

Data Validation Report

Project: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling

Laboratory: SGS-AXYS, Sydney, British Columbia Canada

Service Request: WG65521-PCB

Analyses/Method: Chlorinated Biphenyls by HRGC/HRMS / E1668

Validation Level: Stage 4

AECOM Project Number: 60566335.2.12

Number:

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SUMMARY

The samples listed below were collected by AECOM in Portland Harbor in Portland, OR on August 20-25, 2018.

Sample ID	Matrix/Sample Type
PDI-RB-XD-180820	Equipment Blank
PDI-WS-T01-1808	Surface Water
PDI-WS-T02-1808	Surface Water
PDI-WS-T03-1808	Surface Water
PDI-WS-T04-1808	Surface Water
PDI-WS-T05-1808	Surface Water
PDI-WS-T06-1808	Surface Water
PDI-WS-T07-1808	Surface Water

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),
- *EPA Method 1668B: Chlorinated Biphenyl Congeners in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS* (USEPA, November 2008),
- *EPA Method 1668C: Chlorinated Biphenyl Congeners in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS* (USEPA, April 2010),
- *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
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✗ 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 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. All method QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that

- the perfluorokerosene (PFK) molecular leak was performed at the correct frequency and method acceptance criteria were met;
- the method acceptance criteria were met in the Diluted combined 209 congener standard for the chromatographic resolution on the SPB-octyl column of the congener pairs PCB-34 and PCB-23, and PCB-187 and PCB-182;
- the method acceptance criteria was met in the Diluted combined 209 congener standard for the co-elution of the congener pair PCB-156 and PCB-157 within 2 seconds of the peak maximum on the SPB-octyl column; and
- the retention time for decachlorobiphenyl (PCB 209) was greater than 55 minutes as required by the method.

All method QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

The data were reviewed to ensure that

- the absolute and relative retention time, signal/noise (S/N), and ion abundance ratio method acceptance criteria were met for all native toxics/level of chlorination (LOC) congeners and labeled toxics/LOC/window-defining congeners (as summarized by the laboratory);
- the initial calibration percent relative standard deviation (%RSD) method acceptance criteria were met for all native toxic/LOC congeners, and labeled toxics/LOC/window-defining congeners; and that performance was technically acceptable in the absence of method criteria for additional congeners in the standards; and
- the calibration verification standard (VER) method acceptance criteria were met for all native toxic/LOC congeners, and labeled toxics/LOC/window-defining congeners, and that performance was technically acceptable in the absence of method criteria for additional congeners in the standards.

All method QC acceptance criteria were met.

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 method blank and equipment blank associated with the samples in this data set.

Compounds detected in the laboratory method blank and the equipment blank are summarized in Attachment A in Tables A-1 and A-2, respectively. It should be noted that significant contamination was found in the equipment blank associated with the samples in this data set. Consequently, the sample data were qualified on the basis of the equipment blank contamination as well as the laboratory method blank contamination.

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 manner summarized below.

The data were first qualified for laboratory method blank contamination on the following basis. As allowed in the NFG, a blank action limit (BAL) was determined as five 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 but \leq the BAL, the sample result was qualified as estimated and potentially biased high (J+).
- When the sample result was $>$ the BAL, the sample result was not qualified.

Qualified sample results are summarized in Table 1.

The data were subsequently qualified for equipment blank contamination on the following basis. Again, as allowed in the NFG, a blank action limit (BAL) was determined as five times the equipment blank result.

- When the sample result was \leq the BAL, the sample result was qualified as estimated and potentially biased high (J+).
- When the sample result was $>$ the BAL, the sample result was not qualified.

Qualified sample results are summarized in Table 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

The OPR %Rs were reviewed for conformance with the method QC acceptance criteria. All method QC acceptance criteria were met.

Field Duplicate Results

A field duplicate pair was not submitted with this data set. No data validation actions were taken on this basis.

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. All method QC acceptance criteria were met.

The laboratory spikes the XAD resin with the following labeled compounds prior to deployment to the field: 31L, 95L and 153L. Specific QC acceptance limits have not been established for these compounds. However, the recoveries of these labeled compounds in all samples were found to range between 60.7 to 109%. Consequently, it was determined that the XAD resin performance was acceptable for this sample event and data were not qualified on this basis.

Sample Results/Reporting Issues

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

It should be noted that the sample reported detection limit is the sample specific estimated detection limit (EDL) with the following exceptions. In cases where the EDL is less than the

nominal concentration of 0.5 pg/sample, then the EDL is raised to this nominal concentration and is adjusted to include the appropriate preparation factors.

Compound Identification

The data were reviewed to ensure that

- the retention time, relative retention time, ion abundance ratios, SIM ion co-maximization, and S/N method acceptance criteria were met for compound identification.

Samples were qualified as follows:

Actions: (Based on NFG 2016 and AECOM professional judgment)

Criteria ¹	Actions ²
RRT falls outside of method limits and RT falls outside of window defining mix windows	If there is no peak, consider the analyte as nondetect (U) at the reported EDL for WHO Toxics congeners. Non-WHO Toxic congeners are considered ND at the ML.
S/N criteria not met	Consider the analyte as nondetect (U) at the reported EDL for WHO Toxics congeners
Ion co-maximization and/or ion abundance ratios are outside of QC limits for a PCB congener	Report result as an EMPC and qualify as estimated (JN). ¹
Ion co-maximization and/or ion abundance ratios are outside QC limits for a Labeled compound	Qualify associated positive and nondetect results as estimated (J/UJ). ¹
¹ Based on AECOM professional judgment.	

