APPENDIX E
Data Usability Report (DUSR)

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable – Polychlorinated Biphenyls by EPA Methods 3550B/8082 and Percent Moisture/Solids by ASTM Method D2974-07 – TestAmerica Work Order Numbers 180-12804-1 and 180-12804-1 Revisions 1, 2 and 3**

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of fourteen sediment samples and one field duplicate collected on July 24-25, 2012 as part of the Unisys sampling event. TestAmerica Buffalo, New York, analyzed the samples. The samples were analyzed for the following tests:

- EPA Methods 3550B/8082 - Polychlorinated Biphenyls (PCBs)
- ASTM Method D2974-07 - Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010,

USEPA Region II, Data Validation SOP of Organic Analysis of PCBs by Gas Chromatography SW-846 Method 8082A, SOP HW-45 Revision 1, October 2006, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12804-1	WA-002-RR-SED-A
180-12804-2	WA-005-LL-SED-A
180-12804-3	WA-006-LL-SED-A
180-12804-4	WA-007-LL-SED-A
180-12804-5	WA-010-R-SED-A
180-12804-6	WA-013-L-SED-A
180-12804-7	WA-014-L-SED-A
180-12804-8	WA-015-SED-A

Lab ID	Client ID
180-12804-9	DS-006-L-SED-A
180-12804-10	CBC-1270-SED-A
180-12804-11	CBC-1470-SED-A
180-12804-12	CBC-1670-SED-A
180-12804-13	CBC-U0200-SED-A
180-12804-14	CBC-U0400-SED-A
180-12804-15	WA-DUP02-SED-A

The samples were received at the laboratory at 1.7^{o}C, slightly outside the QAPP criteria of 4 $\pm$ 2^{o}C. Based on professional judgment, no qualifications were applied to the data. No other sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the correction was not followed.

No date or time of collection was listed on the COC for sample WA-DUP02-SED-A. The laboratory assigned the collection date/time of 7/25/12, 00:00.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

The laboratory report was revised three times, to correct the sample integrations, to include the initial calibration verification standards and to explain the PCB reporting rationale.

1.0 POLYCHLORINATED BIPHENYLS (PCBs)

Fourteen solid samples and one field duplicate were analyzed for PCBs per EPA Methods 3550B/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues

were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Initial Calibration
- ✓ Continuing Calibration Verification
- ✓ Method Blanks
- ⊗ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Target Compound Identification
- ✓ Compound Quantitation
- ⊗ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Times

The holding times were met for the sample analyses. The holding time for PCB analysis of solids is 14 days from sample collection to extraction and 40 days from extraction to analysis.

1.3 Initial Calibration

Initial calibration of the target compounds was performed for the primary (quantitation) column and confirmation column as required by this method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

Initial calibration verification (ICV) was performed at the required frequency. The ICV met the laboratory acceptance criteria.

1.4 Continuing Calibration Verification (CCV)

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits, with the following exceptions.

The percent differences were greater than 15% for PCB 1016 (7/29/12, 14:27, 17:24 and 7/30/12, 5:44) and PCB 1260 (7/30/12, 5:44) in the bracketing CCVs analyzed on the ZB-35 column. Information from the laboratory indicated that the sample results were calculated from the other column, the ZB-5 column. Therefore, based on professional judgment, no qualifications were applied to the data.

1.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 74206). PCBs were not detected in the method blank above the method detection limits (MDLs).

1.6 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample WA-002-RR-SED-A, was reported. The MS/MSD pair had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria, with the following exception. The MS recovery of PCB 1260 was low and outside the laboratory specified acceptance criteria. Therefore, based on professional judgment, the undetected values of PCBs 1262, 1268 and 1260 in sample WA-002-RR-SED-A were UJ qualified estimated less than the MDLs and the concentration of PCB 1254 was J qualified as estimated.

Client Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier*	Reason Code**
WA-002-RR-SED-A	PCB-1260	470	U	470	UJ	4
WA-002-RR-SED-A	PCB-1254	690	J	690	J	4
WA-002-RR-SED-A	PCB-1262	470	U	470	UJ	4
WA-002-RR-SED-A	PCB-1268	470	U	470	UJ	4

U-not detected at the stated MDL
* Validation qualifiers are defined in Attachment 1 at the end of this report

**Reason codes are defined in Attachment 2 at the end of this report

1.7 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

1.8 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria, with the following exception. The decachlorobiphenyl recovery in sample WA-DUP02-SED-A was low and outside the laboratory specified acceptance criteria. Since the other surrogate (tetrachloroxylene) recovery was acceptable, no qualifications were applied to the data.

1.9 Equipment Blank

An equipment blank was not collected with the samples.

1.10 Field Duplicate

One field duplicate sample, WA-DUP02-SED-A, was collected with the sample set. Acceptable precision [RPD <40% for results >5 times the reporting limit (RL), < ± 2 times the RL for results < 5 times the RL] was demonstrated between the field duplicate and the original sample, WA-010-R-SED-A.

Client Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD (%)	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
WA-010-R-SED-A	PCB-1254	460	J	NC	NA	NA	NA
WA-DUP02-SED-A	PCB-1254	310	J		NA	NA	NA
WA-010-R-SED-A	The other PCBs	ND	NA	0	NA	NA	NA
WA-DUP02-SED-A	The other PCBs	ND	NA		NA	NA	NA

J-estimated concentration
NA-not applicable
ND-not detected at or above the RL
NC-not calculable

1.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.12 Compound Quantitation

The compound quantitations were within the validation criteria. It was noted that the PCB concentrations were determined from the primary calibrated column (column ZB-5). Although EPA method 8000 recommends that quantitative values be compared between the two columns, the second column (column ZB-35) data was used for pattern recognition only. The data from the second column was removed from the data package (revision 3).

1.13 Sensitivity

The samples were reported to the MDLs. The MDLs were greater than the Human Health Bioaccumulation Sediment Criteria listed in Table 2 of the work plan.

Parameters	HH Sediment Criteria (µg/kg)	Lab MDL (µg/kg)
Total PCBs	0.008	89

HH - Human Health Bioaccumulation

1.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 PERCENT MOISTURE/SOLIDS

The percent moisture/solid content of each sediment sample and the field duplicate were reported. The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. Therefore, the sample results in samples CBC-1270-SED-A, CBC-1470-SED-A, CBC-1670-SED-A, CBC-U0200-SED-A, CBC-U0400-SED-A, DS-006-L-SED-A, WA-002-RR-SED-A, WA-005-LL-SED-A, WA-010-R-SED-A, WA-013-L-SED-A, WA-014-L-SED-A and WA-DUP02-SED-A were J qualified as estimated; the non-detect values were UJ qualified as estimated less than the MDLs.

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-1270-SED-A	71.7	PCB-1016	150	U	150	UJ	13
CBC-1270-SED-A	71.7	PCB-1221	150	U	150	UJ	13
CBC-1270-SED-A	71.7	PCB-1232	150	U	150	UJ	13
CBC-1270-SED-A	71.7	PCB-1242	150	U	150	UJ	13
CBC-1270-SED-A	71.7	PCB-1248	1200	NA	1200	J	13
CBC-1270-SED-A	71.7	PCB-1254	590	J	590	J	13
CBC-1270-SED-A	71.7	PCB-1260	370	U	370	UJ	13
CBC-1270-SED-A	71.7	PCB-1262	370	U	370	UJ	13
CBC-1270-SED-A	71.7	PCB-1268	370	U	370	UJ	13
CBC-1470-SED-A	72.0	PCB-1016	170	U	170	UJ	13
CBC-1470-SED-A	72.0	PCB-1221	170	U	170	UJ	13
CBC-1470-SED-A	72.0	PCB-1232	170	U	170	UJ	13
CBC-1470-SED-A	72.0	PCB-1242	170	U	170	UJ	13
CBC-1470-SED-A	72.0	PCB-1248	1100	NA	1100	J	13
CBC-1470-SED-A	72.0	PCB-1254	520	J	520	J	13
CBC-1470-SED-A	72.0	PCB-1260	400	U	400	UJ	13
CBC-1470-SED-A	72.0	PCB-1262	400	U	400	UJ	13
CBC-1470-SED-A	72.0	PCB-1268	400	U	400	UJ	13
DS-006-L-SED-A	74.7	PCB-1016	150	U	150	UJ	13
DS-006-L-SED-A	74.7	PCB-1221	150	U	150	UJ	13
DS-006-L-SED-A	74.7	PCB-1232	150	U	150	UJ	13
DS-006-L-SED-A	74.7	PCB-1242	150	U	150	UJ	13
DS-006-L-SED-A	74.7	PCB-1248	150	U	150	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
DS-006-L-SED-A	74.7	PCB-1254	360	U	360	UJ	13
DS-006-L-SED-A	74.7	PCB-1260	360	U	360	UJ	13
DS-006-L-SED-A	74.7	PCB-1262	360	U	360	UJ	13
DS-006-L-SED-A	74.7	PCB-1016	360	U	360	UJ	13
WA-002-RR-SED-A	76.5	PCB-1221	200	U	200	UJ	13
WA-002-RR-SED-A	76.5	PCB-1232	200	U	200	UJ	13
WA-002-RR-SED-A	76.5	PCB-1242	200	U	200	UJ	13
WA-002-RR-SED-A	76.5	PCB-1248	200	U	200	UJ	13
WA-002-RR-SED-A	76.5	PCB-1254	920	J	920	J	13
WA-002-RR-SED-A	76.5	PCB-1260	690	J	690	J	13
WA-002-RR-SED-A	76.5	PCB-1262	470	U	470	UJ	13
WA-002-RR-SED-A	76.5	PCB-1268	470	U	470	UJ	13
WA-002-RR-SED-A	76.5	PCB-1016	470	U	470	UJ	13
WA-010-R-SED-A	72.4	PCB-1016	120	U	120	UJ	13
WA-010-R-SED-A	72.4	PCB-1221	120	U	120	UJ	13
WA-010-R-SED-A	72.4	PCB-1232	120	U	120	UJ	13
WA-010-R-SED-A	72.4	PCB-1242	120	U	120	UJ	13
WA-010-R-SED-A	72.4	PCB-1248	120	U	120	UJ	13
WA-010-R-SED-A	72.4	PCB-1254	460	J	460	J	13
WA-010-R-SED-A	72.4	PCB-1260	300	U	300	UJ	13
WA-010-R-SED-A	72.4	PCB-1262	300	U	300	UJ	13
WA-010-R-SED-A	72.4	PCB-1268	300	U	300	UJ	13
WA-013-L-SED-A	74.6	PCB-1016	160	U	160	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
WA-013-L-SED-A	74.6	PCB-1221	160	U	160	UJ	13
WA-013-L-SED-A	74.6	PCB-1232	160	U	160	UJ	13
WA-013-L-SED-A	74.6	PCB-1242	160	U	160	UJ	13
WA-013-L-SED-A	74.6	PCB-1248	160	U	160	UJ	13
WA-013-L-SED-A	74.6	PCB-1254	370	U	370	UJ	13
WA-013-L-SED-A	74.6	PCB-1260	370	U	370	UJ	13
WA-013-L-SED-A	74.6	PCB-1262	370	U	370	UJ	13
WA-013-L-SED-A	74.6	PCB-1268	370	U	370	UJ	13
CBC-1670-SED-A	62.2	PCB-1016	120	U	120	UJ	13
CBC-1670-SED-A	62.2	PCB-1221	120	U	120	UJ	13
CBC-1670-SED-A	62.2	PCB-1232	120	U	120	UJ	13
CBC-1670-SED-A	62.2	PCB-1242	120	U	120	UJ	13
CBC-1670-SED-A	62.2	PCB-1248	510	J	510	J	13
CBC-1670-SED-A	62.2	PCB-1254	290	U	290	UJ	13
CBC-1670-SED-A	62.2	PCB-1260	290	U	290	UJ	13
CBC-1670-SED-A	62.2	PCB-1262	290	U	290	UJ	13
CBC-1670-SED-A	62.2	PCB-1268	290	U	290	UJ	13
CBC-U0200-SED-A	67.1	PCB-1016	120	U	120	UJ	13
CBC-U0200-SED-A	67.1	PCB-1221	120	U	120	UJ	13
CBC-U0200-SED-A	67.1	PCB-1232	120	U	120	UJ	13
CBC-U0200-SED-A	67.1	PCB-1242	120	U	120	UJ	13
CBC-U0200-SED-A	67.1	PCB-1248	120	U	120	UJ	13
CBC-U0200-SED-A	67.1	PCB-1254	280	U	280	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-A	67.1	PCB-1260	280	U	280	UJ	13
CBC-U0200-SED-A	67.1	PCB-1262	280	U	280	UJ	13
CBC-U0200-SED-A	67.1	PCB-1268	280	U	280	UJ	13
CBC-U0400-SED-A	68.9	PCB-1016	120	U	120	UJ	13
CBC-U0400-SED-A	68.9	PCB-1221	120	U	120	UJ	13
CBC-U0400-SED-A	68.9	PCB-1232	120	U	120	UJ	13
CBC-U0400-SED-A	68.9	PCB-1242	120	U	120	UJ	13
CBC-U0400-SED-A	68.9	PCB-1248	120	U	120	UJ	13
CBC-U0400-SED-A	68.9	PCB-1254	280	U	280	UJ	13
CBC-U0400-SED-A	68.9	PCB-1260	280	U	280	UJ	13
CBC-U0400-SED-A	68.9	PCB-1262	280	U	280	UJ	13
CBC-U0400-SED-A	68.9	PCB-1268	280	U	280	UJ	13
WA-005-LL-SED-A	69.0	PCB-1016	140	U	140	UJ	13
WA-005-LL-SED-A	69.0	PCB-1221	140	U	140	UJ	13
WA-005-LL-SED-A	69.0	PCB-1232	140	U	140	UJ	13
WA-005-LL-SED-A	69.0	PCB-1242	140	U	140	UJ	13
WA-005-LL-SED-A	69.0	PCB-1248	140	U	140	UJ	13
WA-005-LL-SED-A	69.0	PCB-1254	340	U	340	UJ	13
WA-005-LL-SED-A	69.0	PCB-1260	340	U	340	UJ	13
WA-005-LL-SED-A	69.0	PCB-1262	340	U	340	UJ	13
WA-005-LL-SED-A	69.0	PCB-1268	340	U	340	UJ	13
WA-014-L-SED-A	50.6	PCB-1016	75	U	75	UJ	13
WA-014-L-SED-A	50.6	PCB-1221	75	U	75	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
WA-014-L-SED-A	50.6	PCB-1232	75	U	75	UJ	13
WA-014-L-SED-A	50.6	PCB-1242	75	U	75	UJ	13
WA-014-L-SED-A	50.6	PCB-1248	75	U	75	UJ	13
WA-014-L-SED-A	50.6	PCB-1254	180	U	180	UJ	13
WA-014-L-SED-A	50.6	PCB-1260	180	U	180	UJ	13
WA-014-L-SED-A	50.6	PCB-1262	180	U	180	UJ	13
WA-014-L-SED-A	50.6	PCB-1268	180	U	180	UJ	13
WA-DUP02-SED-A	66.2	PCB-1016	100	U	100	UJ	13
WA-DUP02-SED-A	66.2	PCB-1221	100	U	100	UJ	13
WA-DUP02-SED-A	66.2	PCB-1232	100	U	100	UJ	13
WA-DUP02-SED-A	66.2	PCB-1242	100	U	100	UJ	13
WA-DUP02-SED-A	66.2	PCB-1248	100	U	100	UJ	13
WA-DUP02-SED-A	66.2	PCB-1254	310	J	310	J	13
WA-DUP02-SED-A	66.2	PCB-1260	240	U	240	UJ	13
WA-DUP02-SED-A	66.2	PCB-1262	240	U	240	UJ	13
WA-DUP02-SED-A	66.2	PCB-1268	240	U	240	UJ	13

