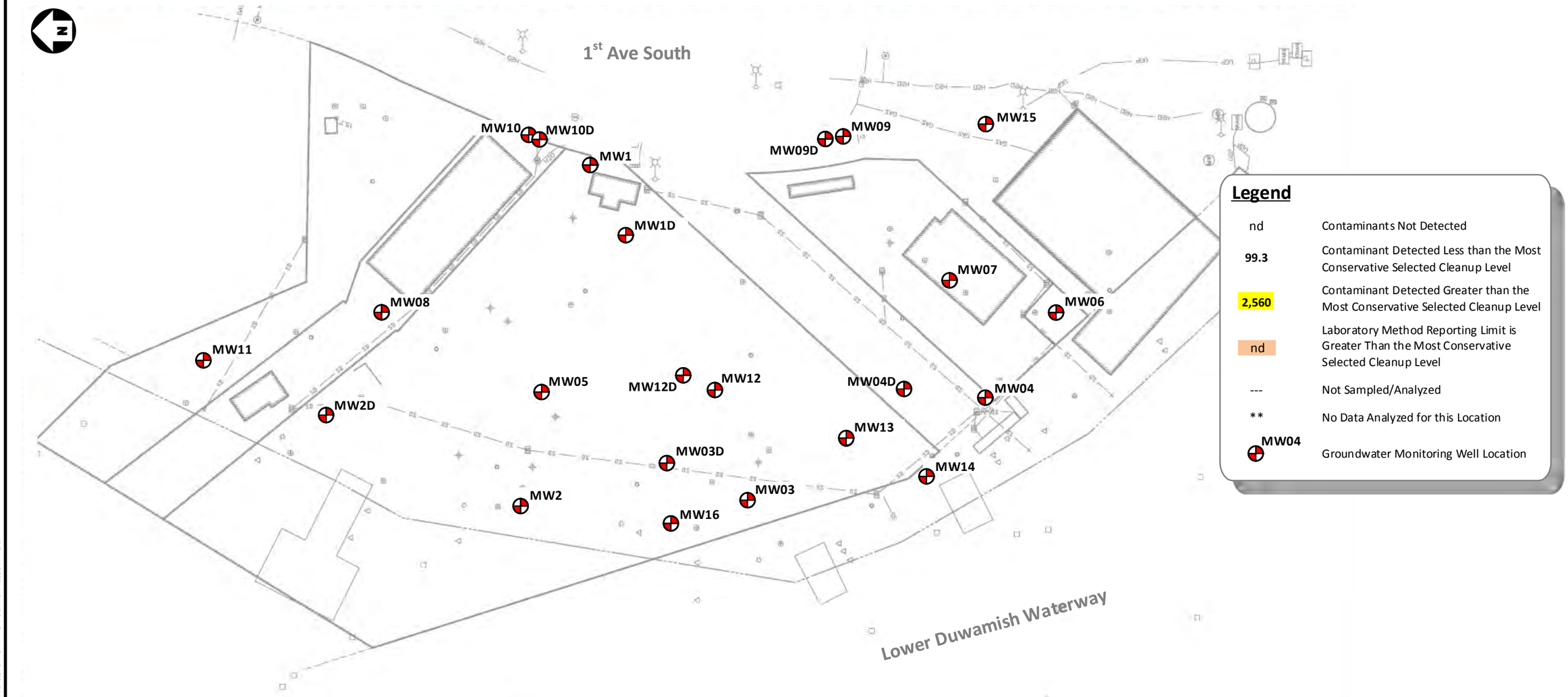
Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

Chrysene, Pentachlorophenol, and Total PCB Concentrations in Groundwater
Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

Figure 12b

Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.

Project File: 01-0979-G F12b Chrysene_Pentachlorophenol_Total PCBs.vsd



MW1	3/2002	6/2008
DRO	nd	nd
ORO	nd	nd

MW1D	6/2008
DRO	nd
ORO	nd

MW2	3/2002
DRO	2,700
ORO	4,900

MW2D	6/2008
DRO	nd
ORO	nd

MW03	3/2002	11/2003	2/2004	5/2004	8/2004	6/2008
DRO	nd	280	370	nd	320	nd
ORO	nd	nd	550	nd	nd	nd

MW3D	6/2008
DRO	1,000
ORO	nd

MW4	3/2002	6/2008
DRO	nd	nd
ORO	820	nd

MW4D	6/2008
DRO	nd
ORO	nd

MW05	12/2015	4/2016	9/2016
DRO	---	4.51	157
ORO	---	611	234

MW06	12/2015	4/2016	9/2016
DRO	nd	nd	nd
ORO	nd	37.5	1.6

MW07	12/2015	4/2016	9/2016
DRO	nd	nd	93.0
ORO	299	372	444

MW08	12/2015	4/2016	9/2016
DRO	nd	nd	nd
ORO	nd	38.2	nd

MW09	12/2015	4/2016	9/2016
DRO	nd	5.65	nd
ORO	nd	106	nd

MW09D	12/2015	4/2016	9/2016
DRO	nd	7.71	nd
ORO	nd	103	nd

MW10	12/2015	4/2016	9/2016
DRO	nd	13.6	nd
ORO	nd	45.1	nd

MW10D	12/2015	4/2016	9/2016
DRO	nd	245	nd
ORO	nd	nd	nd

MW11	12/2015	4/2016	9/2016
DRO	nd	nd	25.4
ORO	131	132	210

MW12	12/2015	4/2016	9/2016
DRO	nd	8.31	nd
ORO	286	636	154

MW12D	12/2015	4/2016	9/2016
DRO	nd	nd	113
ORO	nd	264	nd

MW13	12/2015	4/2016	9/2016
DRO	nd	17.0	nd
ORO	569	654	nd

MW14	12/2015	4/2016	9/2016
DRO	1,000	854	991
ORO	632	1,860	1,370

MW15	12/2015	4/2016	9/2016
DRO	nd	9.01	nd
ORO	100	130	nd

MW16	12/2015	4/2016	9/2016
DRO	2,690	1,900	834
ORO	nd	nd	350

g-logics

Approximate Drawing Scale: 1" = 80'

0 ft. 48 ft. 80 ft. 160 ft.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

DRO and ORO Concentrations in Groundwater
Duwamish Marine Center Property
6365 First Avenue South
Seattle, Washington

Figure
12c

Mapping Reference: PLS, Inc. Survey (2015-2017), Ecology Environmental Information Management (EIM) Database.

Project File: 01-0979-G 12c DRO and ORO Concentrations in Groundwater.vsd