Qualified sample results are summarized in Table 1.

It should be noted that in instances of multiple nonconformances, the bias is considered indeterminate in cases where a conflicting low and high bias exists or when a result does not exhibit a consistent bias. These results have an overall qualification of estimated (J) with the exception noted below.

When applicable, the "JN" qualifier was retained rather than replacement with the conventional overall "J" qualifier in instances where EMPC results were qualified for multiple quality control nonconformances.

The laboratory noted that peaks for PCB-123 and PCB-126 in select samples were on the tail or shoulder of a larger peak and there was no obvious valley between the two peaks. Consequently, these results were considered EMPCs. It should be noted that in some cases the ion ratio did meet criteria, but due to the noted interferences, these instances were also considered to be EMPCs. These results were qualified as estimated and tentatively identified (JN).

The relative retention time (0.967) for PCB 11 in sample PDI-WS-T07-1808 fell outside of the QC acceptance range (0.968-0.973). Consequently, professional judgment was applied to qualify this result as estimated and tentatively identified (JN). This result is considered to be an EMPC.

Lock Mass Interferences

The positive and nondetect results for the following compounds for the listed samples were qualified as estimated and potentially biased low (J-/UJ) as a result of ion suppression as indicated by the monitored lock mass:

PDI-RB-XD-180820: PCB-12/13, PCB-32, PCB-130, PCB-137, PCB-164, PCB-197/200

PDI-WS-T04-1808: PCB-197/200

PDI-WS-T02-1808: PCB-32, PCB-187, PCB-197/200

PDI-WS-T05-1808: PCB-32, PCB-187, PCB-197/200

PDI-WS-T07-1808: PCB-20/28, PCB-32, PCB-128/166, PCB-187, PCB-197/200

PDI-WS-T03-1808: PCB-32, PCB-197/200

PDI-WS-T01-1808: PCB-11, PCB-27, PCB-32, PCB-153/168, PCB-176, PCB-187, PCB-197/200

PDI-WS-T06-1808: PCB-128/166, PCB-187, PCB-197/200

The positive results for the following compounds for the listed samples were qualified as estimated and potentially biased high (J+) as a result of ion enhancement as indicated by the monitored lock mass:

PDI-WS-T04-1808: PCB- 86/87/97/108/119/125

PDI-WS-T02-1808: PCB-86/87/97/108/119/125

PDI-WS-T03-1808: PCB-86/87/97/108/119/125

PDI-WS-T06-1808: PCB-86/87/97/108/119/125

Verification of calculations was performed on a subset of the data as deemed appropriate. No discrepancies were noted.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All 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	Units	Validation Qualifiers	Validation Reason
PDI-RB-XD-180820	WQ	PCB-10	16.0	9.83	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-109	2.94	1.57	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-11	437	9.89	pg/sample	JN	bl,k
PDI-RB-XD-180820	WQ	PCB-114	1.93	1.56	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-12/13	27.6	9.90	pg/sample	JN	bl,k,su
PDI-RB-XD-180820	WQ	PCB-123	1.61	1.51	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-130	3.10	1.38	pg/sample	J-	su
PDI-RB-XD-180820	WQ	PCB-131	1.52	1.25	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-132	33.0	1.35	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-133	1.60	1.26	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-134/143	6.11	1.28	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-137	4.04	1.27	pg/sample	J-	su
PDI-RB-XD-180820	WQ	PCB-139/140	1.85	1.15	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-144	5.54	0.897	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-146	10.4	1.08	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-15	41.6	8.75	pg/sample	JN	bl,k
PDI-RB-XD-180820	WQ	PCB-164		0.942	pg/sample	UJ	su
PDI-RB-XD-180820	WQ	PCB-167	2.14	0.954	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-171/173	11.6	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-172	3.91	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-174	31.5	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-175	1.14	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-191	1.02	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-194	26.4	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-197/200	3.60	0.878	pg/sample	JN	k,su
PDI-RB-XD-180820	WQ	PCB-201	3.16	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-202	4.44	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-207	3.55	0.878	pg/sample	J+	bl
PDI-RB-XD-180820	WQ	PCB-208	7.97	0.878	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-209 (decachlorobiphenyl)	6.34	0.878	pg/sample	JN	bl,k
PDI-RB-XD-180820	WQ	PCB-26/29	27.3	5.01	pg/sample	J+	bl
PDI-RB-XD-180820	WQ	PCB-27	15.0	4.02	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-32	41.0	4.92	pg/sample	JN	k,su
PDI-RB-XD-180820	WQ	PCB-4	186	14.2	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-43	7.68	6.91	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-48	18.3	5.77	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-5	18.5	10.5	pg/sample	JN	k

