

# Data Validation Report

Project:	Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	
Laboratory:	Test America, Knoxville, Tennessee	
Service Request:	580-81511-3	
Analyses/Method:	Chlorinated Biphenyls by HRGC/HRMS / E1668A	
Validation Level:	Stage 2A	
AECOM Project Number:	60566335.2.12	
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## SUMMARY

The samples listed below were collected by AECOM in Portland Harbor in Portland, OR on October 31, 2018.

Sample ID	Matrix/Sample Type
PDI-ST-T06B-1810	Sediment
PDI-ST-T06A-1810	Sediment
PDI-ST-T07A-1810	Sediment
PDI-ST-T07B-1810	Sediment
PDI-RB-ST-1810	Equipment Rinsate Blank

Data validation activities were conducted with reference to:

- *EPA Method 1668A: Chlorinated Biphenyl Congeners in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS (USEPA, August 2003),*
- *USEPA Contract Laboratory Program National Functional Guidelines for High Resolution Superfund Methods Data Review (April 2016),*
- *Quality Assurance Project Plan, Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling, Portland Harbor Superfund Site (March 2018), and the*
- laboratory quality control (QC) limits.

The National Functional Guidelines were modified to accommodate the non-CLP methodologies. In the absence of method-specific information, laboratory QC limits, project-specific requirements and/or AECOM professional judgment were used as appropriate.

## REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness [chain-of-custody (COC)/sample integrity]

✓	Holding times and sample preservation
✗	Laboratory blanks/equipment blanks
NA	Matrix spike (MS) and/or matrix spike duplicate (MSD) results
✓	Ongoing precision and recovery results
NA	Field duplicate results
✗	Labeled compounds and labeled clean-up standard recoveries
✗	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. An NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as qualified and may be used for decision making purposes. Select data points were qualified as estimated or negated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

## RESULTS

### Data Completeness (COC)/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

### Holding Times and Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with method criteria. The method QC acceptance criteria were met.

An extra container for each sediment sample was provided to be archived frozen at the TestAmerica Sacramento laboratory pending potential additional analyses.

### Laboratory Blanks/Equipment Blanks

Method and equipment rinsate blank results are evaluated as to whether there are contaminants detected above the estimated detection limit (EDL).

Target compounds were detected in the laboratory method blanks and the equipment rinsate blank associated with the samples in this data set. The equipment rinsate blank contamination, after laboratory method blank actions were applied, is summarized below for informational purposes only. Equipment rinsate blank contamination was not used to qualify field samples.

Blank ID	Compound	Result	EDL	Units
PDI-RB-ST-1810	PCB-101	0.0082	0.00028	ng/L
	PCB-105	0.0020	0.00045	ng/L
	PCB-109	0.0034	0.00027	ng/L
	PCB-11	0.021	0.0060	ng/L
	PCB-110	0.0074	0.00023	ng/L
	PCB-113	0.0082	0.00028	ng/L
	PCB-115	0.0074	0.00023	ng/L
	PCB-118	0.0032	0.00045	ng/L
	PCB-119	0.0034	0.00027	ng/L
	PCB-125	0.0034	0.00027	ng/L
	PCB-129	0.0032	0.00036	ng/L
	PCB-135	0.0018	0.00024	ng/L
	PCB-138	0.0032	0.00036	ng/L
	PCB-141	0.0022	0.00042	ng/L
	PCB-151	0.0018	0.00024	ng/L
	PCB-153	0.0030	0.00031	ng/L
	PCB-156	0.00059	0.00038	ng/L
	PCB-157	0.00059	0.00038	ng/L
	PCB-16	0.0025	0.00085	ng/L
	PCB-160	0.0032	0.00036	ng/L
	PCB-163	0.0032	0.00036	ng/L
	PCB-168	0.0030	0.00031	ng/L
	PCB-17	0.0032	0.00076	ng/L
	PCB-18	0.011	0.00067	ng/L
	PCB-180	0.0024	0.00034	ng/L
	PCB-183	0.0026	0.00040	ng/L
	PCB-185	0.0026	0.00040	ng/L
	PCB-19	0.0019	0.00093	ng/L
	PCB-193	0.0024	0.00034	ng/L
	PCB-2	0.0044	0.00040	ng/L
	PCB-20	0.0067	0.00086	ng/L
	PCB-22	0.0020	0.00088	ng/L
	PCB-28	0.0067	0.00086	ng/L
	PCB-3	0.0027	0.00045	ng/L
	PCB-30	0.011	0.00067	ng/L
	PCB-31	0.0035	0.00084	ng/L
	PCB-32	0.0038	0.00053	ng/L
	PCB-44	0.011	0.0012	ng/L
	PCB-47	0.011	0.0012	ng/L
	PCB-52	0.0047	0.0013	ng/L
PCB-56	0.0020	0.00099	ng/L	
PCB-61	0.0046	0.00095	ng/L	
PCB-64	0.0017	0.00091	ng/L	

