

# Data Validation Report

Project: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling  
 Portland Harbor Superfund Site  
 Subsurface Sediment – Deep Core Stations

Laboratory: TestAmerica Laboratories, Incorporated, Seattle, WA

Laboratory Group: 580-79257-1

Analyses/Method: Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs),  
 Total Organic Carbon (TOC), Total Solids, and Grain Size

Validation Level: Stage 2A/Stage 4 on EPA split sample (PDI-SC-S062-4to6)

AECOM Project

Number: 60566335, Task #2.12

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Completed on: November 29, 2018

Reviewed by: Amy Dahl/AECOM

File Name: 580-79257-1 DVR

## SUMMARY

The data quality review of 22 subsurface sediment samples and one rinsate blank collected on July 31 and August 1, 2018, has been completed. Samples were analyzed for PAHs by EPA Method 8270D modified by selected ion monitoring (SIM), PCBs by EPA Method 8082A, TOC by EPA Method 9060 (subsurface sediments) and Standard Method (SM) 5310B (water), total solids by American Society for Testing and Materials (ASTM) Method D-2216, moisture content at 70 degrees Celsius (°C), and grain size by ASTM Method D7928/D6913 by TestAmerica Laboratories, Incorporated (TA) located in Tacoma, Washington. The analyses were performed in general accordance with the methods specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)*, *Standard Methods for the Examination of Water and Wastewater*, and *Annual Book of ASTM Standards*, American Society for Testing & Materials (ASTM), Philadelphia, Pennsylvania. The laboratory provided level 2 and level 4 data packages containing sample results, and associated quality assurance (QA) and quality control (QC) data, preparation logs, and raw instrument outputs (where applicable). The following samples are associated with laboratory group 580-79257-1:

Sample ID	Laboratory ID
PDI-SC-S062-0to2	580-79257-1
PDI-SC-S062-2to4	580-79257-2
PDI-SC-S062-4to6 (EPA split sample)	580-79257-3
PDI-SC-S062-6to7.7	580-79257-4
PDI-SC-S023-0to2	580-79257-5
PDI-SC-S023-2to3.9	580-79257-6
PDI-SC-S023-3.9to5.3	580-79257-7
PDI-SC-S023-5.3to7.2	580-79257-8
PDI-SC-S023-7.2to8.8	580-79257-9
PDI-SC-S031-0to2	580-79257-10
PDI-SC-S031-2to4	580-79257-11
PDI-SC-S031-4to5.5	580-79257-12
PDI-SC-S031-5.5to7	580-79257-13
PDI-SC-S031-7to9.2	580-79257-14
PDI-SC-S038-0to2	580-79257-15
PDI-SC-S038-2to3.4	580-79257-16
PDI-SC-S038-3.4to5.4	580-79257-17



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Sample ID	Laboratory ID
PDI-SC-S038-5.4to7.2	580-79257-18
PDI-SC-S085-0to2	580-79257-19
PDI-SC-S085-2to4	580-79257-20
PDI-SC-S085-4to6.4	580-79257-21
PDI-SC-S085-4to6.4D (Duplicate of PDI-SC-S085-4to6.4)	580-79257-22
PDI-RB-SS-180731 (rinsate blank)	580-79257-23

Data validation is based on method performance criteria and QC criteria documented in the *Quality Assurance Project Plan (QAPP)*, dated March 23, 2018, as amended. If data qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA documents *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017, and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017. Data qualifiers assigned to results reported in this sample set are included in Table 1.

### SAMPLE RECEIPT

Upon receipt by TA, the sample jar information was compared to the associated chain-of-custody (COC) and the cooler temperatures were recorded. The coolers were received at temperatures within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C. The rinsate blank was incorrectly submitted for analysis of PCB congeners on the COC. AECOM instructed TA to log the rinsate blank for PCB Aroclors and revise the COC.

### ORGANIC ANALYSES

Samples were analyzed for PAHs and PCBs by the methods identified in the introduction to this report.