U-not detected at the stated MDL
J-estimated concentration
NA-not applicable

---

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable – Semivolatile Organic Compounds by EPA Methods 3550B/8270C, Metals by EPA Methods 3050B/6010B, Mercury by EPA Method 7471A, Cyanide by EPA Method 9012A, Hexavalent Chromium by EPA Methods 3060A/7196A and Percent Moisture/Solids by ASTM Method D2974-07 – TestAmerica Work Order Number 180-12804-2**

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of two sediment samples collected on July 25, 2012 as part of the Unisys sampling event. TestAmerica Edison, New Jersey performed the hexavalent chromium analyses; the rest of the analyses were performed at TestAmerica Buffalo, New York. The samples were analyzed for the following tests:

- EPA Methods 3550B/8270C - Semivolatile Organic Compounds
- EPA Methods 3050B/6010B – Metals
- EPA Method 7471A – Mercury
- EPA Method 9012A – Cyanide
- EPA Methods 3060A/7196A – Hexavalent Chromium
- ASTM Method D2974-07 - Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010, USEPA Region II, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the QAPP, USEPA Region II, Evaluation of Metals Data for the CLP Program, SOP HW-2 Rev.13, ILM05.3, September 2006, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, OSWER 9240.1-51, EPA 540-R-10-011, January 2010, as well as by the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12804-13	CBC-U0200-SED-A

Lab ID	Client ID
180-12804-14	CBC-U0400-SED-A

The samples were received at the laboratory at 1.7^{o}C, slightly outside the QAPP criteria of 4 $\pm$ 2^{o}C. Based on professional judgment, no qualifications were applied to the data. No other sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the correction was not followed.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

1.0 SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

Two sediment samples were analyzed for SVOCs per EPA Methods 3550B/8270C.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Instrument Performance Check
- ✓ Initial Calibration
- ✓ Continuing Calibration Verification
- ✓ Blanks
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Field Duplicate
- ✓ Internal Standards
- ✓ Target Compound Identifications
- ✓ Target Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The SVOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Times

The holding time for SVOC analysis of solids is 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Instrument Performance Check

An instrument performance check sample (tune standard) was analyzed at the beginning of each 12-hour period during sample analysis. The samples were analyzed within the 12-hour period. All ion abundance criteria were met for decafluorotriphenylphosphine (DFTPP).

Method 8270C describes the analysis of a standard to assess the gas chromatography (GC) column performance and injection port inertness; analysis of this standard was not documented in the data package. Based on professional judgment, no qualifications were applied to the data.

1.4 Initial Calibration

Appropriate initial calibrations were performed for each analyte. Based on the method of calibration, the laboratory calculated the percent relative standard deviation (%RSD) of the relative response factors (RRFs). The %RSDs of the calibration check compounds (CCCs) met the method criteria of less than or equal to 30% and the minimum average RRFs for the system performance check compounds (SPCCs) were above the method criteria.

For the target analytes, the average RRFs were within the method (15% RSD), and/or validation (20% RSD for compounds not considered poor responders, 40% for poor responders) criteria for the compounds or the coefficient of determination (r2) was greater than or equal to 0.990 for the curve fit calibrations.

1.5 Continuing Calibration Verification (CCV)

For the target analytes, the CCV was performed at the required frequency. The CCV RRFs met the method and validation criteria.

The percent differences (%Ds) between the RRFs in the initial and continuing calibration standards for the target analytes were within the method acceptance criteria of less than or equal to 20% for CCCs and the validation criteria of 40% difference for poor performing compounds and 25% difference for the non-CCC compounds.

1.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 74132). SVOCs were not detected in the method blank above the method detection limits (MDLs).

1.7 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were not reported.

1.8 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery, with the following exception.

The recovery for n-nitrosodiphenylamine was high and outside the laboratory specified acceptance criteria. Since n-nitrosodiphenylamine was not detected in the associated samples, no qualifications were applied to the data.

It was noted that a subset of compounds was reported for the LCS in the laboratory report. The full analyte spike recovery forms were sent by email.

1.9 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria.

1.10 Field Duplicate

A field duplicate sample was not collected with the sample set.

1.11 Internal Standards

The internal standard areas and retention times were within the method acceptance limits.

1.12 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.13 Compound Quantitation

The compound quantitations were within the validation criteria.

1.14 Sensitivity

The samples were reported to the MDLs.

1.15 Electronic Data Deliverables (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 METALS

Two sediment samples were analyzed for metals per EPA Methods 3050B/6010B (Mercury evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Duplicate
- ✓ Laboratory Control Sample
- ✓ Serial Dilution
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Times

The holding time for metals analysis of solids is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Initial Calibration

The initial calibration requirements were met for the inductively coupled plasma-atomic emission spectrometer (ICP-AES).

The reporting limit standards were within the laboratory control limits.

The interference check standards (ICSA and ICSAB) met the method acceptance criteria.

2.4 Initial and Continuing Calibration Verifications (ICV and CCV)

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

2.5 Initial and Continuing Calibration Blanks (ICB and CCB)

The ICBs and CCBs met the method acceptance criteria.

2.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 74174). Metals were not detected in the method blank above the MDLs, with the following exceptions.

Calcium and iron were detected at estimated concentrations greater than the MDLs and less than the reporting limits (RLs) Since calcium and iron were detected in the associated samples at concentrations greater than the RLs, no qualifications were applied to the data.

2.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported.

2.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

2.9 Serial Dilution

A serial dilution was not reported.

2.10 Field Duplicate

A field duplicate sample was not collected with the sample set.

2.11 Compound Quantitations

The compound quantitations were within the validation criteria.

2.12 Sensitivity

The samples were reported to the MDLs.

2.13 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process and the automated data review process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

3.0 MERCURY

Two sediment samples were analyzed for mercury per EPA Method 7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The mercury data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

3.2 Holding Times

The holding time for mercury analysis of solids is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

3.3 Initial Calibration

The initial calibration requirements were met. The coefficient of determination (r^2) was greater than or equal to 0.990 for the linear calibration.

The reporting limit standard was within the method control limits.

3.4 Initial and Continuing Calibration Verifications

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

3.5 Initial and Continuing Calibration Blanks

The ICBs and CCBs met the method acceptance criteria.

3.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 74161). Mercury was not detected in the method blank above the MDL.

3.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported.

3.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The result for the LCS was within the laboratory specified acceptance criteria for recovery.

3.9 Field Duplicate

A field duplicate sample was not collected with the sample set.

3.10 Compound Quantitations

The compound quantitations were within the validation criteria.

3.11 Sensitivity

The samples were reported to the MDL.

3.12 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

4.0 CYANIDE AND HEXAVALENT CHROMIUM

Two sediment samples were analyzed for cyanide by EPA Method 9012A and hexavalent chromium by EPA Methods 3060A/7196A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Method Blank
- ✓ Matrix Spike
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The cyanide and hexavalent data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

4.2 Holding Times

The holding time for cyanide analysis of soils is 14 days from sample collection to analysis. The holding times for the hexavalent analysis of soils are 30 days from collection to extraction and 168 hours from extraction to analysis. The holding times were met for the sample analyses.

4.3 Initial Calibration

The initial calibration data met the method requirements.

4.4 Initial and Continuing Calibration Verification

The percent recoveries in the associated ICVs and CCVs were within the QC acceptance limits.

4.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the hexavalent chromium data (batches 122626 and 123519). One method blank was reported with the cyanide data (batch 74446). Hexavalent chromium and cyanide were not detected in the method blanks above the MDLs.

4.6 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported.

4.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported with the hexavalent chromium data; one LCS was reported with the cyanide data. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

4.8 Field Duplicate

A field duplicate sample was not collected with the sample set.

4.9 Compound Quantitation

The compound quantitations were within the validation criteria.

4.10 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level II report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

5.0 PERCENT MOISTURE/SOLIDS

The percent moisture/solid content of each sediment sample was reported. The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. Therefore, since the percent moisture content in both samples were greater than 50% and less than 90%, the concentrations were J qualified as estimated; the non-detect values were UJ qualified as estimated less than the MDLs.