Blank ID	Compound	Result	EDL	Units
	PCB-65	0.011	0.0012	ng/L
	PCB-66	0.0039	0.00094	ng/L
	PCB-70	0.0046	0.00095	ng/L
	PCB-74	0.0046	0.00095	ng/L
	PCB-76	0.0046	0.00095	ng/L
	PCB-8	0.0066	0.0057	ng/L
	PCB-83	0.0043	0.00033	ng/L
	PCB-84	0.0024	0.00037	ng/L
	PCB-86	0.0034	0.00027	ng/L
	PCB-87	0.0034	0.00027	ng/L
	PCB-88	0.0019	0.00033	ng/L
	PCB-90	0.0082	0.00028	ng/L
	PCB-91	0.0019	0.00033	ng/L
	PCB-95	0.0086	0.00034	ng/L
	PCB-97	0.0034	0.00027	ng/L
	PCB-99	0.0043	0.00033	ng/L

The NFG guidance stipulates that a conservative approach should be taken with regards to qualification of PCB congeners due to the toxicity of these compounds and the reporting of false negative results should be avoided. Therefore, in order to avoid the reporting of false negative results, professional judgment was used to qualify the data in the following manner. As allowed in the NFG, a blank action limit (BAL) was determined as 5 times the method blank result:

- When the sample results were < the method blank result, the sample result was qualified as nondetect (U) at the sample result.
- When the sample result was  $\geq$  the method blank result and  $\leq$  the BAL, the sample result was qualified as estimated and potentially biased high (J+).
- When the sample result was > the BAL, sample result was not qualified.

Qualified sample results are summarized in Table 1. Method blank detected compounds for method blanks are summarized in Attachment A, Table A-1.

### **MS/MSD Results**

MS/MSD analyses were not performed on a sample in this data set. No data validation actions were taken on this basis.

### **Ongoing Precision and Recovery (OPR)**

The OPR percent recoveries (%Rs) and/or relative percent differences (RPDs) were reviewed for conformance with the method QC acceptance criteria. The method QC acceptance criteria were met.

### **Field Duplicate Results**

A field duplicate was not submitted with this data set.

### **Labeled Compounds and Labeled Clean-up Standard Recoveries**

The labeled compounds and labeled clean-up standard %Rs were reviewed for conformance with the QC acceptance criteria. The method QC acceptance criteria were met.

It was noted in the laboratory case narrative that ion abundance ratios (IARs) were outside acceptance criteria for one or more of the labeled compounds associated with sample LCSD 140-25296/13-B. The laboratory control sample recoveries and RPDs were within acceptance limits. The labeled compound IARs for the samples were within acceptance criteria. Qualification of sample results based on a quality control sample with IARs outside control limits is not considered necessary.

### **Sample Results/Reporting Issues**

The sample results detected at concentrations less than the lowest calibration standard (or PQL) but greater than the EDL are qualified by the laboratory as estimated (J). This "J" qualifier is retained during data validation.

The laboratory qualified the sample results with a "q" to indicate that the non-labeled ion abundance ratio was outside of the QC acceptance limits; the result should be considered as an Estimated Maximum Possible Concentration (EMPC). These results were qualified as estimated and tentatively identified (JN). Qualified sample results are summarized in Table 1.

It should be noted that the "JN" qualifier was retained rather than replacement with the conventional overall "J", "J+", and "J-" qualifiers in instances where sample results were qualified for multiple quality control nonconformances.

### **Percent Solids Content**

The percent solids data were reviewed since the amount of moisture in a solid sample may have an impact on data representativeness. Due to the extremely low solubility of PCB congeners in water, these analytes should be contained in the solid phase. Consequently, the NFG guidance does not stipulate a percent solids criterion. If applicable, EPA Regional guidance is used when assessing percent solids content. In the absence of EPA Regional guidance, AECOM uses 30% solids (from the NFG semivolatiles guidance) as a benchmark to evaluate the percent solids content and professional judgment is used to determine the necessity to qualify data. Data were not qualified on the basis of percent solids content.

### **QUALIFICATION ACTIONS**

Sample results qualified as a result of validation actions are summarized in Table 1. The actions are described above.