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-RB-XD-180820	WQ	PCB-50/53	29.0	5.49	pg/sample	J+	bl
PDI-RB-XD-180820	WQ	PCB-59/62/75	22.6	4.27	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-6	116	9.46	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-64	42.8	4.15	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-7	45.1	9.65	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-77	7.02	4.69	pg/sample	J+	bl
PDI-RB-XD-180820	WQ	PCB-82	6.33	1.93	pg/sample	JN	k
PDI-RB-XD-180820	WQ	PCB-9	24.6	9.31	pg/sample	JN	bl,k
PDI-RB-XD-180820	WQ	PCB-96	2.36	0.878	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-1	362	4.22	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-103	34.6	4.93	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-109	52.1	5.17	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-11	6510	10.8	pg/sample	J-	su
PDI-WS-T01-1808	WS	PCB-12/13	153	10.8	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-122	10.4	5.70	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-123	11.7	4.73	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-131	8.46	2.44	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-133	16.6	2.44	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-144	15.7	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-152	2.22	0.866	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-153/168	616	1.85	pg/sample	J-	su
PDI-WS-T01-1808	WS	PCB-155	1.12	0.866	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-159	4.48	1.70	pg/sample	JN	be,k
PDI-WS-T01-1808	WS	PCB-170	57.5	0.915	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-171/173	26.9	0.941	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-172	15.0	0.954	pg/sample	JN	be,k
PDI-WS-T01-1808	WS	PCB-174	100	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-175	4.29	0.866	pg/sample	JN	be,k
PDI-WS-T01-1808	WS	PCB-176	13.2	0.866	pg/sample	J	be,su
PDI-WS-T01-1808	WS	PCB-177	42.1	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-178	25.9	0.867	pg/sample	JN	be,k
PDI-WS-T01-1808	WS	PCB-179	59.6	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-180/193	181	0.878	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-183/185	65.5	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-187	114	0.866	pg/sample	J	be,su
PDI-WS-T01-1808	WS	PCB-189	1.48	0.866	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-190	14.4	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-191	3.17	0.866	pg/sample	JN	be,k
PDI-WS-T01-1808	WS	PCB-194	21.8	0.866	pg/sample	JN	be,k
PDI-WS-T01-1808	WS	PCB-195	9.76	0.869	pg/sample	JN	be,k

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T01-1808	WS	PCB-196	13.6	0.950	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-197/200	4.56	0.866	pg/sample	JN	be,k,su
PDI-WS-T01-1808	WS	PCB-198/199	42.4	0.963	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-2	135	5.67	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-201	5.27	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-202	11.1	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-203	22.9	0.916	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-205	1.79	0.866	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-206	17.5	1.09	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-207	2.34	0.866	pg/sample	J+	be,bl
PDI-WS-T01-1808	WS	PCB-208	6.13	0.866	pg/sample	JN	be,bl,k
PDI-WS-T01-1808	WS	PCB-209 (decachlorobiphenyl)	12.5	0.866	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-24	28.9	5.22	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-25	814	7.19	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-27	293	4.75	pg/sample	J-	su
PDI-WS-T01-1808	WS	PCB-3	178	5.66	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-32	704	8.28	pg/sample	J-	su
PDI-WS-T01-1808	WS	PCB-44/47/65	8060	6.11	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-45/51	36200	6.63	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-5	31.7	11.5	pg/sample	JN	be,k
PDI-WS-T01-1808	WS	PCB-55	16.0	7.86	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-6	456	10.3	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-68	6570	6.88	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-7	167	10.5	pg/sample	JN	be,k
PDI-WS-T01-1808	WS	PCB-72	26.2	6.85	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-89	24.3	5.90	pg/sample	JN	k
PDI-WS-T01-1808	WS	PCB-9	122	10.2	pg/sample	J+	be
PDI-WS-T01-1808	WS	PCB-92	265	5.79	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-1	273	2.51	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-104	11.1	0.854	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-111	1.86	1.68	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-12/13	73.5	11.2	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-120	7.30	1.64	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-123	10.5	2.13	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-136	169	0.854	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-145	1.04	0.854	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-148	6.05	0.854	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-155	1.20	0.854	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-159	6.18	2.11	pg/sample	JN	be,k

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T02-1808	WS	PCB-170	66.0	0.869	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-171/173	27.0	0.896	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-172	15.2	0.922	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-174	110	0.854	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-175	4.46	0.854	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-176	15.5	0.854	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-177	45.2	0.854	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-178	28.9	0.854	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-179	66.3	0.854	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-180/193	205	0.854	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-183/185	77.6	0.864	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-187	174	0.854	pg/sample	J	be,su
PDI-WS-T02-1808	WS	PCB-188	1.36	0.854	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-190	12.6	0.854	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-191	3.88	0.854	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-194	21.8	0.854	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-195	10.0	0.854	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-196	15.6	0.884	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-197/200	5.39	0.854	pg/sample	JN	be,k,su
PDI-WS-T02-1808	WS	PCB-198/199	44.4	0.899	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-2	92.8	3.24	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-201	5.23	0.854	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-202	11.8	0.854	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-203	27.0	0.866	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-205	1.47	0.854	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-206	13.8	0.947	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-207	3.74	0.854	pg/sample	J+	be,bl
PDI-WS-T02-1808	WS	PCB-208	7.16	0.854	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-209 (decachlorobiphenyl)	12.6	0.907	pg/sample	JN	be,k
PDI-WS-T02-1808	WS	PCB-21/33	1370	8.50	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-24	18.5	4.85	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-25	828	7.64	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-3	106	3.08	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-32	406	8.79	pg/sample	J-	su
PDI-WS-T02-1808	WS	PCB-34	10.8	9.24	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-39	15.8	8.74	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-43	47.2	7.50	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-44/47/65	4850	5.70	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-45/51	21000	6.19	pg/sample	J+	be