1. Holding Times – Acceptable
2. Initial and Continuing Calibration Verifications – Acceptable except as noted below:

PCBs by Method 8082A – The percent differences (%D) for one or more peaks for the following analytes were outside the control limits of  $\pm 20\%$  in the continuing calibration verifications (CCVs) associated with the analytical batches listed below:

Analytical Batch	Analyte	Column 1 %D	Column 2 %D
281188	PCB-1248	ok	low
	PCB-1242	high	high
	PCB-1221	high	high/low
	PCB-1254	high	ok
	PCB-1016	low	low
	PCB-1260	ok	low
	Surr. DCB	ok	low
281264	PCB-1232	high	high
	PCB-1262	high	high



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Analytical Batch	Analyte	Column 1 %D	Column 2 %D
281264	PCB-1248	high	high/low
	PCB-1242	high	high
	PCB-1221	high	high/low
	PCB-1254	high	ok
	PCB-1016	high	high
	PCB-1260	ok	low
281265	PCB-1232	high	high
	PCB-1262	high	ok
	PCB-1248	high	low
	PCB-1242	high	high/low
	PCB-1221	high	high/low
	PCB-1254	high	ok
	PCB-1016	high	Low
	PCB-1260	ok	Low
	Surr. DCB	ok	Low
281788	PCB-1232	high	ok
	PCB-1262	high	High
	PCB-1248	high	high/low
	PCB-1221	ok	high/low
	PCB-1260	low	low
	PCB-1016	ok	low
281924	PCB-1232	high	high
	PCB-1262	high	high
	PCB-1248	high	high
	PCB-1242	high	high
	PCB-1221	high	high/low
	PCB-1254	high	high
	PCB-1016	high	ok
	PCB-1260	high	low
	Surr. TMX	high	ok
281925	PCB-1232	high	high
	PCB-1262	high	high
	PCB-1248	high	high
	PCB-1242	high	high
	PCB-1221	high	high
	PCB-1254	high	high
	PCB-1016	high	high
	PCB-1260	high	high/low
	Surr. DCB	high	high
	Surr. TMX	high	High

Table notes:  
ok - acceptable  
Surr. DCB – surrogate decachlorobiphenyl  
Surr. TMX – surrogate tetrachloro-m-xylene

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Data were not qualified based on the surrogate %Ds. The above analytes were not detected in the associated samples, reported from the passing column, or qualified for surrogate exceedances; therefore, data were not qualified based on the CCV %Ds with the following exceptions. The results for PCB-1016 in PDI-RB-SS-180731; PCB-1254 in PDI-SC-S062-2to4, PDI-SC-S023-2to3.9, PDI-SC-S023-3.9to5.3, and PDI-SC-S031-5.5to7; and PCB-1260 in PDI-SC-S023-5.3to7.2, PDI-SC-S031-0to2, PDI-SC-S031-2to4, PDI-SC-S031-4to5.5, and PDI-SC-S085-2to4 were qualified as estimated and flagged 'J' or 'UJ' based on the CCV %Ds.

3. Blanks – Acceptable except as noted below:

General – There was one rinsate blank submitted with this laboratory group. PAHs and PCBs were not detected in PDI-RB-SS-180731.

PAHs by Method 8270D-SIM – The following analytes were detected in the method blanks at concentrations between the method detection limits (MDLs) and the reporting limits:

Extraction Date	Analyte	Result
8/2/2018	Benzo[a]anthracene	0.168 ug/kg
	Naphthalene	0.200 ug/kg
	Phenanthrene	0.161 ug/kg
8/7/2018	2-Methylnaphthalene	0.341 ug/kg
	Acenaphthylene	0.330 ug/kg
	Acenaphthene	0.218 ug/kg
	Anthracene	0.165 ug/kg
	Fluoranthene	0.394 ug/kg
	Fluorene	0.119 ug/kg
	Naphthalene	0.313 ug/kg
	Phenanthrene	0.672 ug/kg
Pyrene	0.403 ug/kg	
8/8/2018	2-Methylnaphthalene	0.161 ug/kg
	Anthracene	0.147 ug/kg
	Benzo[a]anthracene	0.325 ug/kg
	Benzo[b]fluoranthene	0.129 ug/kg
	Benzo[k]fluoranthene	0.195 ug/kg
	Phenanthrene	0.298 ug/kg