**ATTACHMENTS**

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

**Table 1 - Data Validation Summary of Qualified Data**

Sample ID	Matrix	Compound	Result	EDL	Unit	Validation Qualifier	Validation Reason
PDI-RB-ST-1810	WQ	PCB-101	0.0082	0.00028	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-109	0.0034	0.00027	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-11	0.021	0.0060	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-110	0.0074	0.00023	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-113	0.0082	0.00028	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-115	0.0074	0.00023	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-118	0.0032	0.00045	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-119	0.0034	0.00027	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-125	0.0034	0.00027	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-129	0.0032	0.00036	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-135	0.0018	0.00024	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-138	0.0032	0.00036	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-147		0.0029	ng/L	U	bl
PDI-RB-ST-1810	WQ	PCB-149		0.0029	ng/L	U	bl
PDI-RB-ST-1810	WQ	PCB-151	0.0018	0.00024	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-153	0.0030	0.00031	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-156	0.00059	0.00038	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-157	0.00059	0.00038	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-16	0.0025	0.00085	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-160	0.0032	0.00036	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-163	0.0032	0.00036	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-168	0.0030	0.00031	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-17	0.0032	0.00076	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-180	0.0024	0.00034	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-183	0.0026	0.00040	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-185	0.0026	0.00040	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-193	0.0024	0.00034	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-2	0.0044	0.00040	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-22	0.0020	0.00088	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-3	0.0027	0.00045	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-31	0.0035	0.00084	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-32	0.0038	0.00053	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-44	0.011	0.0012	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-47	0.011	0.0012	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-52	0.0047	0.0013	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-56	0.0020	0.00099	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-61	0.0046	0.00095	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-64	0.0017	0.00091	ng/L	JN	k

Sample ID	Matrix	Compound	Result	EDL	Unit	Validation Qualifier	Validation Reason
PDI-RB-ST-1810	WQ	PCB-65	0.011	0.0012	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-66	0.0039	0.00094	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-70	0.0046	0.00095	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-74	0.0046	0.00095	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-76	0.0046	0.00095	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-8	0.0066	0.0057	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-83	0.0043	0.00033	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-84	0.0024	0.00037	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-86	0.0034	0.00027	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-87	0.0034	0.00027	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-88	0.0019	0.00033	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-90	0.0082	0.00028	ng/L	J+	bl
PDI-RB-ST-1810	WQ	PCB-91	0.0019	0.00033	ng/L	JN	k
PDI-RB-ST-1810	WQ	PCB-97	0.0034	0.00027	ng/L	JN	bl,k
PDI-RB-ST-1810	WQ	PCB-99	0.0043	0.00033	ng/L	J+	bl
PDI-ST-T06A-1810	SE	PCB-10	0.0035	0.0035	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-102	0.035	0.00058	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-107	0.10	0.0033	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-12	0.0057	0.0031	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-122	0.022	0.0036	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-123	0.033	0.0031	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-126	0.020	0.0033	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-13	0.0057	0.0031	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-148	0.0030	0.00074	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-162	0.0070	0.0035	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-200	0.015	0.0016	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-201	0.012	0.0017	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-208	0.019	0.0042	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-21	0.021	0.0013	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-33	0.021	0.0013	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-4	0.054	0.0044	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-63	0.0074	0.0020	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-77	0.048	0.0022	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-79	0.0059	0.0020	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-96	0.012	0.00051	ng/g	JN	k
PDI-ST-T06A-1810	SE	PCB-98	0.035	0.00058	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-103	0.013	0.00062	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-12	0.0042	0.0030	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-123	0.044	0.0035	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-13	0.0042	0.0030	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-145	0.0037	0.00074	ng/g	JN	k



Sample ID	Matrix	Compound	Result	EDL	Unit	Validation Qualifier	Validation Reason
PDI-ST-T06B-1810	SE	PCB-148	0.0030	0.0010	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-15	0.016	0.0031	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-16	0.0060	0.00054	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-17	0.015	0.00048	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-189	0.020	0.0033	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-197	0.0042	0.0019	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-2	0.0026	0.00048	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-201	0.012	0.0017	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-206	0.065	0.0051	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-21	0.020	0.0014	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-33	0.020	0.0014	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-35	0.0039	0.0015	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-4	0.016	0.0042	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-45	0.023	0.0039	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-46	0.0083	0.0047	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-51	0.023	0.0039	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-54	0.0042	0.00015	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-55	0.0093	0.0027	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-6	0.0036	0.0029	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-8	0.013	0.0027	ng/g	JN	k
PDI-ST-T06B-1810	SE	PCB-94	0.012	0.00071	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-100	0.0047	0.00070	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-112	0.0039	0.00052	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-114	0.0056	0.0027	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-12	0.0049	0.0034	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-13	0.0049	0.0034	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-139	0.0090	0.0045	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-140	0.0090	0.0045	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-148	0.0026	0.00040	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-15	0.018	0.0034	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-150	0.0019	0.00027	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-159	0.0040	0.0034	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-16	0.011	0.00065	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-17	0.020	0.00058	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-172	0.021	0.0023	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-176	0.011	0.0016	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-178	0.023	0.0022	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-198	0.067	0.0019	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-199	0.067	0.0019	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-206	0.042	0.0050	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-27	0.0036	0.00042	ng/g	JN	k