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T02-1808	WS	PCB-57	6.39	6.11	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-58	6.66	6.41	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-6	214	10.7	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-68	4930	5.82	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-7	76.1	10.9	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-72	25.3	5.80	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-79	19.5	5.35	pg/sample	JN	k
PDI-WS-T02-1808	WS	PCB-8	848	9.78	pg/sample	J+	be
PDI-WS-T02-1808	WS	PCB-86/87/97/108/119/125	738	1.91	pg/sample	J+	q
PDI-WS-T02-1808	WS	PCB-9	56.3	10.5	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-1	457	3.95	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-12/13	137	13.7	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-123	22.1	5.29	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-148	8.45	0.914	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-150	11.2	0.862	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-155	1.55	0.862	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-159	11.1	4.39	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-170	115	0.953	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-171/173	54.4	1.05	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-177	90.8	0.862	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-180/193	365	0.912	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-182	1.90	0.907	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-189	4.03	0.862	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-194	50.3	0.909	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-195	19.8	1.00	pg/sample	JN	be,k
PDI-WS-T03-1808	WS	PCB-196	34.3	0.862	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-197/200	10.2	0.862	pg/sample	J	be,su
PDI-WS-T03-1808	WS	PCB-198/199	95.8	0.862	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-2	84.6	5.10	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-201	11.7	0.862	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-202	19.9	0.862	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-203	63.6	0.862	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-205	1.95	0.862	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-206	54.3	1.16	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-207	9.79	0.862	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-208	23.6	0.971	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-209 (decachlorobiphenyl)	18.9	0.862	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-25	935	9.49	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-3	154	4.84	pg/sample	J+	be

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T03-1808	WS	PCB-32	943	10.9	pg/sample	J-	su
PDI-WS-T03-1808	WS	PCB-35	45.7	11.0	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-39	26.0	10.9	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-44/47/65	11400	4.57	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-45/51	38800	4.97	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-5	46.7	14.6	pg/sample	JN	be,k
PDI-WS-T03-1808	WS	PCB-57	13.7	5.26	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-58	10.3	5.51	pg/sample	JN	k
PDI-WS-T03-1808	WS	PCB-6	458	13.1	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-68	6550	5.00	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-7	175	13.3	pg/sample	J+	be
PDI-WS-T03-1808	WS	PCB-86/87/97/108/119/125	1440	4.38	pg/sample	J+	q
PDI-WS-T04-1808	WS	PCB-1	482	4.53	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-12/13	112	11.0	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-120	12.3	2.53	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-122	13.7	3.59	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-123	17.5	3.06	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-137	34.9	5.03	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-139/140	29.6	4.57	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-148	10.2	0.852	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-150	12.2	0.852	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-152	6.52	0.852	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-155	2.19	0.852	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-170	139	1.22	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-171/173	54.0	1.14	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-172	29.9	1.18	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-181	3.16	1.09	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-184	1.10	0.852	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-190	27.5	0.870	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-194	43.6	0.975	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-195	23.6	1.05	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-196	26.8	0.864	pg/sample	JN	be,k
PDI-WS-T04-1808	WS	PCB-197/200	11.9	0.852	pg/sample	J	be, su
PDI-WS-T04-1808	WS	PCB-198/199	71.5	0.878	pg/sample	JN	be,k
PDI-WS-T04-1808	WS	PCB-2	74.1	5.64	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-201	9.86	0.852	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-202	19.1	0.852	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-203	42.4	0.852	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-205	2.79	0.852	pg/sample	JN	be,k
PDI-WS-T04-1808	WS	PCB-206	26.0	1.14	pg/sample	J+	be

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T04-1808	WS	PCB-207	5.78	0.852	pg/sample	JN	be,k
PDI-WS-T04-1808	WS	PCB-208	11.2	0.854	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-209 (decachlorobiphenyl)	18.4	0.978	pg/sample	JN	be,k
PDI-WS-T04-1808	WS	PCB-25	845	5.62	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-3	152	5.17	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-34	22.8	6.80	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-35	23.0	6.53	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-44/47/65	9670	4.07	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-45/51	32000	4.42	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-5	39.3	11.7	pg/sample	JN	be,k
PDI-WS-T04-1808	WS	PCB-58	8.72	7.87	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-6	346	10.5	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-68	3720	7.15	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-7	136	10.7	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-73	62.9	3.31	pg/sample	JN	k
PDI-WS-T04-1808	WS	PCB-8	1480	9.62	pg/sample	J+	be
PDI-WS-T04-1808	WS	PCB-86/87/97/108/119/125	1330	2.95	pg/sample	J+	q
PDI-WS-T04-1808	WS	PCB-9	107	10.4	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-1	626	4.81	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-103	67.8	4.91	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-104	17.0	5.78	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-107/124	31.4	6.54	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-122	12.8	7.08	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-123	12.2	6.58	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-150	7.91	0.868	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-155	1.95	0.855	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-170	84.4	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-171/173	33.7	0.868	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-174	126	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-175	4.93	0.855	pg/sample	JN	be,k
PDI-WS-T05-1808	WS	PCB-176	18.6	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-177	58.9	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-180/193	257	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-181	1.32	0.855	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-183/185	87.8	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-184	0.915	0.855	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-187	152	0.855	pg/sample	J	be,su
PDI-WS-T05-1808	WS	PCB-188	1.20	0.855	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-189	2.74	0.855	pg/sample	JN	k