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-A	67.1	2,4,5- TRICHLOROPHENOL	1100	U	1100	UJ	13
CBC-U0200-SED-A	67.1	2,4,6- TRICHLOROPHENOL	340	U	340	UJ	13
CBC-U0200-SED-A	67.1	2,4- DICHLOROPHENOL	270	U	270	UJ	13
CBC-U0200-SED-A	67.1	2,4- DIMETHYLPHENOL	1400	U	1400	UJ	13
CBC-U0200-SED-A	67.1	2,4- DINITROPHENOL	1800	U	1800	UJ	13
CBC-U0200-SED-A	67.1	2,4- DINITROTOLUENE	790	U	790	UJ	13
CBC-U0200-SED-A	67.1	2,6- DINITROTOLUENE	1200	U	1200	UJ	13
CBC-U0200-SED-A	67.1	2- CHLORONAPHTHALENE	340	U	340	UJ	13
CBC-U0200-SED-A	67.1	2- CHLOROPHENOL	260	U	260	UJ	13
CBC-U0200-SED-A	67.1	2- METHYLNAPHTHALENE	62	U	62	UJ	13
CBC-U0200-SED-A	67.1	2- METHYLPHENOL (O-CRESOL)	160	U	160	UJ	13
CBC-U0200-SED-A	67.1	2- NITROANILINE	1600	U	1600	UJ	13
CBC-U0200-SED-A	67.1	2- NITROPHENOL	230	U	230	UJ	13
CBC-U0200-SED-A	67.1	3,3'- DICHLOROBENZIDINE	4500	U	4500	UJ	13
CBC-U0200-SED-A	67.1	3- NITROANILINE	1200	U	1200	UJ	13
CBC-U0200-SED-A	67.1	4,6- DINITRO - 2-METHYLPHENOL	1800	U	1800	UJ	13
CBC-U0200-SED-A	67.1	4- BROMOPHENYL PHENYL ETHER	1600	U	1600	UJ	13
CBC-U0200-SED-A	67.1	4- CHLORO- 3-METHYLPHENOL	210	U	210	UJ	13
CBC-U0200-SED-A	67.1	4- CHLOROANILINE	1500	U	1500	UJ	13
CBC-U0200-SED-A	67.1	4- CHLOROPHENYL PHENYL ETHER	110	U	110	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-A	67.1	4- METHYLPHENOL (P-CRESOL)	280	U	280	UJ	13
CBC-U0200-SED-A	67.1	4- NITROANILINE	570	U	570	UJ	13
CBC-U0200-SED-A	67.1	4- NITROPHENOL	1200	U	1200	UJ	13
CBC-U0200-SED-A	67.1	ACENAPHTHENE	60	U	60	UJ	13
CBC-U0200-SED-A	67.1	ACENAPHTHYLENE	42	U	42	UJ	13
CBC-U0200-SED-A	67.1	ACETOPHENONE	260	U	260	UJ	13
CBC-U0200-SED-A	67.1	ANTHRACENE	130	U	130	UJ	13
CBC-U0200-SED-A	67.1	ATRAZINE	230	U	230	UJ	13
CBC-U0200-SED-A	67.1	BENZALDEHYDE	560	U	560	UJ	13
CBC-U0200-SED-A	67.1	BENZO(A) ANTHRACENE	88	U	88	UJ	13
CBC-U0200-SED-A	67.1	BENZO(A) PYRENE	610	J	610	J	13
CBC-U0200-SED-A	67.1	BENZO(B) FLUORANTHENE	770	J	770	J	13
CBC-U0200-SED-A	67.1	BENZO(G,H,I) PERYLENE	490	J	490	J	13
CBC-U0200-SED-A	67.1	BENZO(K) FLUORANTHENE	450	J	450	J	13
CBC-U0200-SED-A	67.1	BENZYL BUTYL PHTHALATE	1400	U	1400	UJ	13
CBC-U0200-SED-A	67.1	BIPHENYL (DIPHENYL)	320	U	320	UJ	13
CBC-U0200-SED-A	67.1	BIS(2- CHLOROETHOXY) METHANE	280	U	280	UJ	13
CBC-U0200-SED-A	67.1	BIS(2- CHLOROETHYL) ETHER (2- CHLOROETHYL ETHER)	440	U	440	UJ	13
CBC-U0200-SED-A	67.1	BIS(2- CHLOROISOPROPYL) ETHER	530	U	530	UJ	13
CBC-U0200-SED-A	67.1	BIS(2- ETHYLHEXYL) PHTHALATE	1600	U	1600	UJ	13
CBC-U0200-SED-A	67.1	CAPROLACTAM	2200	U	2200	UJ	13
CBC-U0200-SED-A	67.1	CARBAZOLE	59	U	59	UJ	13
CBC-U0200-SED-A	67.1	CHRYSENE	51	U	51	UJ	13
CBC-U0200-SED-A	67.1	DIBENZ(A,H) ANTHRACENE	60	U	60	UJ	13
CBC-U0200-SED-A	67.1	DIBENZOFURAN	53	U	53	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-A	67.1	DIETHYL PHTHALATE	150	U	150	UJ	13
CBC-U0200-SED-A	67.1	DIMETHYL PHTHALATE	130	U	130	UJ	13
CBC-U0200-SED-A	67.1	DI- N- BUTYL PHTHALATE	1800	U	1800	UJ	13
CBC-U0200-SED-A	67.1	DI- N- OCTYLPHTHALATE	120	U	120	UJ	13
CBC-U0200-SED-A	67.1	FLUORANTHENE	730	J	730	J	13
CBC-U0200-SED-A	67.1	FLUORENE	120	U	120	UJ	13
CBC-U0200-SED-A	67.1	HEXACHLOROBENZENE	250	U	250	UJ	13
CBC-U0200-SED-A	67.1	HEXACHLOROBUTADIENE	260	U	260	UJ	13
CBC-U0200-SED-A	67.1	HEXACHLORO-CYCLOPENTADIENE	1500	U	1500	UJ	13
CBC-U0200-SED-A	67.1	HEXACHLOROETHANE	400	U	400	UJ	13
CBC-U0200-SED-A	67.1	INDENO(1,2,3- C,D) PYRENE	420	J	420	J	13
CBC-U0200-SED-A	67.1	ISOPHORONE	260	U	260	UJ	13
CBC-U0200-SED-A	67.1	NAPHTHALENE	85	U	85	UJ	13
CBC-U0200-SED-A	67.1	NITROBENZENE	230	U	230	UJ	13
CBC-U0200-SED-A	67.1	N- NITROSODI- N-PROPYLAMINE	400	U	400	UJ	13
CBC-U0200-SED-A	67.1	N- NITROSO-DIPHENYLAMINE	280	U	280	UJ	13
CBC-U0200-SED-A	67.1	PENTACHLOROPHENOL	1800	U	1800	UJ	13
CBC-U0200-SED-A	67.1	PHENANTHRENE	280	J	280	J	13
CBC-U0200-SED-A	67.1	PHENOL	540	U	540	UJ	13
CBC-U0200-SED-A	67.1	PYRENE	670	J	670	J	13
CBC-U0400-SED-A	68.9	2,4,5- TRICHLOROPHENOL	1200	U	1200	UJ	13
CBC-U0400-SED-A	68.9	2,4,6- TRICHLOROPHENOL	350	U	350	UJ	13
CBC-U0400-SED-A	68.9	2,4- DICHLOROPHENOL	280	U	280	UJ	13
CBC-U0400-SED-A	68.9	2,4- DIMETHYLPHENOL	1500	U	1500	UJ	13
CBC-U0400-SED-A	68.9	2,4- DINITROPHENOL	1900	U	1900	UJ	13
CBC-U0400-	68.9	2,4- DINITROTOLUENE	830	U	830	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
SED-A							
CBC-U0400-SED-A	68.9	2,6- DINITROTOLUENE	1300	U	1300	UJ	13
CBC-U0400-SED-A	68.9	2- CHLORONAPHTHALENE	360	U	360	UJ	13
CBC-U0400-SED-A	68.9	2- CHLOROPHENOL	270	U	270	UJ	13
CBC-U0400-SED-A	68.9	2- METHYLNAPHTHALENE	65	U	65	UJ	13
CBC-U0400-SED-A	68.9	2- METHYLPHENOL (O-CRESOL)	170	U	170	UJ	13
CBC-U0400-SED-A	68.9	2- NITROANILINE	1700	U	1700	UJ	13
CBC-U0400-SED-A	68.9	2- NITROPHENOL	250	U	250	UJ	13
CBC-U0400-SED-A	68.9	3,3'- DICHLOROBENZIDINE	4700	U	4700	UJ	13
CBC-U0400-SED-A	68.9	3- NITROANILINE	1200	U	1200	UJ	13
CBC-U0400-SED-A	68.9	4,6- DINITRO- 2-METHYLPHENOL	1900	U	1900	UJ	13
CBC-U0400-SED-A	68.9	4- BROMOPHENYL PHENYL ETHER	1700	U	1700	UJ	13
CBC-U0400-SED-A	68.9	4- CHLORO- 3-METHYLPHENOL	220	U	220	UJ	13
CBC-U0400-SED-A	68.9	4- CHLOROANILINE	1600	U	1600	UJ	13
CBC-U0400-SED-A	68.9	4- CHLOROPHENYL PHENYL ETHER	110	U	110	UJ	13
CBC-U0400-SED-A	68.9	4- METHYLPHENOL (P-CRESOL)	300	U	300	UJ	13
CBC-U0400-SED-A	68.9	4- NITROANILINE	600	U	600	UJ	13
CBC-U0400-SED-A	68.9	4- NITROPHENOL	1300	U	1300	UJ	13
CBC-U0400-SED-A	68.9	ACENAPHTHENE	63	U	63	UJ	13
CBC-U0400-SED-A	68.9	ACENAPHTHYLENE	44	U	44	UJ	13
CBC-U0400-SED-A	68.9	ACETOPHENONE	280	U	280	UJ	13
CBC-U0400-SED-A	68.9	ANTHRACENE	140	U	140	UJ	13
CBC-U0400-SED-A	68.9	ATRAZINE	240	U	240	UJ	13
CBC-U0400-SED-A	68.9	BENZALDEHYDE	590	U	590	UJ	13
CBC-U0400-SED-A	68.9	BENZO(A) ANTHRACENE	93	U	93	UJ	13
CBC-U0400-SED-A	68.9	BENZO(A) PYRENE	470	J	470	J	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-A	68.9	BENZO(B) FLUORANTHENE	580	J	580	J	13
CBC-U0400-SED-A	68.9	BENZO(G,H,I) PERYLENE	350	J	350	J	13
CBC-U0400-SED-A	68.9	BENZO(K) FLUORANTHENE	400	J	400	J	13
CBC-U0400-SED-A	68.9	BENZYL BUTYL PHTHALATE	1400	U	1400	UJ	13
CBC-U0400-SED-A	68.9	BIPHENYL (DIPHENYL)	330	U	330	UJ	13
CBC-U0400-SED-A	68.9	BIS(2- CHLOROETHOXY) METHANE	290	U	290	UJ	13
CBC-U0400-SED-A	68.9	BIS(2- CHLOROETHYL) ETHER (2- CHLOROETHYL ETHER)	460	U	460	UJ	13
CBC-U0400-SED-A	68.9	BIS(2- CHLOROISOPROPYL) ETHER	560	U	560	UJ	13
CBC-U0400-SED-A	68.9	BIS(2- ETHYLHEXYL) PHTHALATE	1700	U	1700	UJ	13
CBC-U0400-SED-A	68.9	CAPROLACTAM	2300	U	2300	UJ	13
CBC-U0400-SED-A	68.9	CARBAZOLE	62	U	62	UJ	13
CBC-U0400-SED-A	68.9	CHRYSENE	54	U	54	UJ	13
CBC-U0400-SED-A	68.9	DIBENZ(A,H) ANTHRACENE	63	U	63	UJ	13
CBC-U0400-SED-A	68.9	DIBENZOFURAN	56	U	56	UJ	13
CBC-U0400-SED-A	68.9	DIETHYL PHTHALATE	160	U	160	UJ	13
CBC-U0400-SED-A	68.9	DIMETHYL PHTHALATE	140	U	140	UJ	13
CBC-U0400-SED-A	68.9	DI- N- BUTYL PHTHALATE	1900	U	1900	UJ	13
CBC-U0400-SED-A	68.9	DI- N- OCTYLPHTHALATE	130	U	130	UJ	13
CBC-U0400-SED-A	68.9	FLUORANTHENE	610	J	610	J	13
CBC-U0400-SED-A	68.9	FLUORENE	120	U	120	UJ	13
CBC-U0400-SED-A	68.9	HEXACHLOROBENZENE	270	U	270	UJ	13
CBC-U0400-SED-A	68.9	HEXACHLOROBUTADIENE	270	U	270	UJ	13
CBC-U0400-SED-A	68.9	HEXACHLORO-CYCLOPENTADIENE	1600	U	1600	UJ	13
CBC-U0400-SED-A	68.9	HEXACHLOROETHANE	420	U	420	UJ	13
CBC-U0400-SED-A	68.9	INDENO(1,2,3- C,D) PYRENE	320	J	320	J	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-A	68.9	ISOPHORONE	270	U	270	UJ	13
CBC-U0400-SED-A	68.9	NAPHTHALENE	89	U	89	UJ	13
CBC-U0400-SED-A	68.9	NITROBENZENE	240	U	240	UJ	13
CBC-U0400-SED-A	68.9	N- NITROSODI- N-PROPYLAMINE	430	U	430	UJ	13
CBC-U0400-SED-A	68.9	N- NITROSO-DIPHENYLAMINE	290	U	290	UJ	13
CBC-U0400-SED-A	68.9	PENTACHLOROPHENOL	1800	U	1800	UJ	13
CBC-U0400-SED-A	68.9	PHENANTHRENE	110	U	110	UJ	13
CBC-U0400-SED-A	68.9	PHENOL	570	U	570	UJ	13
CBC-U0400-SED-A	68.9	PYRENE	610	J	610	J	13

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL

---

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable – Volatile Organic Compounds by EPA Methods 5030B/8260B, Semivolatile Organic Compounds by EPA Methods 3541/8270C, Organochlorine Pesticides by EPA Methods 3541/8081A, Polychlorinated Biphenyls by EPA Methods 3510C/8082 and 3541/8082, Metals by EPA Methods 3050B/6010B, Mercury by EPA Method 7471A, Cyanide by EPA Method 9012A, Hexavalent Chromium by EPA Methods 3060A/7196A and Percent Moisture/Solids by ASTM Method D2974-07– TestAmerica Work Order Number 180-12818-1**

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of thirty sediment samples, three field duplicate samples and two equipment blanks collected on July 24-25, 2012 as part of the Unisys sampling event. The analyses were performed at TestAmerica Pittsburgh, Pennsylvania. The sample was analyzed for the following tests:

- EPA Methods 5030B/8260B - Volatile Organic Compounds (VOCs)
- EPA Methods 3541/8270C - Semivolatile Organic Compounds (SVOCs)
- EPA Methods 3541/8081A - Organochlorine Pesticides
- EPA Methods 3510C/8082 and 3541/8082 - Polychlorinated Biphenyls (PCBs)
- EPA Methods 3050B/6010B – Metals
- EPA Method 7471A – Mercury
- EPA Method 9012A – Cyanide
- EPA Methods 3060A/7196A – Hexavalent Chromium
- ASTM Method D2974-07 - Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives, with the following exceptions. Qualified data should be used within the limitations of the qualification.