Sample ID	Matrix	Compound	Result	EDL	Unit	Validation Qualifier	Validation Reason
PDI-ST-T07A-1810	SE	PCB-32	0.013	0.00040	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-43	0.0043	0.0025	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-46	0.0052	0.0034	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-50	0.0092	0.0026	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-53	0.0092	0.0026	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-55	0.0057	0.0019	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-67	0.0023	0.0017	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-72	0.0049	0.0019	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-73	0.0043	0.0025	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-8	0.015	0.0031	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-82	0.032	0.00081	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-88	0.049	0.00073	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-89	0.0034	0.00079	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-91	0.049	0.00073	ng/g	JN	k
PDI-ST-T07A-1810	SE	PCB-93	0.0047	0.00070	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-1	0.0015	0.00045	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-100	0.0026	0.00049	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-109	0.14	0.00042	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-114	0.0035	0.0024	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-119	0.14	0.00042	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-12	0.0040	0.0032	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-120	0.0015	0.00035	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-123	0.0036	0.0026	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-125	0.14	0.00042	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-13	0.0040	0.0032	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-130	0.020	0.0047	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-133	0.0054	0.0044	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-135	0.084	0.00039	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-136	0.029	0.00028	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-15	0.016	0.0035	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-151	0.084	0.00039	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-154	0.0073	0.00031	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-16	0.0084	0.00043	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-171	0.028	0.0019	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-173	0.028	0.0019	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-178	0.024	0.0018	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-19	0.0030	0.00048	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-196	0.023	0.0014	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-200	0.0069	0.00097	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-208	0.013	0.0045	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-24	0.0015	0.00033	ng/g	JN	k

Sample ID	Matrix	Compound	Result	EDL	Unit	Validation Qualifier	Validation Reason
PDI-ST-T07B-1810	SE	PCB-27	0.0019	0.00028	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-4	0.0070	0.0043	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-45	0.0076	0.0027	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-51	0.0076	0.0027	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-55	0.0041	0.0018	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-6	0.0040	0.0032	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-8	0.012	0.0030	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-82	0.025	0.00056	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-86	0.14	0.00042	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-87	0.14	0.00042	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-93	0.0026	0.00049	ng/g	JN	k
PDI-ST-T07B-1810	SE	PCB-97	0.14	0.00042	ng/g	JN	k

## Attachment A

## Nonconformance Summary Tables

Table A-1 – Laboratory Blanks

Blank ID	Compound	Result	QL	Unit	BAL	Associated Samples
MB 140-25296/11-B	PCB-101	0.000896	0.030	ng/g	0.00448	PDI-ST-T06B-1810 PDI-ST-T06A-1810 PDI-ST-T07A-1810 PDI-ST-T07B-1810
	PCB-110	0.000484	0.020	ng/g	0.00242	
	PCB-113	0.000896	0.030	ng/g	0.00448	
	PCB-115	0.000484	0.020	ng/g	0.00242	
	PCB-129	0.00107	0.040	ng/g	0.00535	
	PCB-138	0.00107	0.040	ng/g	0.00535	
	PCB-160	0.00107	0.040	ng/g	0.00535	
	PCB-163	0.00107	0.040	ng/g	0.00535	
	PCB-167	0.000387	0.010	ng/g	0.001935	
	PCB-20	0.000874	0.020	ng/g	0.00437	
	PCB-21	0.000605	0.020	ng/g	0.003025	
	PCB-28	0.000874	0.020	ng/g	0.00437	
	PCB-33	0.000605	0.020	ng/g	0.003025	
	PCB-44	0.00205	0.030	ng/g	0.01025	
	PCB-47	0.00205	0.030	ng/g	0.01025	
	PCB-61	0.000571	0.040	ng/g	0.002855	
	PCB-65	0.00205	0.030	ng/g	0.01025	
	PCB-66	0.00100	0.010	ng/g	0.005	
	PCB-70	0.000571	0.040	ng/g	0.002855	
	PCB-74	0.000571	0.040	ng/g	0.002855	
PCB-76	0.000571	0.040	ng/g	0.002855		
PCB-90	0.000896	0.030	ng/g	0.00448		
PCB-95	0.000344	0.010	ng/g	0.00172		
MB 140-25438/11-A	PCB-100	0.000567	0.080	ng/L	0.002835	PDI-RB-ST-1810
	PCB-101	0.00388	0.12	ng/L	0.0194	
	PCB-109	0.00303	0.24	ng/L	0.01515	
	PCB-11	0.0123	0.060	ng/L	0.0615	
	PCB-110	0.00261	0.080	ng/L	0.01305	
	PCB-113	0.00388	0.12	ng/L	0.0194	
	PCB-115	0.00261	0.080	ng/L	0.01305	
	PCB-118	0.00164	0.040	ng/L	0.0082	
	PCB-119	0.00303	0.24	ng/L	0.01515	
	PCB-125	0.00303	0.24	ng/L	0.01515	
	PCB-129	0.00232	0.16	ng/L	0.0116	
	PCB-138	0.00232	0.16	ng/L	0.0116	
	PCB-147	0.00314	0.080	ng/L	0.0157	
	PCB-149	0.00314	0.080	ng/L	0.0157	
	PCB-153	0.00169	0.080	ng/L	0.00845	
	PCB-160	0.00232	0.16	ng/L	0.0116	
	PCB-163	0.00232	0.16	ng/L	0.0116	
	PCB-168	0.00169	0.080	ng/L	0.00845	
	PCB-17	0.00119	0.040	ng/L	0.00595	
	PCB-172	0.000442	0.040	ng/L	0.00221	
PCB-18	0.000683	0.080	ng/L	0.003415		