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T05-1808	WS	PCB-190	17.7	0.855	pg/sample	JN	be,k
PDI-WS-T05-1808	WS	PCB-191	2.73	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-194	31.3	0.855	pg/sample	JN	be,k
PDI-WS-T05-1808	WS	PCB-195	12.0	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-196	18.7	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-197/200	7.42	0.855	pg/sample	JN	be,k,su
PDI-WS-T05-1808	WS	PCB-198/199	50.7	0.864	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-2	69.3	5.93	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-201	5.05	0.855	pg/sample	JN	be,k
PDI-WS-T05-1808	WS	PCB-202	13.2	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-203	33.6	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-205	1.77	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-206	22.0	0.889	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-207	4.52	0.855	pg/sample	JN	be,bl,k
PDI-WS-T05-1808	WS	PCB-208	6.85	0.855	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-209 (decachlorobiphenyl)	10.3	0.855	pg/sample	J+	be,bl
PDI-WS-T05-1808	WS	PCB-25	764	8.27	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-3	215	5.37	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-32	1580	9.52	pg/sample	J-	su
PDI-WS-T05-1808	WS	PCB-34	18.0	10.0	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-43	56.4	5.80	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-44/47/65	10500	4.41	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-45/51	41900	4.79	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-5	29.5	12.0	pg/sample	JN	be,k
PDI-WS-T05-1808	WS	PCB-63	39.3	4.59	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-68	3630	4.45	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-89	18.3	8.04	pg/sample	JN	k
PDI-WS-T05-1808	WS	PCB-9	112	10.6	pg/sample	J+	be
PDI-WS-T05-1808	WS	PCB-94	33.5	6.14	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-1	228	3.05	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-10	52.6	9.13	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-104	2.09	0.856	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-114	10.3	2.16	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-12/13	67.0	9.20	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-120	3.68	1.50	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-123	13.9	2.06	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-126	2.41	2.40	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-128/166	77.0	1.58	pg/sample	J-	su
PDI-WS-T06-1808	WS	PCB-148	2.69	0.856	pg/sample	JN	k

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T06-1808	WS	PCB-152	1.18	0.856	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-155	1.67	0.856	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-159	4.09	1.36	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-16	289	8.14	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-167	15.1	1.39	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-170	44.2	0.933	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-171/173	20.3	1.02	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-172	13.2	1.03	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-174	79.1	0.911	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-175	3.50	0.932	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-176	10.2	0.856	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-177	40.7	0.856	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-178	26.9	0.940	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-179	47.1	0.856	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-18/30	737	6.03	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-180/193	139	0.904	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-183/185	52.8	0.938	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-184	0.918	0.856	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-187	117	0.856	pg/sample	J	be,su
PDI-WS-T06-1808	WS	PCB-189	1.33	0.875	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-190	12.8	0.856	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-191	1.68	0.856	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-194	16.4	0.856	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-195	7.07	0.898	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-196	11.0	1.02	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-197/200	6.69	0.856	pg/sample	JN	be,k,su
PDI-WS-T06-1808	WS	PCB-198/199	37.1	1.03	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-2	75.0	4.02	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-201	4.41	0.856	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-202	10.2	0.863	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-203	25.9	0.982	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-205	1.78	0.856	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-206	14.6	1.22	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-207	4.02	0.856	pg/sample	J+	be,bl
PDI-WS-T06-1808	WS	PCB-208	6.86	0.901	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-209 (decachlorobiphenyl)	8.94	0.856	pg/sample	J+	be,bl
PDI-WS-T06-1808	WS	PCB-21/33	1160	6.73	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-24	12.1	5.53	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-25	303	6.05	pg/sample	J+	be

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T06-1808	WS	PCB-3	118	3.87	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-32	187	6.96	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-35	25.8	7.03	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-40/41/71	324	4.95	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-42	170	5.16	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-43	21.8	5.94	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-44/47/65	4420	4.51	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-45/51	19500	4.90	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-46	92.8	5.63	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-5	17.2	9.79	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-54	18.0	3.73	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-59/62/75	60.0	3.67	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-6	152	8.79	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-63	23.1	6.91	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-67	14.9	6.06	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-68	3490	6.70	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-7	58.9	8.96	pg/sample	JN	be,k
PDI-WS-T06-1808	WS	PCB-72	16.6	6.68	pg/sample	JN	k
PDI-WS-T06-1808	WS	PCB-8	595	8.04	pg/sample	J+	be
PDI-WS-T06-1808	WS	PCB-86/87/97/108/119/125	612	1.81	pg/sample	J+	q
PDI-WS-T06-1808	WS	PCB-9	41.3	8.65	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-1	252	3.24	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-10	31.6	8.64	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-103	12.6	4.64	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-11	5810	6.58	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-114	12.8	7.96	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-12/13	65.0	6.59	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-128/166	52.0	1.90	pg/sample	J	be,su
PDI-WS-T07-1808	WS	PCB-131	6.87	2.35	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-132	137	2.47	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-134/143	29.3	2.38	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-135/151/154	185	0.871	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-136	69.3	0.860	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-137	13.7	2.32	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-139/140	8.55	2.10	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-141	56.3	2.27	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-144	18.1	0.888	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-147/149	438	2.08	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-148	1.63	0.909	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-15	173	6.41	pg/sample	J+	be