The average RRF for 1,4-dioxane was 0.0019, below the validation criteria of 0.005; therefore, the undetected value of 1,4-dioxane in sample CBC-1470-SED-D was R qualified as rejected.

The undetected values of hexachlorcyclopentadiene and 2,4-dinitrophenol in sample CBC-U0200-SED-C were R qualified as rejected due to no MS/MSD recoveries. In addition, the undetected value of endrin aldehyde in sample CBC-U0200-SED-C was R qualified as rejected due to no MS/MSD recoveries.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010, USEPA Region II, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the QAPP, USEPA Region II, Evaluation of Metals Data for the CLP Program, SOP HW-2 Rev.13, ILM05.3, September 2006, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, OSWER 9240.1-51, EPA 540-R-10-011, January 2010, as well as by the pertinent methods referenced by the data package and professional judgment.

The following sample was analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12818-2	WA-002-RR-SED-C
180-12818-3	WA-002-RR-SED-D
180-12818-5	WA-005-LL-SED-C
180-12818-6	WA-005-LL-SED-D
180-12818-8	WA-006-LL-SED-C
180-12818-9	WA-006-LL-SED-D
180-12818-11	WA-007-LL-SED-C
180-12818-12	WA-007-LL-SED-D

Lab ID	Client ID
180-12818-14	WA-010-R-SED-C
180-12818-15	WA-010-R-SED-D
180-12818-17	WA-013-L-SED-C
180-12818-18	WA-013-L-SED-D
180-12818-20	WA-014-L-SED-C
180-12818-21	WA-014-L-SED-D
180-12818-23	WA-015-SED-C
180-12818-24	WA-015-SED-D

Lab ID	Client ID
180-12818-25	DS-006-L-SED-C
180-12818-26	DS-006-L-SED-D
180-12818-28	CBC-1270-SED-C
180-12818-29	CBC-1270-SED-D
180-12818-31	CBC-1470-SED-C
180-12818-32	CBC-1470-SED-D
180-12818-34	CBC-1670-SED-C
180-12818-35	CBC-1670-SED-D
180-12818-36	CBC-U0200-SED-B
180-12818-37	CBC-U0200-SED-C

Lab ID	Client ID
180-12818-38	CBC-U0200-SED-D
180-12818-39	CBC-U0400-SED-B
180-12818-40	CBC-U0400-SED-C
180-12818-41	CBC-U0400-SED-D
180-12818-42	WA-DUP-01-SED-C
180-12818-43	EB-01-RI-072412
180-12818-44	EB-02-RI-072412
180-12818-45	CBC-DUP-01-SED-D
180-12818-46	CBC-DUP-02-SED-C

The samples were received at the laboratory at 1.5 and 2.3^{o}C; one cooler was slightly outside the QAPP criteria of 4 $\pm$ 2^{o}C. Based on professional judgment, no qualifications were applied to the data. No sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the correction was not followed.

No date or time of collection was listed on the COC for sample WA-DUP01-SED-C; the times of collection were not listed on the COC for samples CBC-DUP-01-SED-D and CBC-DUP-02-SED-C. The laboratory assigned the collection date/time of 7/25/12, 00:00 and times of 00:00 and 00:00, respectively.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

1.0 VOLATILE ORGANIC COMPOUNDS

One sediment sample was analyzed for VOCs per EPA Methods 5030B/8260B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Times
✓ Instrument Performance Check
⊗ Initial Calibration
✓ Continuing Calibration Verification

- ✓ Method Blanks
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Internal Standards
- ✓ Target Compound Identifications
- ✓ Target Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The VOC data reported in this package are considered to be usable for meeting project objectives, with the following exception. The analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 98%. The average RRF for 1,4-dioxane was 0.0019, below the validation criteria of 0.005; therefore, the undetected value of 1,4-dioxane in the associated sample, CBC-1470-SED-D, was R qualified as rejected.

1.2 Holding Times

The holding time for a solid sample is 14 days from sample collection. The holding times were met for the sample analyses.

1.3 Instrument Performance Check

An instrument performance check sample (tune standard) was analyzed at the beginning of each 12-hour period during sample analysis. The samples were analyzed within the 12-hour period. All ion abundance criteria were met for bromofluorobenzene (BFB).

1.4 Initial Calibration

Appropriate initial calibrations were performed for each analyte. Based on the method of calibration, the laboratory calculated percent relative standard deviation (%RSD) of the relative response factors (RRFs). The %RSDs of the calibration check compounds (CCCs) met the

method criteria of less than or equal to 30% and the minimum average RRFs for the compounds were above the method and validation criteria, with the exception noted below.

For the target analytes, the average RRFs and the %RSDs were within the method and validation criteria for the target compounds or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

The average RRF for 1,4-dioxane was 0.0019, below the validation criteria of 0.005. Therefore, the undetected value of 1,4-dioxane in the associated sample, CBC-1470-SED-D, was R qualified as rejected.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-1470-SED-D	1,4-Dioxane	510	U	510	R	9

U-not detected at the reported MDL
*Validation qualifiers are defined in Attachment 1 at the end of this report
**EDD reason codes are defined in Attachment 2 at the end of this report

1.5 Continuing Calibration Verification (CCV)

For the target analytes, the CCVs were performed at the required frequency. The CCV RRFs met the method and validation criteria.

The percent differences (%Ds) between the RRFs in the initial and continuing calibration standards for the target analytes were within the method and validation acceptance criteria of less than or equal to 20% for CCCs and the validation criteria of 40% difference for poor performing compounds and 25% difference for the non-CCC compounds.

1.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 43432). VOCs were not detected in the method blank above the method detection limits (MDLs).

1.7 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were not reported.

1.8 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery. It was noted that 1,4-dioxane was not spiked into the LCS. Since the undetected value of 1,4-dioxane was R qualified as rejected due to the initial calibration results, no additional qualifications were applied to the data.

1.9 Surrogates

Acceptable surrogate recoveries were reported for the sample analyses.

1.10 Equipment Blank

An equipment blank was collected with the sample set, but not analyzed for VOCs.

1.11 Field Duplicate

Field duplicate samples were collected with the sample set, but not analyzed for VOCs.

1.12 Internal Standards

The internal standard areas and retention times were within method limits.

1.13 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.14 Target Compound Quantitation

The compound quantitations were within the validation criteria.

1.15 Sensitivity

The samples were reported to the MDLs.

1.16 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20%. It was noted that the sample IDs in the EDDs

included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 SEMIVOLATILE ORGANIC COMPOUNDS

Six sediment samples and one field duplicate sample were analyzed for SVOCs per EPA Methods 3541/8270C.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Times
✓ Instrument Performance Check
✓ Initial Calibration
✓ Continuing Calibration Verification
✓ Blanks
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
⊗ Field Duplicate
✓ Internal Standards
✓ Target Compound Identifications
✓ Target Compound Quantitations
✓ Sensitivity
✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The SVOC data reported in this package are considered to be usable for meeting project objectives, with the following exceptions. The analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 99.6%. The undetected values of hexachlorcyclopentadiene and 2,4-dinitrophenol in sample CBC-U0200-SED-C were R qualified as rejected due to no MS/MSD recoveries.

2.2 Holding Times

The holding time for SVOC analysis of solid samples are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

2.3 Instrument Performance Check

An instrument performance check sample (tune standard) was analyzed at the beginning of each 12-hour period during sample analysis. The samples were analyzed within the 12-hour period. All ion abundance criteria were met for decafluorotriphenylphosphine (DFTPP).

Method 8270C describes the analysis of a standard to assess the gas chromatography (GC) column performance and injection port inertness; analyses of the standard resulted in acceptable results.

2.4 Initial Calibration

Appropriate initial calibrations were performed for each analyte. Based on the method of calibration, the laboratory calculated the percent relative standard deviation (%RSD) of the relative response factors (RRFs). The %RSDs of the calibration check compounds (CCCs) met the method criteria of less than or equal to 30% and the minimum average RRFs for the system performance check compounds (SPCCs) were above the method criteria.

For the target analytes, the average RRFs were within the method (15% RSD), and/or validation (20% RSD for compounds not considered poor responders, 40% for poor responders) criteria for the compounds or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

2.5 Continuing Calibration Verification

For the target analytes, the CCV was performed at the required frequency. The CCV RRFs met the method and validation criteria.

The percent differences (%Ds) between the RRFs in the initial and continuing calibration standards for the target analytes were within the method acceptance criteria of less than or equal to 20% for CCCs and the validation criteria of 40% difference for poor performing compounds and 25% difference for the non-CCC compounds.

2.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 44205). SVOCs were not detected in the method blank above the MDLs.

2.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0200-SED-C, was reported. The MS/MSD pairs had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria, with the following exceptions.

The MS/MSD pair had low benzaldehyde and 3,3'-dichlorobenzidine recoveries, outside the laboratory specified acceptance criteria. Therefore, the concentration of benzaldehyde in sample CBC-U0200-SED-C was J qualified as estimated and the undetected value of 3,3'-dichlorobenzidine was UJ qualified as estimated less than the MDL. In addition, there were no recoveries (0%) for hexachlorcyclopentadiene and 2,4-dinitrophenol. Therefore, the undetected values of hexachlorcyclopentadiene and 2,4-dinitrophenol in sample CBC-U0200-SED-C were R qualified as rejected.

In addition, there were high recoveries, outside the laboratory specified acceptance criteria, for atrazine, benzo(a)pyrene, benzo(b)fluroanthene, benzo(g,h,i)perylene, chrysene and indeno(1,2,3-cd)pyrene. Since atrazine was not detected in the sample, no qualifications were applied to the data. The concentrations of benzo(a)pyrene, benzo(b)fluroanthene, benzo(g,h,i)perylene, chrysene and indeno(1,2,3-cd)pyrene in sample CBC-U0200-SED-C were J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-C	3,3'-DICHLORO-BENZIDINE	48	U	48	UJ	4
CBC-U0200-SED-C	BENZALDEHYDE	600	NA	600	J	4
CBC-U0200-SED-C	BENZO(A) PYRENE	290	NA	290	J	4
CBC-U0200-SED-C	BENZO(B) FLUORANTHENE	290	NA	290	J	4
CBC-U0200-SED-C	BENZO(G,H,I) PERYLENE	350	NA	350	J	4

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-C	CHRYSENE	230	NA	230	J	4
CBC-U0200-SED-C	HEXACHLORO-CYCLOPENTADIENE	49	U	49	R	4
CBC-U0200-SED-C	2,4-DINITROPHENOL	540	U	540	R	4
CBC-U0200-SED-C	INDENO(1,2,3-C,D) PYRENE	240	NA	240	J	4

U-not detected at the reported MDL
NA-not applicable

2.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery, with the following exception. The recovery of atrazine was high and outside the laboratory specified acceptance criteria. Since atrazine was not detected in the associated samples, no qualifications were applied to the data.