Benzo[a]anthracene, phenanthrene, acenaphthene, fluoranthene, fluorene, benzo[b]fluoranthene, and pyrene were detected in the associated samples at concentrations greater than the reporting limits and greater than two times the reporting limits; therefore, data were not qualified based on these method blank results with the following exceptions. Fluorene in PDI-SC-S031-5.5to7 and benzo[a]anthracene in PDI-SC-S031-7to9.2 were detected between 1 and 2 times the reporting limits, qualified as estimated, and flagged 'J' based on the method blank results. The result for naphthalene in PDI-SC-S031-4to5.5 was detected between the MDL and reporting limit in a sample that was diluted; therefore, the result was qualified as estimated and flagged 'J' based on the method blank result. The

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results for 2-methylnaphthalene, acenaphthylene, anthracene, and naphthalene in PDI-SC-S031-5.5to7; and 2-methylnaphthalene, anthracene, and benzo[k]fluoranthene in PDI-SC-S031-7to9.2 were detected at concentrations between the reporting limits and MDLs without dilutions; therefore, these results were qualified as not detected and flagged 'U' at the reporting limits.

4. Surrogates – Acceptable except as noted below:

PCBs by EPA Method 8082A – The percent recoveries for decachlorobiphenyl and tetrachloro-m-xylene in the following samples were outside of the control limits as follows:

Sample	Surrogate	% Recovery	Control Limits
PDI-SC-S062-0to2	Decachlorobiphenyl	35%	54-142%
PDI-SC-S062-2to4	Decachlorobiphenyl	51%	54-142%
PDI-SC-S062-4to6	Decachlorobiphenyl	45%	54-142%
PDI-SC-S062-6to7.7	Decachlorobiphenyl	43%	54-142%
PDI-SC-S023-0to2	Decachlorobiphenyl	35%	54-142%
PDI-SC-S023-5.3to7.2	Tetrachloro-m-xylene	55%	58-122%
PDI-SC-S038-5.4to7.2	Decachlorobiphenyl	51%	54-142%
	Tetrachloro-m-xylene	57%	58-122%
PDI-SC-S085-0to2	Decachlorobiphenyl	1808%	54-142%
PDI-SC-S085-2to4	Tetrachloro-m-xylene	51%	58-122%
PDI-SC-S085-4to6.4	Tetrachloro-m-xylene	32%	58-122%
PDI-SC-S085-4to6.4D	Tetrachloro-m-xylene	50%	58-122%
PDI-RB-SS-180731	Decachlorobiphenyl	28%	38-140%
MS (PDI-SC-S062-0to2)	Decachlorobiphenyl	50%	54-142%
MSD (PDI-SC-S062-0to2)	Decachlorobiphenyl	48%	54-142%

MS – matrix spike  
MSD – matrix spike duplicate

Data were not qualified based on surrogate recoveries in QC samples (MS and MSD). As one of the surrogate recoveries was acceptable for all samples except PDI-SC-S038-5.4to7.2, data were not qualified based on these surrogate recoveries. The PCB results in PDI-SC-S038-5.4to7.2 were qualified as estimated and flagged 'UJ' based on the surrogate recoveries.

5. Internal Standards – Acceptable except as noted below:

PCBs by EPA Method 8082A – The internal standard for the continuing calibration blank (CCB) associated with analytical batch 281264 was outside of the acceptance criteria on one column. The CCB was reported from the other column which met the internal standard criteria; therefore, no data were qualified based on this internal standard response.

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6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – Acceptable except as noted below:

PAHs by Method 8270D-SIM – The percent recoveries in the LCSD and/or relative percent differences (RPDs) for the LCS/LCSD pair were outside of the control limits in the LCS/LCSD extracted on August 6, 2018:

Analyte	LCS	LCSD	RPD	Control Limits (Matrix Spike / RPD)
2-Methylnaphthalene	ok	ok	26%	53-120% / 23%
Acenaphthene	ok	ok	29%	64-120% / 20%
Anthracene	ok	ok	29%	46-127% / 19%
Benzo[a]anthracene	ok	ok	23%	70-120% / 17%
Chrysene	ok	139%	30%	65-120% / 19%
Fluoranthene	ok	ok	27%	72-120% / 21%
Benzo[b]fluoranthene	ok	136%	31%	57-132% / 25%
Fluorene	ok	ok	28%	67-120% / 20%
Benzo[k]fluoranthene	ok	145%	25%	61-132% / 22%
Naphthalene	ok	ok	26%	58-120% / 23%
Indeno[1,2,3-cd]pyrene	ok	151%	27%	53-133% / 25%
Phenanthrene	ok	ok	27%	69-120% / 21%
Dibenz(a,h)anthracene	ok	143%	ok	57-132% / 23%
Pyrene	ok	ok	26%	57-133% / 21%

ok - acceptable

As two of the three quality control parameters (LCS, LCSD, and RPD) were acceptable or the analytes were not detected in the associated samples, data were not qualified based on the LCS/LCSD results.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable except as noted below:

PCBs by EPA Method 8082A – An MS/MSD was performed using PDI-SC-S062-0to2. The percent recoveries for the following analytes were outside of the control limits:

Analyte	MS	MSD	RPD	Control Limits (Matrix Spike / RPD)
PCB-1016	61%	ok	ok	64-120%
PCB-1260	58%	ok	ok	63-130%

ok - acceptable

As the percent recovery in the MSD and the RPD for the MS/MSD pair were acceptable; data were not qualified for PCB-1016 and PCB1260 based on the MS results.

PAHs by Method 8270D-SIM – An MS/MSD was not performed on a sample from this laboratory group. Accuracy and precision were assessed using the LCS/LCSD.

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8. Field Duplicate – Acceptable

General – A field duplicate was submitted for PDI-SC-S085-4to6.4 and identified as PDI-SC-S085-4to6.4D. Results were comparable.

9. Calculation Checks – Acceptable

A calculation check was performed for PDI-SC-S062-4to6. The review confirmed the final results were correct as reported.

10. Reporting Limits and Chromatographic Review – Acceptable except as noted below:

General – Chromatograms/spectra for PDI-SC-S062-4to6 were reviewed to confirm target analytes were properly identified. The review confirmed target analytes were properly identified and reported by the laboratory.

One or more results were flagged 'J' by the laboratory to indicate the reported concentrations were above the MDLs but below the reporting limits. Laboratory 'J'-flagged results are considered estimated. As the result is between the MDL and the reporting limit, there is a greater level of uncertainty associated with the numerical result.

PCBs by EPA Method 8082A – The reporting limits for several PCBs reported as not detected in PDI-SC-S031-0to2 were elevated due to the dilution necessary to quantitate the high concentration of Aroclor 1254 present in the sample.

11. Other Items of Note:

PCBs by EPA Method 8082A – The laboratory noted that samples PDI-SC-S062-0to2, PDI-SC-S062-2to4, PDI-SC-S062-4to6, PDI-SC-S062-6to7.7, and PDI-SC-S023-0to2 required a copper clean-up to reduce matrix interferences caused by sulfur.

The RPD between the primary and confirmation columns exceeded 40% for Aroclor 1254 in PDI-SC-S062-2to4 and PDI-SC-S023-0to2 and Aroclor 1260 in PDI-SC-S038-0to2 and PDI-SC-S085-0to2. Aroclor 1254 in PDI-SC-S062-2to4 and Aroclor 1260 in PDI-SC-S085-0to2 were qualified for CCV or identification issues and were not qualified for confirmation column RPD. Aroclor 1254 in PDI-SC-S023-0to2 and Aroclor 1260 in PDI-SC-S038-0to2 were qualified 'J' based on the confirmation column RPD.

The laboratory noted that PDI-SC-S062-0to2, PDI-SC-S062-2to4, PDI-SC-S062-4to6, PDI-SC-S062-6to7.7, PDI-SC-S023-0to2, and PDI-SC-S085-0to2 contained more than one Aroclor with insufficient separation and signs of weathering/matrix interference to be able to quantify individually. The PCBs present are quantified as the predominant Aroclor. The results for PCB-1254 in PDI-SC-S062-2to4 and PDI-SC-S023-0to2 were qualified as estimated and flagged 'J' based on other QC exceedances and no further qualification was necessary based on this identification issue. The result for Aroclor 1260 in PDI-SC-S085-0to2 was qualified as estimated and flagged 'J' based on this identification issue.