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T07-1808	WS	PCB-150	1.78	0.860	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-155	2.39	0.860	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-156/157	26.3	2.15	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-16	236	6.96	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-170	33.2	1.08	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-171/173	14.8	1.26	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-172	8.84	1.28	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-174	50.8	1.13	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-175	2.73	1.15	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-176	7.92	0.860	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-177	27.0	0.909	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-178	19.8	1.16	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-179	34.6	0.860	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-18/30	542	5.16	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-180/193	90.0	1.06	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-183/185	38.7	1.16	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-184	1.41	0.860	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-187	69.3	1.05	pg/sample	J	be,su
PDI-WS-T07-1808	WS	PCB-19	139	6.45	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-190	8.43	0.962	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-191	1.84	0.938	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-194	10.3	0.860	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-195	6.54	0.860	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-196	6.95	0.952	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-197/200	3.10	0.860	pg/sample	J	be,su
PDI-WS-T07-1808	WS	PCB-198/199	18.3	0.964	pg/sample	J+	be,bl
PDI-WS-T07-1808	WS	PCB-2	82.3	4.10	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-20/28	625	6.15	pg/sample	J	be,su
PDI-WS-T07-1808	WS	PCB-201	3.04	0.860	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-202	6.85	0.860	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-203	11.8	0.918	pg/sample	JN	be,bl,k
PDI-WS-T07-1808	WS	PCB-206	8.65	0.990	pg/sample	JN	be,bl,k
PDI-WS-T07-1808	WS	PCB-207	2.58	0.860	pg/sample	J+	be,bl
PDI-WS-T07-1808	WS	PCB-208	3.53	0.860	pg/sample	J+	be,bl
PDI-WS-T07-1808	WS	PCB-209 (decachlorobiphenyl)	5.74	0.860	pg/sample	JN	be,bl,k
PDI-WS-T07-1808	WS	PCB-21/33	1530	5.92	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-22	131	6.88	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-24	8.74	4.73	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-25	308	5.32	pg/sample	J+	be

Sample ID	Matrix	Compound	Result	EDL	Units	Validation Qualifiers	Validation Reason
PDI-WS-T07-1808	WS	PCB-26/29	120	6.23	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-27	60.7	4.31	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-3	109	3.80	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-31	432	5.78	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-32	100	6.12	pg/sample	J	be,su
PDI-WS-T07-1808	WS	PCB-35	17.6	6.17	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-37	88.4	6.31	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-4	711	7.89	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-40/41/71	231	5.25	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-42	111	5.47	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-43	17.6	6.29	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-44/47/65	5880	4.78	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-45/51	30400	5.19	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-48	78.4	5.25	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-49/69	429	4.44	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-5	11.2	7.02	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-50/53	128	5.00	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-54	7.98	3.50	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-56	108	6.28	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-59/62/75	41.7	3.89	pg/sample	JN	be,k
PDI-WS-T07-1808	WS	PCB-6	128	6.30	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-60	72.1	6.33	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-64	210	3.78	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-66	299	5.93	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-68	4340	5.58	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-7	68.9	6.42	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-8	430	7.63	pg/sample	J+	be
PDI-WS-T07-1808	WS	PCB-89	8.23	5.55	pg/sample	JN	k
PDI-WS-T07-1808	WS	PCB-9	31.0	6.20	pg/sample	J+	be,bl
PDI-WS-T07-1808	WS	PCB-96	5.50	5.09	pg/sample	J+	be

Attachment A

Nonconformance Summary Tables

Table A-1 - Laboratory Blanks

Blank ID	Compound	Result	RL	BAL	Units	Associated Samples
WG65521-101	PCB-1	6.12	1.46	30.6	pg/sample	PDI-RB-XD-180820 PDI-WS-T01-1808 PDI-WS-T02-1808 PDI-WS-T03-1808 PDI-WS-T04-1808 PDI-WS-T05-1808 PDI-WS-T06-1808 PDI-WS-T07-1808
	PCB-105	1.92	0.860	9.6	pg/sample	
	PCB-11	87.7	5.62	438	pg/sample	
	PCB-110/115	5.16	0.885	25.8	pg/sample	
	PCB-118	3.01	0.994	15.0	pg/sample	
	PCB-12/13	9.25	5.67	46.2	pg/sample	
	PCB-129/138/160/163	5.37	1.10	26.8	pg/sample	
	PCB-135/151/154	1.79	0.965	8.95	pg/sample	
	PCB-136	1.17	0.860	5.85	pg/sample	
	PCB-14	9.39	5.64	47.0	pg/sample	
	PCB-147/149	3.17	1.14	15.8	pg/sample	
	PCB-15	9.24	5.51	46.2	pg/sample	
	PCB-153/168	4.05	0.978	20.2	pg/sample	
	PCB-16	5.09	1.28	25.4	pg/sample	
	PCB-17	9.74	1.12	48.7	pg/sample	
	PCB-170	1.66	0.860	8.30	pg/sample	
	PCB-18/30	18.4	0.966	92.0	pg/sample	
	PCB-180/193	4.98	0.860	24.9	pg/sample	
	PCB-187	3.82	0.860	19.1	pg/sample	
	PCB-19	5.64	1.34	28.2	pg/sample	
	PCB-194	1.55	0.860	7.75	pg/sample	
	PCB-198/199	4.00	1.08	20.0	pg/sample	
	PCB-2	8.26	1.36	41.3	pg/sample	
	PCB-20/28	15.6	1.01	78.0	pg/sample	
	PCB-203	2.96	1.04	14.8	pg/sample	
	PCB-206	2.70	1.15	13.5	pg/sample	
	PCB-207	0.955	0.860	4.78	pg/sample	
	PCB-208	1.24	0.860	6.20	pg/sample	
	PCB-209 (decachlorobiphenyl)	2.30	0.860	11.5	pg/sample	
	PCB-21/33	6.34	0.960	31.7	pg/sample	
PCB-22	4.99	1.09	25.0	pg/sample		
PCB-25	2.74	0.861	13.7	pg/sample		
PCB-26/29	10.9	1.02	54.5	pg/sample		
PCB-27	1.63	0.860	8.25	pg/sample		