Blank ID	Compound	Result	QL	Unit	BAL	Associated Samples
	PCB-180	0.000909	0.080	ng/L	0.004545	
	PCB-183	0.000815	0.080	ng/L	0.004075	
	PCB-185	0.000815	0.080	ng/L	0.004075	
	PCB-190	0.000361	0.040	ng/L	0.001805	
	PCB-193	0.000909	0.080	ng/L	0.004545	
	PCB-198	0.00158	0.080	ng/L	0.0079	
	PCB-199	0.00158	0.080	ng/L	0.0079	
	PCB-2	0.00149	0.040	ng/L	0.00745	
	PCB-203	0.00159	0.040	ng/L	0.00795	
	PCB-21	0.00134	0.080	ng/L	0.0067	
	PCB-26	0.00104	0.080	ng/L	0.0052	
	PCB-29	0.00104	0.080	ng/L	0.0052	
	PCB-3	0.000814	0.040	ng/L	0.00407	
	PCB-30	0.000683	0.080	ng/L	0.003415	
	PCB-31	0.00198	0.040	ng/L	0.0099	
	PCB-32	0.00159	0.040	ng/L	0.00795	
	PCB-33	0.00134	0.080	ng/L	0.0067	
	PCB-44	0.00956	0.12	ng/L	0.0478	
	PCB-45	0.00210	0.080	ng/L	0.0105	
	PCB-47	0.00956	0.12	ng/L	0.0478	
	PCB-51	0.00210	0.080	ng/L	0.0105	
	PCB-52	0.00237	0.040	ng/L	0.01185	
	PCB-56	0.000858	0.040	ng/L	0.00429	
	PCB-61	0.00388	0.16	ng/L	0.0194	
	PCB-65	0.00956	0.12	ng/L	0.0478	
	PCB-66	0.00127	0.040	ng/L	0.00635	
	PCB-68	0.00167	0.040	ng/L	0.00835	
	PCB-70	0.00388	0.16	ng/L	0.0194	
	PCB-74	0.00388	0.16	ng/L	0.0194	
	PCB-76	0.00388	0.16	ng/L	0.0194	
	PCB-83	0.00226	0.080	ng/L	0.0113	
	PCB-84	0.00141	0.040	ng/L	0.00705	
	PCB-86	0.00303	0.24	ng/L	0.01515	
	PCB-87	0.00303	0.24	ng/L	0.01515	
	PCB-90	0.00388	0.12	ng/L	0.0194	
	PCB-93	0.000567	0.080	ng/L	0.002835	
	PCB-97	0.00303	0.24	ng/L	0.01515	
	PCB-99	0.00226	0.080	ng/L	0.0113	

**Attachment B****Qualifier Codes and Explanations**

<b>Qualifier</b>	<b>Explanation</b>
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a potential low bias.
J+	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a potential high bias.
JN	The analyte was tentatively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
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.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
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.

### Attachment C

#### Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
cl	Clean-up standard recovery
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
ma	Multiple analyses. Sample analyzed more than once, a value from another analysis should be used.
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results