2.9 Surrogate

The surrogate recoveries were low and outside the laboratory specified acceptance criteria. Since the samples were analyzed at 1:20 dilutions, no qualifications were applied to the data.

2.10 Field Duplicate

One field duplicate sample, CBC-DUP-01-SED-D, was collected with the samples. Acceptable precision [RPD <40% for results >5 times the reporting limit (RL), < ± 2 times the RL for results < 5 times the RL] was demonstrated between the field duplicate and the original sample CBC-U0400-SED-D, with the following exceptions.

Compounds were detected in one sample and not detected in the other sample in the duplicate pair or detected at an estimated concentration in one sample and above the RL in the other sample in the duplicate pair, resulting in noncalculable RPDs between the results. Therefore, the detected concentrations were J qualified as estimated and the undetected values were UJ qualified as estimated less than the MDL.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	2-METHYL-NAPHTHALENE	44	J	NC	NA	NA	NA
CBC-U0400-SED-D	2-METHYL-NAPHTHALENE	49	J		NA	NA	NA
CBC-DUP-01-SED-D	ACENAPHTHENE	21	J	NC	21	J	7
CBC-U0400-SED-D	ACENAPHTHENE	11	U		11	UJ	7
CBC-DUP-01-SED-D	ACENAPHTHYLENE	59	J	NC	NA	NA	NA
CBC-U0400-SED-D	ACENAPHTHYLENE	64	J		NA	NA	NA
CBC-DUP-01-SED-D	ANTHRACENE	64	J	NC	NA	NA	NA
CBC-U0400-SED-D	ANTHRACENE	72	J		NA	NA	NA
CBC-DUP-01-SED-D	BENZALDEHYDE	760	NA	3	NA	NA	NA
CBC-U0400-SED-D	BENZALDEHYDE	740	NA		NA	NA	NA
CBC-DUP-01-SED-D	BENZO(A) ANTHRACENE	220	NA	5	NA	NA	NA
CBC-U0400-SED-D	BENZO(A) ANTHRACENE	210	NA		NA	NA	NA
CBC-DUP-01-SED-D	BENZO(A)PYRENE	260	NA	8	NA	NA	NA
CBC-U0400-SED-D	BENZO(A)PYRENE	240	NA		NA	NA	NA
CBC-DUP-01-SED-D	BENZO(B) FLUORANTHENE	380	NA	8	NA	NA	NA
CBC-U0400-SED-D	BENZO(B) FLUORANTHENE	350	NA		NA	NA	NA
CBC-DUP-01-SED-D	BENZO(G,H,I) PERYLENE	310	NA	18	NA	NA	NA
CBC-U0400-SED-D	BENZO(G,H,I)PERYLENE	260	NA		NA	NA	NA
CBC-DUP-01-SED-D	CHRYSENE	280	NA	7	NA	NA	NA
CBC-U0400-SED-D	CHRYSENE	300	NA		NA	NA	NA
CBC-DUP-01-SED-D	CRESOLS, M & P	54	U	NC	54	UJ	7
CBC-U0400-SED-D	CRESOLS, M & P	57	J		57	J	7
CBC-DUP-01-SED-D	DIBENZ(A,H) ANTHRACENE	110	NA	NC	110	J	7
CBC-U0400-SED-D	DIBENZ(A,H) ANTHRACENE	65	J		65	J	7

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	FLUORANTHENE	360	NA	5	NA	NA	NA
CBC-U0400-SED-D	FLUORANTHENE	380	NA		NA	NA	NA
CBC-DUP-01-SED-D	FLUORENE	39	J	NC	NA	NA	NA
CBC-U0400-SED-D	FLUORENE	46	J		NA	NA	NA
CBC-DUP-01-SED-D	INDENO(1,2,3-C,D)PYRENE	220	NA	10	NA	NA	NA
CBC-U0400-SED-D	INDENO(1,2,3-C,D)PYRENE	200	NA		NA	NA	NA
CBC-DUP-01-SED-D	NAPHTHALENE	59	J	NC	NA	NA	NA
CBC-U0400-SED-D	NAPHTHALENE	62	J		NA	NA	NA
CBC-DUP-01-SED-D	PHENANTHRENE	210	NA	5	NA	NA	NA
CBC-U0400-SED-D	PHENANTHRENE	200	NA		NA	NA	NA
CBC-DUP-01-SED-D	PYRENE	300	NA	7	NA	NA	NA
CBC-U0400-SED-D	PYRENE	280	NA		NA	NA	NA
CBC-DUP-01-SED-D	The other SVOCs	ND	NA	0	NA	NA	NA
CBC-U0400-SED-D	The other SVOCs	ND	NA		NA	NA	NA

U-not detected at the reported MDL
J- estimated concentration less than the reporting limit and greater than the MDL
ND-not detected at the MDL
NA-not applicable
NC-not calculable

2.11 Internal Standards

The internal standard areas and retention times were within the method acceptance limits.

2.12 Target Compound Identifications

The target compound identifications were within the validation criteria.

2.13 Compound Quantitation

The compound quantitations were within the validation criteria.

2.14 Sensitivity

The samples were reported to the MDLs.

2.15 Electronic Data Deliverables (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

3.0 ORGANOCHLORINE PESTICIDES

Four sediment samples and one field duplicate were analyzed for organochlorine pesticides per EPA Methods 3541/8081A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Time
✓ Initial Calibration
⊗ Continuing Calibration Verification
⊗ Method Blanks
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
✓ Equipment Blank
⊗ Field Duplicate

✓ Target Compound Identification
⊗ Compound Quantitation
✓ Sensitivity
✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The pesticide data reported in this package are considered to be usable for meeting project objectives, with the following exception. The analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 99.1%. There were no recoveries of endrin aldehyde in the MS/MSD pair using sample CBC-U0200-SED-C. Therefore, the undetected value endrin aldehyde in sample CBC-U0200-SED-C was R qualified as rejected.

3.2 Holding Times

The holding times for pesticide analysis of solid samples are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

3.3 Initial Calibration

Initial calibration of the target compounds was performed for the primary (quantitation) column and confirmation column as required by this method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

3.4 Continuing Calibration Verification

The performance evaluation standards (PEM) were analyzed at the required frequency. The 4,4'-DDT and endrin breakdown results were within the method specified acceptance criteria.

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the method 15% D limits, with the following exceptions.

The %Ds for 4,4'-DDT (p,p'-DDT) and methoxychlor were greater than 15% D, with low biases, in the CCVs bracketing the samples. Therefore, the undetected values of 4,4'-DDT and

methoxychlor in the associated samples were UJ qualified as estimated less than the MDLs and the detected concentrations were J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
CBC-DUP-01-SED-D	METHOXYCHLOR	1.1	Jp	1.1	J	9
CBC-DUP-01-SED-D	P,P'-DDT	0.42	Jp	0.42	J	9
CBC-U0200-SED-C	METHOXYCHLOR	0.82	Jp	0.82	J	9
CBC-U0200-SED-C	P,P'-DDT	0.29	Jp	0.29	J	9
CBC-U0200-SED-D	METHOXYCHLOR	0.61	Jp	0.61	J	9
CBC-U0200-SED-D	P,P'-DDT	1.1	J	1.1	J	9
CBC-U0400-SED-C	METHOXYCHLOR	0.44	U	0.44	UJ	9
CBC-U0400-SED-C	P,P'-DDT	0.32	U	0.32	UJ	9
CBC-U0400-SED-D	P,P'-DDT	0.27	U	0.27	UJ	9
CBC-U0400-SED-D	METHOXYCHLOR	0.55	Jp	0.55	J	9

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
p-The %RPD between the primary and confirmation column/detector was >40%. The lower value was reported

3.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (Batch 44206). Pesticides were not detected in the method blank above the MDLs, with the following exception. 4,4'-DDD was detected at an estimated concentration greater than the MDL and less than the reporting limit (RL). Therefore, the estimated concentration of 4,4'-DDD in the associated sample was U qualified as not detected at the RL; the concentrations of 4,4'-DDD in the other samples were above the RL.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
CBC-U0400-SED-D	P,P'-DDD	0.67	JB	1.8	U	3

J-estimated concentration less than the RL and greater than the MDL

B-compound found in the blank and sample

3.6 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0200-SED-C, was reported. The MS/MSD pair had low recoveries, outside the laboratory specified acceptance criteria, for the spiked compounds; there were no recoveries of endrin aldehyde. Therefore, the undetected value of endrin aldehyde in sample CBC-U0200-SED-C was R qualified as rejected; the detected concentrations of the other compounds were J qualified as estimated and the undetected values were UJ qualified as estimated less than the MDLs.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
CBC-U0200-SED-C	ALDRIN	0.27	U	0.27	UJ	4
CBC-U0200-SED-C	ALPHA BHC	0.25	U	0.25	UJ	4
CBC-U0200-SED-C	ALPHA ENDOSULFAN	0.29	U	0.29	UJ	4
CBC-U0200-SED-C	ALPHA-CHLORDANE	0.30	U	0.30	UJ	4
CBC-U0200-SED-C	BETA BHC	0.39	U	0.39	UJ	4
CBC-U0200-SED-C	BETA ENDOSULFAN	0.27	U	0.27	UJ	4
CBC-U0200-SED-C	DIELDRIN	0.25	U	0.25	UJ	4
CBC-U0200-SED-C	ENDOSULFAN SULFATE	0.16	U	0.16	UJ	4
CBC-U0200-SED-C	ENDRIN	0.37	Jp	0.37	J	4
CBC-U0200-SED-C	ENDRIN ALDEHYDE	0.30	U	0.30	R	4
CBC-U0200-	ENDRIN KETONE	0.24	U	0.24	UJ	4

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
SED-C						
CBC-U0200-SED-C	GAMMA BHC (LINDANE)	0.27	U	0.27	UJ	4
CBC-U0200-SED-C	GAMMA-CHLORDANE	0.73	J	0.73	J	4
CBC-U0200-SED-C	HEPTACHLOR	0.34	U	0.34	UJ	4
CBC-U0200-SED-C	METHOXYCHLOR	0.82	Jp	0.82	J	4
CBC-U0200-SED-C	P,P'-DDD	1.7	B	1.7	J	4
CBC-U0200-SED-C	P,P'-DDT	0.29	Jp	0.29	J	4
CBC-U0200-SED-C	DELTA BHC	0.23	U	0.23	UJ	4
CBC-U0200-SED-C	HEPTACHLOR EPOXIDE	0.30	U	0.30	UJ	4
CBC-U0200-SED-C	P,P'-DDE	2.1	NA	2.1	J	4

NA-not applicable
U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
p-The %RPD between the primary and confirmation column/detector was >40%. The lower value was reported

3.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

3.8 Surrogate

The surrogate recoveries were low and outside the laboratory specified acceptance criteria in the sediment samples. Since the samples were analyzed at 1:20 dilutions, no qualifications were applied to the data based on professional judgment. In addition, the surrogate recoveries were low and outside the laboratory specified acceptance criteria in the method blank. Based on professional judgment, no qualifications were applied to the data.

3.9 Equipment Blank

An equipment blank was collected with the sample set, but not analyzed for pesticides.

3.10 Field Duplicate

One field duplicate sample, CBC-DUP-01-SED-D, was collected with the samples. Acceptable precision (<RPD <40% for results >5 times the RL, < ± 2 times the RL for results < 5 times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SED-D, with the following exceptions.