Blank ID	Compound	Result	RL	BAL	Units	Associated Samples
	PCB-3	7.37	0.944	36.8	pg/sample	
	PCB-31	18.3	0.939	91.5	pg/sample	
	PCB-32	3.93	0.964	19.6	pg/sample	
	PCB-35	1.32	1.03	6.60	pg/sample	
	PCB-37	3.39	0.982	17.0	pg/sample	
	PCB-4	17.3	7.10	86.5	pg/sample	
	PCB-40/41/71	4.15	0.860	20.8	pg/sample	
	PCB-42	1.91	0.860	9.55	pg/sample	
	PCB-44/47/65	15.9	0.860	79.5	pg/sample	
	PCB-45/51	5.01	0.860	25.0	pg/sample	
	PCB-48	1.38	0.860	6.90	pg/sample	
	PCB-49/69	5.81	0.860	29.0	pg/sample	
	PCB-50/53	6.30	0.860	31.5	pg/sample	
	PCB-52	13.7	0.860	68.5	pg/sample	
	PCB-56	1.63	1.21	8.15	pg/sample	
	PCB-6	9.42	5.41	47.1	pg/sample	
	PCB-61/70/74/76	9.19	1.10	46.0	pg/sample	
	PCB-64	3.75	0.860	18.8	pg/sample	
	PCB-66	4.14	1.12	20.7	pg/sample	
	PCB-68	1.48	1.04	7.40	pg/sample	
	PCB-77	1.63	1.07	8.15	pg/sample	
	PCB-8	27.9	4.92	140	pg/sample	
	PCB-83/99	2.73	1.18	13.6	pg/sample	
	PCB-84	1.43	1.32	7.15	pg/sample	
	PCB-85/116/117	1.19	1.01	5.95	pg/sample	
	PCB-86/87/97/108/119/125	7.09	1.01	35.4	pg/sample	
	PCB-9	7.31	5.43	36.6	pg/sample	
	PCB-90/101/113	5.42	1.02	27.1	pg/sample	
	PCB-93/95/98/100/102	5.58	1.09	27.9	pg/sample	

Table A-2 - Field Blanks

Blank ID	Compound	Result	RL	BAL	Units	Associated Samples
PDI-RB-XD-180820	PCB-1	1300	5.54	6500	pg/sample	PDI-WS-T01-1808 PDI-WS-T02-1808 PDI-WS-T03-1808 PDI-WS-T04-1808 PDI-WS-T05-1808 PDI-WS-T06-1808 PDI-WS-T07-1808
	PCB-10	16.0	9.83	80.0	pg/sample	
	PCB-105	17.5	1.50	87.5	pg/sample	
	PCB-107/124	2.62	1.66	13.1	pg/sample	
	PCB-109	2.94	1.57	14.7	pg/sample	
	PCB-11	437	9.89	2185	pg/sample	
	PCB-110/115	81.2	1.29	406	pg/sample	
	PCB-114	1.93	1.56	9.65	pg/sample	