The laboratory noted that PDI-SC-S023-5.3to7.2 appeared to contain PCBs; however, due to weathering or other environmental processes, the PCBs in the sample do not closely match any of the laboratory's Aroclor standards used for instrument calibration. The sample has been quantified as a mixture of Aroclors 1254 and 1260. As per SOP standards, only the highest recovering Aroclor has been reported. Due to the poor match with the Aroclor



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standard, there is increased qualitative and quantitative uncertainty associated with this result. The result for PCB-1260 was qualified as estimated and flagged 'J' based on the CCV %D and no further qualification was necessary based on this identification issue.

**CONVENTIONAL ANALYSES**

Samples were analyzed for TOC and total solids by the methods identified in the introduction to this report.

1. Holding Times – Acceptable
2. Initial and Continuing Calibrations – Acceptable
3. Blanks – Acceptable where applicable, except as noted below:

TOC by Method 9060 – Laboratory method blanks and CCBs were analyzed with the samples, as appropriate. TOC was detected in the method blanks associated with analytical batches 281501 (120 mg/kg) and 281505 (100 mg/kg) and several CCBs at concentrations below the reporting limits but above the MDLs. The results for TOC in the associated samples were reported at concentrations significantly greater than the blank detections; therefore, data were not qualified based on these blank results.

There was one rinsate blank submitted with this laboratory group. TOC (0.27 mg/L) was detected in PDI-RB-SS-180731 at a concentration below the reporting limit but above the MDL. Sediment data were not qualified based on rinsate blank results.

4. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) - Acceptable
5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable

TOC by Method 9060 – MS/MSDs were performed using PDI-SC-S062-0to2 and PDI-SC-S085-4to6.4. Results were acceptable.

6. Field Duplicate – Acceptable

A field duplicate was submitted for PDI-SC-S085-4to6.4 and identified as PDI-SC-S085-4to6.4D. Results were comparable.

7. Laboratory Replicate – Acceptable

TOC by Method 9060 – Laboratory duplicates and triplicates were performed using PDI-SC-S062-0to2 and PDI-SC-S085-4to6.4. Results were comparable.

Total Solids by Method D2216 – Laboratory duplicates were performed using PDI-SC-S031-2to4 and PDI-SC-S085-4to6.4. Results were comparable.

Moisture Content at 70°C – Laboratory duplicates were performed using PDI-SC-S062-0to2. Results were comparable.





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#### 8. Calculation Checks – Acceptable

A calculation check was performed for sample PDI-SC-S062-4to6. The review confirmed the final results were correct as reported.

#### 9. Reporting Limits – Acceptable

TOC by Method 9060 – TOC in PDI-RB-SS-180731 was reported at a concentration between the reporting limit and the MDL and was flagged 'J' by the laboratory. As described above, laboratory 'J'-flagged results are considered estimated results.

## GRAIN SIZE ANALYSES

Samples were analyzed for grain size by the methods identified in the introduction to this report. The data were reviewed to confirm that the required grain size fractions identified in the QAPP were reported for each sample.

#### 1. Laboratory Duplicate – Acceptable

The laboratory performed duplicate analysis at a rate of 1 per 20 samples per their internal requirements. A laboratory duplicate was performed on PDI-SC-S062-0to2. Results were comparable.

## OVERALL ASSESSMENT OF DATA

The data reported in this laboratory group, as qualified, is considered usable for meeting project objectives. The completeness for laboratory group 580-79257-1 is 100%.