Compounds were detected in one sample and not detected in the other sample in the duplicate pair or detected at an estimated concentration in one sample and above the RL in the other sample in the duplicate pair, resulting in a noncalculable RPD between the results. Therefore, the detected concentrations were J qualified as estimated and the undetected values were UJ qualified as estimated less than the MDL.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
CBC-DUP-01-SED-D	ALPHA-CHLORDANE	0.50	J	NC	0.50	J	7
CBC-U0400-SED-D	ALPHA-CHLORDANE	0.36	U		0.36	UJ	7
CBC-DUP-01-SED-D	BETA BHC	0.48	U	NC	0.48	UJ	7
CBC-U0400-SED-D	BETA BHC	1.5	J		1.5	J	7
CBC-DUP-01-SED-D	DELTA BHC	0.34	Jp	NC	0.34	J	7
CBC-U0400-SED-D	DELTA BHC	0.28	U		0.28	UJ	7

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
CBC-DUP-01-SED-D	ENDRIN	0.66	Jp	NC	NA	NA	NA
CBC-U0400-SED-D	ENDRIN	0.52	J		NA	NA	NA
CBC-DUP-01-SED-D	GAMMA-CHLORDANE	1.2	J	NC	NA	NA	NA
CBC-U0400-SED-D	GAMMA-CHLORDANE	1.1	J		NA	NA	NA
CBC-DUP-01-SED-D	HEPTACHLOR EPOXIDE	2.0	p	NC	2.0	J	7
CBC-U0400-SED-D	HEPTACHLOR EPOXIDE	0.65	Jp		0.65	J	7
CBC-DUP-01-SED-D	METHOXYCHLOR	1.1	Jp	NC	NA	NA	NA
CBC-U0400-SED-D	METHOXYCHLOR	0.55	Jp		NA	NA	NA
CBC-DUP-01-SED-D	P,P'-DDD	2.4	B	NC	2.4	J	7
CBC-U0400-SED-D	P,P'-DDD	0.67	JB		0.67	J	7
CBC-DUP-01-SED-D	P,P'-DDE	6.4		19	NA	NA	NA
CBC-U0400-SED-D	P,P'-DDE	4.4			NA	NA	NA
CBC-DUP-01-SED-D	P,P'-DDT	0.42	Jp	NC	0.42	J	7
CBC-U0400-SED-D	P,P'-DDT	0.27	U		0.27	UJ	7
CBC-DUP-01-SED-D	The other pesticides	ND	NA	0	NA	NA	NA
CBC-U0400-SED-D	The other pesticides	ND	NA		NA	NA	NA

U-not detected at the reported MDL
ND-not detected at the MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
p-The %RPD between the primary and confirmation column/detector was >40%. The lower value was reported
NA-not applicable

3.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

3.12 Compound Quantitation

The compound quantitations were within the validation criteria.

It was noted that the %Ds between the concentrations detected on the gas chromatography (GC) columns for compounds in the samples were above the validation guidance criteria of 25% D. Therefore, the following qualifications were applied to the data, based on the EPA Region II validation guidance.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
CBC-U0200-SED-C	ENDRIN	0.37	Jp	1.5	U	13
CBC-U0200-SED-C	GAMMA-CHLORDANE	0.73	J	0.73	J	13
CBC-U0200-SED-C	METHOXYCHLOR	0.82	Jp	1.5	U	13
CBC-U0200-SED-C	P,P'-DDT	0.29	Jp	2.0	U	13
CBC-U0200-SED-D	ENDRIN	0.86	Jp	2.0	U	13
CBC-U0200-SED-D	ENDRIN KETONE	0.37	Jp	2.0	U	13
CBC-U0200-SED-D	ALDRIN	0.52	Jp	2.0	U	13
CBC-U0200-SED-D	DELTA BHC	0.37	Jp	3.9	U	13
CBC-U0200-SED-D	METHOXYCHLOR	0.61	Jp	2.1	U	13
CBC-	DIELDRIN	0.40	Jp	2.1	U	13

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
U0400-SED-C						
CBC-U0400-SED-C	ENDRIN	0.72	Jp	2.1	U	13
CBC-U0400-SED-C	ENDRIN KETONE	0.34	Jp	2.1	U	13
CBC-U0400-SED-C	HEPTACHLOR EPOXIDE	2.1	p	2.1	NJ	13
CBC-U0400-SED-D	GAMMA-CHLORDANE	1.1	J	1.8	U	13
CBC-U0400-SED-D	HEPTACHLOR EPOXIDE	0.65	Jp	1.8	U	13
CBC-U0400-SED-D	METHOXYCHLOR	0.55	Jp	3.6	U	13
CBC-DUP-01-SED-D	ENDRIN	0.66	Jp	1.8	U	13
CBC-DUP-01-SED-D	METHOXYCHLOR	1.1	Jp	3.7	U	13
CBC-DUP-01-SED-D	P,P'-DDT	0.42	Jp	1.8	U	13
CBC-DUP-01-SED-D	DELTA BHC	0.34	Jp	1.8	U	13
CBC-DUP-01-SED-D	HEPTACHLOR EPOXIDE	2.0	p	2.0	J	13

J-estimated concentration less than the RL and greater than the MDL
p-The %RPD between the primary and confirmation column/detector was >40%. The lower value was reported

3.13 Sensitivity

The samples were reported to the MDLs.

3.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix

was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

4.0 POLYCHLORINATED BIPHENYLS

Thirty sediment samples, three field duplicate samples and two equipment blanks were analyzed for PCBs per EPA Methods 3510C/8082 and 3541/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Initial Calibration
⊗ Continuing Calibration Verification
✓ Method Blanks
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
✓ Equipment Blank
⊗ Field Duplicate
✓ Target Compound Identification
✓ Compound Quantitation
⊗ Sensitivity
✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

4.2 Holding Times

The holding times for PCB analysis of solids are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for PCB analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

4.3 Initial Calibration

Initial calibration of the target compounds was performed as required by the method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

4.4 Continuing Calibration Verification (CCV)

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits, with the following exception.

The percent difference was greater than 15% for PCB 1260, with high bias in the CCV bracketing samples 18 and 20. Therefore, based on professional judgment, the concentration of PCB 1254 in sample WA-014-L-SED-C was J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
WA-014-L-SED-C	PCB-1254	2.7	J	2.7	J	9

J-estimated concentration less than the RL and greater than the MDL

4.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported with the data (batches 43397, 44032, 44033 and 44034). PCBs were not detected in the method blanks above the MDLs.

4.6 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Three sample set specific MS/MSD pairs, using

samples WA-007-LL-SED-C, CBC-1270-SED-C and CBC-U0200-SED-C, were reported. The MS/MSD pairs had recovery and RPD results within the laboratory specified acceptance criteria, with the following exceptions.

There was no recovery of PCBs 1016 or 1260 in the MS/MSD pair using sample CBC-1270-SED-C; the spiked compounds were diluted out due to the concentration of PCB 1254 in sample CBC-1270-SED-C. Based on professional judgment, no qualifications were applied to the data.

4.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four LCSs were analyzed. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

4.8 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria, with the following exceptions. The decachlorobiphenyl recoveries in some samples were high and outside the laboratory specified acceptance criteria. Since the other surrogate (tetrachloroxylene) recoveries were acceptable, no qualifications were applied to the data.

4.9 Equipment Blank

Two equipment blanks, EB-01-RI-072412 and EB-02-RI-072412, were collected with the samples. PCBs were not detected in the equipment blanks above the MDLs.

4.10 Field Duplicate

Three field duplicate samples, WA-DUP-01-SED-C, CBC-DUP-02-SED-C and CBC-DUP-01-SED-D, were collected with the sample set. Acceptable precision (RPD <40% for results >5 times the RL, < $\pm$ 2 times the RL for results < 5 times the RL) was demonstrated between the field duplicates and the original samples, WA-013-L-SED-C, CBC-U0200-SED-C and CBC-U0400-SED-D, respectively, with the following exceptions.

Compounds were detected in one sample and not detected in the other sample in the duplicate pairs, resulting in noncalculable RPDs between the results. Therefore, the detected concentrations were J qualified as estimated and the undetected values were UJ qualified as estimated less than the MDLs.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
WA-013-L-SED-C	PCB-1254	0.48	U	NC	0.48	UJ	7
WA-DUP-01-SED-C	PCB-1254	1.7	J		1.7	J	7
WA-013-L-SED-C	TOTAL PCBS	0.73	U	NC	0.73	UJ	7
WA-DUP-01-SED-C	TOTAL PCBS	1.7	J		1.7	J	7
WA-013-L-SED-C	The other PCBs	ND	NA	0	ND	NA	NA
WA-DUP-01-SED-C	The other PCBs	ND	NA		ND	NA	NA

J-estimated concentration less than the RL and greater than the MDL
U-not detected at the reported MDL
NA-not applicable
ND-not detected at the MDL
NC-not calculable

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-DUP-02-SED-C	PCB-1254	54	NA	23	NA	NA	NA
CBC-U0200-SED-C	PCB-1254	43	NA		NA	NA	NA
CBC-DUP-02-SED-C	The other PCBs	ND	NA	0	NA	NA	NA
CBC-U0200-SED-C	The other PCBs	ND	NA		NA	NA	NA
CBC-DUP-02-SED-C	TOTAL PCBS	54	NA	23	NA	NA	NA
CBC-U0200-SED-C	TOTAL PCBS	43	NA		NA	NA	NA

NA-not applicable
ND-not detected at the MDL

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	PCB-1254	0.65	U	NC	0.65	UJ	7
CBC-U0400-SED-D	PCB-1254	54	NA		54	J	7
CBC-DUP-01-SED-D	The other PCBs	ND	NA	0	NA	NA	NA

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-D	The other PCBs	ND	NA		NA	NA	NA
CBC-DUP-01-SED-D	TOTAL PCBS	1.0	U	NC	1.0	UJ	7
CBC-U0400-SED-D	TOTAL PCBS	54	NA		54	J	7

U-not detected at the reported MDL
NA-not applicable
ND-not detected at the MDL
NC-not calculable

4.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

4.12 Compound Quantitation

The compound quantitations were within the validation criteria.

4.13 Sensitivity

The samples were reported to the MDLs. The MDLs were greater than the Human Health Bioaccumulation Sediment Criteria listed in Table 2 of the work plan.

Parameters	HH Sediment Criteria (µg/kg)	Lab MDL (µg/kg)
Total PCBs	0.008	89

HH - Human Health Bioaccumulation

4.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

5.0 METALS

Six sediment samples and one field duplicate sample were analyzed for metals per EPA Methods 3050B/6010B (Mercury evaluated separately in Section 6.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Times
✓ Initial Calibration
✓ Initial and Continuing Calibration Verification
⊗ Initial and Continuing Calibration Blanks
⊗ Method Blank
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Duplicate
✓ Laboratory Control Sample
⊗ Serial Dilution
✓ Equipment Blank
✓ Field Duplicate
✓ Compound Quantitations
✓ Sensitivity
✓ Electronic Data Deliverables Review

5.1 Overall Assessment

The metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

5.2 Holding Times

The holding time for metals analysis of solids is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

5.3 Initial Calibration

The initial calibration requirements were met for the inductively coupled plasma-atomic emission spectrometer (ICP-AES).

The reporting limit standards were within the laboratory control limits.

The interference check standards (ICSA and ICSAB) met the method acceptance criteria.

5.4 Initial and Continuing Calibration Verifications (ICV and CCV)

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

5.5 Initial and Continuing Calibration Blanks (ICB and CCB)

The ICBs and CCBs met the method acceptance criteria. There were estimated concentrations of beryllium, calcium, iron and manganese in the bracketing CCBs, greater than the MDLs and less than the RLs. Since the concentrations of calcium, iron and manganese in the associated samples were greater than the RLs, no qualifications were applied to the data. The estimated concentrations of beryllium in the associated samples were U qualified as not detected at the RL.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CBC-U0200-SED-B	BERYLLIUM	0.40	J	0.45	U	3
CBC-U0200-SED-D	BERYLLIUM	0.40	J	0.45	U	3
CBC-U0400-SED-B	BERYLLIUM	0.41	J	0.60	U	3

J-estimated concentration less than the RL and greater than the MDL

5.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 43793). Metals were not detected in the method blank above the MDLs, with the following exceptions.

Calcium, copper, iron, potassium magnesium, sodium and zinc were detected at estimated concentrations greater than the MDLs and less than the RLs. Since calcium, copper, iron, potassium magnesium and zinc were detected in the associated sample at concentrations greater than the RLs, no qualifications were applied to the data. The estimated concentrations of sodium in the associated samples were U qualified as not detected at the RL.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CBC-DUP-01-SED-D	SODIUM	150	JB	530	U	3
CBC-U0200-SED-B	SODIUM	220	JB	570	U	3
CBC-U0200-SED-C	SODIUM	150	JB	450	U	3
CBC-U0200-SED-D	SODIUM	210	JB	570	U	3
CBC-U0400-SED-B	SODIUM	240	JB	750	U	3
CBC-U0400-SED-C	SODIUM	180	JB	570	U	3
CBC-U0400-SED-D	SODIUM	140	JB	500	U	3

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample

5.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0200-SED-C, was reported. The recovery and RPD results were within the laboratory specified acceptance criteria, with the following exceptions.