Blank ID	Compound	Result	RL	BAL	Units	Associated Samples
	PCB-118	41.9	1.47	210	pg/sample	
	PCB-12/13	27.6	9.90	138	pg/sample	
	PCB-123	1.61	1.51	8.05	pg/sample	
	PCB-128/166	10.7	1.09	53.5	pg/sample	
	PCB-129/138/160/163	72.2	1.09	361	pg/sample	
	PCB-130	3.10	1.38	15.5	pg/sample	
	PCB-131	1.52	1.25	7.60	pg/sample	
	PCB-132	33.0	1.35	165	pg/sample	
	PCB-133	1.60	1.26	8.00	pg/sample	
	PCB-134/143	6.11	1.28	30.6	pg/sample	
	PCB-135/151/154	38.2	0.878	191	pg/sample	
	PCB-136	21.2	0.878	106	pg/sample	
	PCB-137	4.04	1.27	20.2	pg/sample	
	PCB-139/140	1.85	1.15	9.25	pg/sample	
	PCB-141	17.4	1.21	87.0	pg/sample	
	PCB-144	5.54	0.897	27.7	pg/sample	
	PCB-146	10.4	1.08	52.0	pg/sample	
	PCB-147/149	88.5	1.13	443	pg/sample	
	PCB-15	41.6	8.75	208	pg/sample	
	PCB-153/168	65.8	0.963	329	pg/sample	
	PCB-156/157	6.30	1.10	31.5	pg/sample	
	PCB-158	6.49	0.878	32.45	pg/sample	
	PCB-159	1.60	0.919	8.00	pg/sample	
	PCB-16	73.4	6.50	367	pg/sample	
	PCB-167	2.14	0.954	10.7	pg/sample	
	PCB-17	136	5.66	680	pg/sample	
	PCB-170	30.5	0.878	153	pg/sample	
	PCB-171/173	11.6	0.878	58	pg/sample	
	PCB-172	3.91	0.878	19.6	pg/sample	
	PCB-174	31.5	0.878	158	pg/sample	
	PCB-175	1.14	0.878	5.70	pg/sample	
	PCB-176	3.92	0.878	19.6	pg/sample	
	PCB-177	13.7	0.878	68.5	pg/sample	
	PCB-178	7.16	0.878	35.8	pg/sample	
	PCB-179	14.9	0.878	74.5	pg/sample	
	PCB-18/30	150	4.82	750	pg/sample	
	PCB-180/193	76.0	0.878	380	pg/sample	
	PCB-183/185	21.7	0.878	109	pg/sample	
	PCB-187	35.3	0.878	177	pg/sample	
	PCB-19	30.0	7.14	150	pg/sample	

Blank ID	Compound	Result	RL	BAL	Units	Associated Samples
	PCB-190	5.71	0.878	28.6	pg/sample	
	PCB-191	1.02	0.878	5.1	pg/sample	
	PCB-194	26.4	0.878	132	pg/sample	
	PCB-195	10.5	0.925	52.5	pg/sample	
	PCB-196	16.6	0.906	83	pg/sample	
	PCB-197/200	3.60	0.878	18	pg/sample	
	PCB-198/199	30.3	0.921	152	pg/sample	
	PCB-2	147	6.77	735	pg/sample	
	PCB-20/28	137	4.94	685	pg/sample	
	PCB-201	3.16	0.878	15.8	pg/sample	
	PCB-202	4.44	0.878	22.2	pg/sample	
	PCB-203	20.1	0.888	101	pg/sample	
	PCB-205	1.49	0.878	7.45	pg/sample	
	PCB-206	21.7	1.03	109	pg/sample	
	PCB-207	3.55	0.878	17.8	pg/sample	
	PCB-208	7.97	0.878	39.9	pg/sample	
	PCB-209 (decachlorobiphenyl)	6.34	0.878	31.7	pg/sample	
	PCB-21/33	364	4.76	1820	pg/sample	
	PCB-22	54.9	5.53	275	pg/sample	
	PCB-25	214	4.27	1070	pg/sample	
	PCB-26/29	27.3	5.01	137	pg/sample	
	PCB-27	15.0	4.02	75	pg/sample	
	PCB-3	485	6.07	2425	pg/sample	
	PCB-31	116	4.64	580	pg/sample	
	PCB-32	41.0	4.92	205	pg/sample	
	PCB-37	18.4	4.63	92	pg/sample	
	PCB-4	186	14.2	930	pg/sample	
	PCB-40/41/71	72.3	5.76	362	pg/sample	
	PCB-42	35.1	6.00	176	pg/sample	
	PCB-43	7.68	6.91	38.4	pg/sample	
	PCB-44/47/65	5990	5.25	29950	pg/sample	
	PCB-45/51	8390	5.70	41950	pg/sample	
	PCB-48	18.3	5.77	91.5	pg/sample	
	PCB-49/69	118	4.88	590	pg/sample	
	PCB-5	18.5	10.5	92.5	pg/sample	
	PCB-50/53	29.0	5.49	145	pg/sample	
	PCB-52	187	5.47	935	pg/sample	
	PCB-56	28.4	5.29	142	pg/sample	
	PCB-59/62/75	22.6	4.27	113	pg/sample	
	PCB-6	116	9.46	580	pg/sample	

Blank ID	Compound	Result	RL	BAL	Units	Associated Samples
	PCB-60	16.5	5.33	82.5	pg/sample	
	PCB-61/70/74/76	109	4.92	545	pg/sample	
	PCB-64	42.8	4.15	214	pg/sample	
	PCB-66	62.9	4.99	315	pg/sample	
	PCB-68	1870	4.70	9350	pg/sample	
	PCB-7	45.1	9.65	226	pg/sample	
	PCB-77	7.02	4.69	35.1	pg/sample	
	PCB-8	297	8.65	1485	pg/sample	
	PCB-82	6.33	1.93	31.7	pg/sample	
	PCB-83/99	47.8	1.73	239	pg/sample	
	PCB-84	30.1	1.92	151	pg/sample	
	PCB-85/116/117	11.6	1.47	58	pg/sample	
	PCB-86/87/97/108/119/125	54.1	1.47	271	pg/sample	
	PCB-88/91	23.2	1.66	116	pg/sample	
	PCB-9	24.6	9.31	123	pg/sample	
	PCB-90/101/113	88.8	1.48	444	pg/sample	
	PCB-92	15.3	1.73	76.5	pg/sample	
	PCB-93/95/98/100/102	112	1.60	560	pg/sample	
	PCB-96	2.36	0.878	11.8	pg/sample	

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
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
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