**Table 1**  
**QA/QC Data Summary Review**  
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Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S062-2TO4	580-79257-2	SW8082A	Aroclor 1254	1.9 J	ug/kg	1.9 J	c
PDI-SC-S023-0TO2	580-79257-5	SW8082A	Aroclor 1254	3.8	ug/kg	3.8 J	r
PDI-SC-S023-2TO3.9	580-79257-6	SW8082A	Aroclor 1254	16	ug/kg	16 J	c
PDI-SC-S023-3.9TO5.3	580-79257-7	SW8082A	Aroclor 1254	5.2 J	ug/kg	5.2 J	c
PDI-SC-S023-5.3TO7.2	580-79257-8	SW8082A	Aroclor 1260	13	ug/kg	13 J	c
PDI-SC-S031-0TO2	580-79257-10	SW8082A	Aroclor 1260	74 U	ug/kg	74 UJ	c
PDI-SC-S031-2TO4	580-79257-11	SW8082A	Aroclor 1260	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S031-4TO5.5	580-79257-12	SW8082A	Aroclor 1260	2.6 U	ug/kg	2.6 UJ	c
PDI-SC-S031-4TO5.5	580-79257-12	SW8270DSIM	Naphthalene	2.2 J	ug/kg	2.2 J	bl
PDI-SC-S031-5.5TO7	580-79257-13	SW8082A	Aroclor 1254	3.1	ug/kg	3.1 J	c
PDI-SC-S031-5.5TO7	580-79257-13	SW8270DSIM	2-Methylnaphthalene	0.92 J	ug/kg	1.4 U	bl
PDI-SC-S031-5.5TO7	580-79257-13	SW8270DSIM	Acenaphthylene	0.79 J	ug/kg	1.4 U	bl
PDI-SC-S031-5.5TO7	580-79257-13	SW8270DSIM	Anthracene	0.92 J	ug/kg	1.4 U	bl
PDI-SC-S031-5.5TO7	580-79257-13	SW8270DSIM	Fluorene	1.4	ug/kg	1.4 J	bl
PDI-SC-S031-5.5TO7	580-79257-13	SW8270DSIM	Naphthalene	1.3 J	ug/kg	1.4 U	bl
PDI-SC-S031-7TO9.2	580-79257-14	SW8270DSIM	2-Methylnaphthalene	0.68 J	ug/kg	1.4 U	bl
PDI-SC-S031-7TO9.2	580-79257-14	SW8270DSIM	Anthracene	0.86 J	ug/kg	1.4 U	bl
PDI-SC-S031-7TO9.2	580-79257-14	SW8270DSIM	Benzo(a)anthracene	1.8	ug/kg	1.8 J	bl
PDI-SC-S031-7TO9.2	580-79257-14	SW8270DSIM	Benzo(k)fluoranthene	0.90 J	ug/kg	1.4 U	bl
PDI-SC-S038-0TO2	580-79257-15	SW8082A	Aroclor 1260	3.5 J	ug/kg	3.5 J	r
PDI-SC-S038-5.4TO7.2	580-79257-18	SW8082A	Aroclor 1016	6.8 U	ug/kg	6.8 UJ	s
PDI-SC-S038-5.4TO7.2	580-79257-18	SW8082A	Aroclor 1221	6.8 U	ug/kg	6.8 UJ	s
PDI-SC-S038-5.4TO7.2	580-79257-18	SW8082A	Aroclor 1232	6.8 U	ug/kg	6.8 UJ	s
PDI-SC-S038-5.4TO7.2	580-79257-18	SW8082A	Aroclor 1242	6.8 U	ug/kg	6.8 UJ	s
PDI-SC-S038-5.4TO7.2	580-79257-18	SW8082A	Aroclor 1248	6.8 U	ug/kg	6.8 UJ	s
PDI-SC-S038-5.4TO7.2	580-79257-18	SW8082A	Aroclor 1254	6.8 U	ug/kg	6.8 UJ	s
PDI-SC-S038-5.4TO7.2	580-79257-18	SW8082A	Aroclor 1260	6.8 U	ug/kg	6.8 UJ	s
PDI-SC-S085-0TO2	580-79257-19	SW8082A	Aroclor 1260	52	ug/kg	52 J	q
PDI-SC-S085-2TO4	580-79257-20	SW8082A	Aroclor 1260	6.5 U	ug/kg	6.5 UJ	c
PDI-RB-SS-180731	580-79257-23	SW8082A	Aroclor 1016	0.44 U	ug/L	0.44 UJ	c

Notes:

bl - laboratory blank contamination

c - calibration issue

J - estimated value

q - quantitation issue

r - dual column relative percent difference

s - surrogate recovery

U - compound was analyzed for, but not detected above the value shown.

ug/kg - microgram per kilogram

ug/L - microgram per liter

Note: Line items where the laboratory result contains a "J" and the final result contains a "U" with a data validation reason code "bl" indicate that the final result is reported as not detected ("U" flag) at the reporting limit.