The recoveries of calcium, copper, lead and antimony were low and outside the laboratory specified acceptance criteria. Therefore, the concentrations of calcium, copper, lead and antimony in sample CBC-U0200-SED-C were J- qualified as estimated with low biases.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CBC-U0200-SED-C	ANTIMONY	0.25	J	0.25	J-	4
CBC-U0200-SED-C	CALCIUM	14000	B	14000	J-	4
CBC-U0200-SED-C	COPPER	67	B	67	J-	4
CBC-U0200-SED-C	LEAD	78	NA	78	J-	4

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable

5.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

5.9 Serial Dilution

A serial dilution, using sample CBC-U0200-SED-C was reported. The results for the serial dilution were within the method acceptance criteria, with the following exceptions. The %D for calcium, iron and zinc were high and outside the method acceptance criteria. Therefore, the concentrations of calcium, iron and zinc in sample CBC-U0200-SED-C were J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CBC-U0200-SED-C	CALCIUM	14000	B	14000	J	8
CBC-U0200-SED-C	IRON	13000	B	13000	J	8
CBC-U0200-SED-C	ZINC	180	B	180	J	8

B-compound found in the blank and sample

5.10 Field Duplicate

One field duplicate sample, CBC-DUP-01-SED-D, was collected with the samples. Acceptable precision RPD (<40% for results >5 times the RL, < ± 2 times the RL for results < 5 times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SED-D.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	ALUMINUM	8800	NA	3	NA	NA	NA
CBC-U0400-SED-D	ALUMINUM	8500	NA		NA	NA	NA
CBC-DUP-01-SED-D	ANTIMONY	0.62	J	25	NA	NA	NA
CBC-U0400-SED-D	ANTIMONY	0.48	J		NA	NA	NA
CBC-DUP-01-SED-D	ARSENIC	7.2	NA	3	NA	NA	NA
CBC-U0400-SED-D	ARSENIC	7.0	NA		NA	NA	NA

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	BARIUM	160	NA	6	NA	NA	NA
CBC-U0400-SED-D	BARIUM	170	NA		NA	NA	NA
CBC-DUP-01-SED-D	BERYLLIUM	0.53	NA	4	NA	NA	NA
CBC-U0400-SED-D	BERYLLIUM	0.51	NA		NA	NA	NA
CBC-DUP-01-SED-D	CADMIUM	0.75	NA	20	NA	NA	NA
CBC-U0400-SED-D	CADMIUM	0.92	NA		NA	NA	NA
CBC-DUP-01-SED-D	CALCIUM	18000	B	6	NA	NA	NA
CBC-U0400-SED-D	CALCIUM	17000	B		NA	NA	NA
CBC-DUP-01-SED-D	CHROMIUM, TOTAL	24	NA	0	NA	NA	NA
CBC-U0400-SED-D	CHROMIUM, TOTAL	24	NA		NA	NA	NA
CBC-DUP-01-SED-D	COBALT	7.6	NA	5	NA	NA	NA
CBC-U0400-SED-D	COBALT	7.2	NA		NA	NA	NA
CBC-DUP-01-SED-D	COPPER	98	B	2	NA	NA	NA
CBC-U0400-SED-D	COPPER	96	B		NA	NA	NA
CBC-DUP-01-SED-D	IRON	19000	B	5	NA	NA	NA
CBC-U0400-SED-D	IRON	18000	B		NA	NA	NA
CBC-DUP-01-SED-D	LEAD	150	NA	0	NA	NA	NA
CBC-U0400-SED-D	LEAD	150	NA		NA	NA	NA
CBC-DUP-01-SED-D	MAGNESIUM	2500	B	8	NA	NA	NA
CBC-U0400-SED-D	MAGNESIUM	2300	B		NA	NA	NA
CBC-DUP-01-SED-D	MANGANESE	360	NA	12	NA	NA	NA
CBC-U0400-SED-D	MANGANESE	320	NA		NA	NA	NA
CBC-DUP-01-SED-D	NICKEL	57	NA	2	NA	NA	NA

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-D	NICKEL	58	NA		NA	NA	NA
CBC-DUP-01-SED-D	POTASSIUM	880	B	7	NA	NA	NA
CBC-U0400-SED-D	POTASSIUM	820	B		NA	NA	NA
CBC-DUP-01-SED-D	SELENIUM	1.1	NA	0	NA	NA	NA
CBC-U0400-SED-D	SELENIUM	1.1	NA		NA	NA	NA
CBC-DUP-01-SED-D	SILVER	0.33	J	9	NA	NA	NA
CBC-U0400-SED-D	SILVER	0.36	J		NA	NA	NA
CBC-DUP-01-SED-D	SODIUM	150	JB	7	NA	NA	NA
CBC-U0400-SED-D	SODIUM	140	JB		NA	NA	NA
CBC-DUP-01-SED-D	THALLIUM	0.62	J	21	NA	NA	NA
CBC-U0400-SED-D	THALLIUM	0.50	J		NA	NA	NA
CBC-DUP-01-SED-D	VANADIUM	14	NA	0	NA	NA	NA
CBC-U0400-SED-D	VANADIUM	14	NA		NA	NA	NA
CBC-DUP-01-SED-D	ZINC	280	B	0	NA	NA	NA
CBC-U0400-SED-D	ZINC	280	B		NA	NA	NA

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable

5.11 Compound Quantitations

The compound quantitations were within the validation criteria.

5.12 Sensitivity

The samples were reported to the MDLs.

5.13 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

6.0 MERCURY

One sediment sample was analyzed for mercury per EPA Method 7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

6.1 Overall Assessment

The mercury data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

6.2 Holding Times

The holding time for mercury analysis of solids is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

6.3 Initial Calibration

The initial calibration requirements were met. The coefficient of determination (r^2) was greater than or equal to 0.990 for the linear calibration.

The reporting limit standard was within the laboratory control limits.

6.4 Initial and Continuing Calibration Verifications

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

6.5 Initial and Continuing Calibration Blanks

The ICBs and CCBs met the method acceptance criteria.

6.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 44195). Mercury was not detected in the method blank above the MDL.

6.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0200-SED-C, was reported. The recovery and RPD results were within the laboratory specified acceptance criteria.

6.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The result for the was within the laboratory specified acceptance criteria for recovery.

6.9 Field Duplicate

One field duplicate sample, CBC-DUP-01-SED-D, was collected with the samples. Acceptable precision (< 40% RPD for results greater than five times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SED-D.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	MERCURY	0.19	NA	0	NA	NA	NA
CBC-U0400-SED-D	MERCURY	0.19	NA		NA	NA	NA

NA-not applicable

6.10 Compound Quantitations

The compound quantitations were within the validation criteria.

6.11 Sensitivity

The samples were reported to the MDL.

6.12 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

7.0 CYANIDE AND HEXAVALENT CHROMIUM

Six sediment samples and one field duplicate sample were analyzed for cyanide by EPA Method 9012A and hexavalent chromium by EPA Methods 3060A/7196A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Method Blank
- ✓ Matrix Spike
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Electronic Data Deliverables Review

7.1 Overall Assessment

The cyanide and hexavalent chromium data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100% for the cyanide and hexavalent chromium data.

7.2 Holding Times

The holding time for cyanide analysis of soils is 14 days from sample collection to analysis. The holding times for the hexavalent analysis of soils are 30 days from collection to extraction and 168 hours from extraction to analysis. The holding times were met for the sample analyses.

7.3 Initial Calibration

The initial calibration data met the method requirements.

7.4 Initial and Continuing Calibration Verification

The percent recoveries in the associated ICVs and CCVs were within the QC acceptance limits.

7.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the hexavalent chromium data (batches 44934 and 45389). One method blank was reported with the cyanide data (batch 44226). Hexavalent chromium and cyanide were not detected in the method blanks above the MDLs.

7.6 Matrix Spike/Matrix Spike Duplicate

MS and MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Two sample set specific MSs were reported for hexavalent chromium and one sample set specific MS/MSD pair was reported for cyanide, using sample CBC-U0200-SED-C. The cyanide recovery and RPD results were within the laboratory specified acceptance criteria.

There was low recovery of hexavalent chromium in the MSs, both in the soluble MS (7%) and insoluble MS (49%); the limits for both MSs were 75-125%. The insoluble MS is used by the laboratory to evaluate the dissolution of hexavalent chromium during the digestion process. Therefore, based on professional judgment, the undetected value of hexavalent chromium in sample CBC-U0200-SED-C was UJ qualified as estimated less than the MDL, based on both the soluble and insoluble MS recoveries.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-C	CHROMIUM, HEXAVALENT	0.18	U	0.18	UJ	4

U-not detected at the reported MDL

7.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four LCSs were reported with the hexavalent chromium data; two LCSs were reported with the cyanide data. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

7.8 Laboratory Duplicate

A laboratory duplicate was reported for hexavalent chromium, using sample CBC-U0200-SED-C. The %D between the results was within the laboratory specified acceptance criteria.

7.9 Field Duplicate

One field duplicate sample, CBC-DUP-01-SED-D, was collected with the samples. Acceptable precision RPD (<40% for results >5 times the RL, < ± 2 times the RL for results < 5 times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SED-D.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	CYANIDE	0.81	NA	9	NA	NA	NA
CBC-U0400-SED-D	CYANIDE	0.89	NA		NA	NA	NA
CBC-DUP-01-SED-D	CHROMIUM, HEXAVALENT	0.22	U	0	NA	NA	NA
CBC-U0400-SED-D	CHROMIUM, HEXAVALENT	0.22	U		NA	NA	NA

U-not detected at the reported MDL
NA-not applicable

7.10 Compound Quantitation

The compound quantitations were within the validation criteria.

7.11 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level II report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

8.0 PERCENT MOISTURE/SOLIDS

The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. Therefore, the sample results in samples CBC-DUP-01-SED-D, CBC-U0200-SED-B, CBC-U0200-SED-D, CBC-U0400-SED-B, CBC-U0400-SED-C and CBC-U0400-SED-D were J qualified as

estimated; the non-detect values were UJ qualified as estimated less than the MDLs. The qualifications are summarized in the tables below.

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-1270-SED-C	53.0	PCB-1016	6.6	U	6.6	UJ	13
CBC-1270-SED-C	53.0	PCB-1221	8.4	U	8.4	UJ	13
CBC-1270-SED-C	53.0	PCB-1232	7.6	U	7.6	UJ	13
CBC-1270-SED-C	53.0	PCB-1242	7.2	U	7.2	UJ	13
CBC-1270-SED-C	53.0	PCB-1248	4.2	U	4.2	UJ	13
CBC-1270-SED-C	53.0	PCB-1254	1900	NA	1900	J	13
CBC-1270-SED-C	53.0	PCB-1260	6.3	U	6.3	UJ	13
CBC-1270-SED-C	53.0	PCB-1262	9.7	U	9.7	UJ	13
CBC-1270-SED-C	53.0	PCB-1268	5.7	U	5.7	UJ	13
CBC-1270-SED-C	53.0	TOTAL PCBS	1900	NA	1900	J	13
CBC-1670-SED-D	54.7	PCB-1016	6.8	U	6.8	UJ	13
CBC-1670-SED-D	54.7	PCB-1221	8.8	U	8.8	UJ	13
CBC-1670-SED-D	54.7	PCB-1232	7.9	U	7.9	UJ	13
CBC-1670-SED-D	54.7	PCB-1242	7.5	U	7.5	UJ	13
CBC-1670-SED-D	54.7	PCB-1248	4.4	U	4.4	UJ	13
CBC-1670-SED-D	54.7	PCB-1254	2900	NA	2900	J	13
CBC-1670-SED-D	54.7	PCB-1260	6.5	U	6.5	UJ	13
CBC-1670-SED-D	54.7	PCB-1262	10	U	10	UJ	13
CBC-1670-SED-D	54.7	PCB-1268	5.9	U	5.9	UJ	13
CBC-1670-SED-D	54.7	TOTAL PCBS	2900	NA	2900	J	13
CBC-DUP-01-SED-D	54.8	ALDRIN	0.33	U	0.33	UJ	13
CBC-DUP-01-SED-D	54.8	ALPHA BHC	0.30	U	0.30	UJ	13
CBC-DUP-01-SED-D	54.8	ALPHA ENDOSULFAN	0.35	U	0.35	UJ	13
CBC-DUP-01-SED-D	54.8	ALPHA-CHLORDANE	0.50	J	0.50	J	13
CBC-DUP-01-SED-D	54.8	BETA BHC	0.48	U	0.48	UJ	13
CBC-DUP-01-SED-D	54.8	BETA ENDOSULFAN	0.32	U	0.32	UJ	13
CBC-DUP-01-	54.8	CHLORDANE	0.81	Up	0.81	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
SED-D							
CBC-DUP-01-SED-D	54.8	DIELDRIN	0.31	U	0.31	UJ	13
CBC-DUP-01-SED-D	54.8	ENDOSULFAN SULFATE	0.19	U	0.19	UJ	13
CBC-DUP-01-SED-D	54.8	ENDRIN	0.66	Jp	0.66	J	13
CBC-DUP-01-SED-D	54.8	ENDRIN ALDEHYDE	0.36	U	0.36	UJ	13
CBC-DUP-01-SED-D	54.8	ENDRIN KETONE	0.29	U	0.29	UJ	13
CBC-DUP-01-SED-D	54.8	GAMMA BHC (LINDANE)	0.32	U	0.32	UJ	13
CBC-DUP-01-SED-D	54.8	GAMMA-CHLORDANE	1.2	J	1.2	J	13
CBC-DUP-01-SED-D	54.8	HEPTACHLOR	0.41	U	0.41	UJ	13
CBC-DUP-01-SED-D	54.8	METHOXYCHLOR	1.1	Jp	1.1	J	13
CBC-DUP-01-SED-D	54.8	P,P'-DDD	2.4	B	2.4	J	13
CBC-DUP-01-SED-D	54.8	P,P'-DDT	0.42	Jp	0.42	J	13
CBC-DUP-01-SED-D	54.8	TOXAPHENE	12	U	12	UJ	13
CBC-DUP-01-SED-D	54.8	DELTA BHC	0.34	Jp	0.34	J	13
CBC-DUP-01-SED-D	54.8	HEPTACHLOR EPOXIDE	2.0	p	2.0	J	13
CBC-DUP-01-SED-D	54.8	P,P'-DDE	6.4	NA	6.4	J	13
CBC-DUP-01-SED-D	54.8	PCB-1016	0.68	U	0.68	UJ	13
CBC-DUP-01-SED-D	54.8	PCB-1221	0.87	U	0.87	UJ	13
CBC-DUP-01-SED-D	54.8	PCB-1232	0.78	U	0.78	UJ	13
CBC-DUP-01-SED-D	54.8	PCB-1242	0.75	U	0.75	UJ	13
CBC-DUP-01-SED-D	54.8	PCB-1248	0.43	U	0.43	UJ	13
CBC-DUP-01-SED-D	54.8	PCB-1254	0.65	U	0.65	UJ	13
CBC-DUP-01-SED-D	54.8	PCB-1260	0.65	U	0.65	UJ	13
CBC-DUP-01-SED-D	54.8	PCB-1262	1.0	U	1.0	UJ	13
CBC-DUP-01-SED-D	54.8	PCB-1268	0.59	U	0.59	UJ	13
CBC-DUP-01-SED-D	54.8	TOTAL PCBS	1.0	U	1.0	UJ	13
CBC-DUP-01-SED-D	54.8	1,2,4,5-TETRACHLOROBENZENE	660	U	660	UJ	13
CBC-DUP-01-SED-D	54.8	2,3,4,6-TETRACHLOROPHENOL	45	U	45	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	54.8	2,4,5-TRICHLOROPHENOL	57	U	57	UJ	13
CBC-DUP-01-SED-D	54.8	2,4,6-TRICHLOROPHENOL	12	U	12	UJ	13
CBC-DUP-01-SED-D	54.8	2,4-DICHLOROPHENOL	45	U	45	UJ	13
CBC-DUP-01-SED-D	54.8	2,4-DIMETHYLPHENOL	87	U	87	UJ	13
CBC-DUP-01-SED-D	54.8	2,4-DINITROPHENOL	660	U	660	UJ	13
CBC-DUP-01-SED-D	54.8	2,4-DINITROTOLUENE	45	U	45	UJ	13
CBC-DUP-01-SED-D	54.8	2,6-DINITROTOLUENE	57	U	57	UJ	13
CBC-DUP-01-SED-D	54.8	2-CHLORONAPHTHALENE	12	U	12	UJ	13
CBC-DUP-01-SED-D	54.8	2-CHLOROPHENOL	45	U	45	UJ	13
CBC-DUP-01-SED-D	54.8	2-METHYLNAPHTHALENE	44	J	44	J	13
CBC-DUP-01-SED-D	54.8	2-METHYLPHENOL (O-CRESOL)	39	U	39	UJ	13
CBC-DUP-01-SED-D	54.8	2-NITROANILINE	250	U	250	UJ	13
CBC-DUP-01-SED-D	54.8	2-NITROPHENOL	61	U	61	UJ	13
CBC-DUP-01-SED-D	54.8	3,3'-DICHLOROBENZIDINE	59	U	59	UJ	13
CBC-DUP-01-SED-D	54.8	3-NITROANILINE	230	U	230	UJ	13
CBC-DUP-01-SED-D	54.8	4,6-DINITRO-2-METHYL PHENOL	220	U	220	UJ	13
CBC-DUP-01-SED-D	54.8	4-BROMOPHENYL PHENYL ETHER	48	U	48	UJ	13
CBC-DUP-01-SED-D	54.8	4-CHLORO-3-METHYL PHENOL	51	U	51	UJ	13
CBC-DUP-01-SED-D	54.8	4-CHLOROANILINE	44	U	44	UJ	13
CBC-DUP-01-SED-D	54.8	4-CHLOROPHENYL PHENYL ETHER	62	U	62	UJ	13
CBC-DUP-01-SED-D	54.8	4-NITROANILINE	220	U	220	UJ	13
CBC-DUP-01-SED-D	54.8	4-NITROPHENOL	200	U	200	UJ	13
CBC-DUP-01-SED-D	54.8	ACENAPHTHENE	21	J	21	J	13
CBC-DUP-01-SED-D	54.8	ACENAPHTHYLENE	59	J	59	J	13
CBC-DUP-01-SED-D	54.8	ACETOPHENONE	46	U	46	UJ	13
CBC-DUP-01-SED-D	54.8	ANTHRACENE	64	J	64	J	13
CBC-DUP-01-SED-D	54.8	ATRAZINE	54	U*	54	UJ	13
CBC-DUP-01-SED-D	54.8	BENZALDEHYDE	760	NA	760	J	13
CBC-DUP-01-SED-D	54.8	BENZO(A)ANTHRACENE	220	NA	220	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	54.8	BENZO(A)PYRENE	260	NA	260	J	13
CBC-DUP-01-SED-D	54.8	BENZO(B)FLUORANTHENE	380	NA	380	J	13
CBC-DUP-01-SED-D	54.8	BENZO(G,H,I)PERYLENE	310	NA	310	J	13
CBC-DUP-01-SED-D	54.8	BENZO(K) FLUORANTHENE	22	U	22	UJ	13
CBC-DUP-01-SED-D	54.8	BENZYL BUTYL PHTHALATE	76	U	76	UJ	13
CBC-DUP-01-SED-D	54.8	BIPHENYL (DIPHENYL)	49	U	49	UJ	13
CBC-DUP-01-SED-D	54.8	BIS(2-CHLOROETHOXY) METHANE	36	U	36	UJ	13
CBC-DUP-01-SED-D	54.8	BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	15	U	15	UJ	13
CBC-DUP-01-SED-D	54.8	BIS(2-CHLOROISOPROPYL) ETHER	12	U	12	UJ	13
CBC-DUP-01-SED-D	54.8	BIS(2-ETHYLHEXYL) PHTHALATE	90	U	90	UJ	13
CBC-DUP-01-SED-D	54.8	CAPROLACTAM	420	U	420	UJ	13
CBC-DUP-01-SED-D	54.8	CARBAZOLE	10	U	10	UJ	13
CBC-DUP-01-SED-D	54.8	CHRYSENE	280	NA	280	J	13
CBC-DUP-01-SED-D	54.8	CRESOLS, M & P	54	U	54	UJ	13
CBC-DUP-01-SED-D	54.8	DIBENZ(A,H) ANTHRACENE	110	NA	110	J	13
CBC-DUP-01-SED-D	54.8	DIBENZOFURAN	55	U	55	UJ	13
CBC-DUP-01-SED-D	54.8	DIETHYL PHTHALATE	61	U	61	UJ	13
CBC-DUP-01-SED-D	54.8	DIMETHYL PHTHALATE	60	U	60	UJ	13
CBC-DUP-01-SED-D	54.8	DI-N-BUTYL PHTHALATE	69	U	69	UJ	13
CBC-DUP-01-SED-D	54.8	DI-N-OCTYLPHTHALATE	58	U	58	J	13
CBC-DUP-01-SED-D	54.8	FLUORANTHENE	360	NA	360		13
CBC-DUP-01-SED-D	54.8	FLUORENE	39	J	39	J	13
CBC-DUP-01-SED-D	54.8	HEXACHLORO-BENZENE	12	U	12	UJ	13
CBC-DUP-01-SED-D	54.8	HEXACHLORO-BUTADIENE	12	U	12	UJ	13
CBC-DUP-01-SED-D	54.8	HEXACHLORO-CYCLOPENTADIENE	60	U	60	UJ	13
CBC-DUP-01-SED-D	54.8	HEXACHLOROETHANE	40	U	40	UJ	13
CBC-DUP-01-SED-D	54.8	INDENO(1,2,3-C,D)PYRENE	220	NA	220	J	13
CBC-DUP-01-SED-D	54.8	ISOPHORONE	42	U	42	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	54.8	NAPHTHALENE	59	J	59	J	13
CBC-DUP-01-SED-D	54.8	NITROBENZENE	46	U	46	UJ	13
CBC-DUP-01-SED-D	54.8	N-NITROSODI-N-PROPYLAMINE	13	U	13	UJ	13
CBC-DUP-01-SED-D	54.8	N-NITROSODI-PHENYLAMINE	51	U	51	UJ	13
CBC-DUP-01-SED-D	54.8	PENTACHLOROPHENOL	50	U	50	UJ	13
CBC-DUP-01-SED-D	54.8	PHENANTHRENE	210	NA	210	J	13
CBC-DUP-01-SED-D	54.8	PHENOL	13	U	13	UJ	13
CBC-DUP-01-SED-D	54.8	PYRENE	300		300	J	13
CBC-DUP-02-SED-C	52.6	PCB-1016	0.65	U	0.65	UJ	13
CBC-DUP-02-SED-C	52.6	PCB-1221	0.83	U	0.83	UJ	13
CBC-DUP-02-SED-C	52.6	PCB-1232	0.75	U	0.75	UJ	13
CBC-DUP-02-SED-C	52.6	PCB-1242	0.71	U	0.71	UJ	13
CBC-DUP-02-SED-C	52.6	PCB-1248	0.41	U	0.41	UJ	13
CBC-DUP-02-SED-C	52.6	PCB-1254	54	NA	54	J	13
CBC-DUP-02-SED-C	52.6	PCB-1260	0.62	U	0.62	UJ	13
CBC-DUP-02-SED-C	52.6	PCB-1262	0.96	U	0.96	UJ	13
CBC-DUP-02-SED-C	52.6	PCB-1268	0.56	U	0.56	UJ	13
CBC-DUP-02-SED-C	52.6	TOTAL PCBS	54	NA	54	J	13
CBC-U0200-SED-B	58.7	PCB-1016	0.75	U	0.75	UJ	13
CBC-U0200-SED-B	58.7	PCB-1221	0.96	U	0.96	UJ	13
CBC-U0200-SED-B	58.7	PCB-1232	0.86	U	0.86	UJ	13
CBC-U0200-SED-B	58.7	PCB-1242	0.82	U	0.82	UJ	13
CBC-U0200-SED-B	58.7	PCB-1248	0.48	U	0.48	UJ	13
CBC-U0200-SED-B	58.7	PCB-1254	85	NA	85	J	13
CBC-U0200-SED-B	58.7	PCB-1260	0.71	U	0.71	UJ	13
CBC-U0200-SED-B	58.7	PCB-1262	1.1	U	1.1	UJ	13
CBC-U0200-SED-B	58.7	PCB-1268	0.65	U	0.65	UJ	13
CBC-U0200-SED-B	58.7	TOTAL PCBS	85	NA	85	J	13
CBC-U0200-SED-B	58.7	2-FLUOROBIPHENYL	580	D	580	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-B	58.7	2-FLUOROPHENOL	830	D	830	J	13
CBC-U0200-SED-B	58.7	1,2,4,5-TETRACHLORO-BENZENE	46	U	46	UJ	13
CBC-U0200-SED-B	58.7	2,3,4,6-TETRACHLORO-PHENOL	39	U	39	UJ	13
CBC-U0200-SED-B	58.7	2,4,5-TRICHLOROPHENOL	64	U	64	UJ	13
CBC-U0200-SED-B	58.7	2,4,6-TRICHLOROPHENOL	90	U	90	UJ	13
CBC-U0200-SED-B	58.7	2,4-DICHLOROPHENOL	12	U	12	UJ	13
CBC-U0200-SED-B	58.7	2,4-DIMETHYLPHENOL	94	U	94	UJ	13
CBC-U0200-SED-B	58.7	2,4-DINITROPHENOL	720	U	720	UJ	13
CBC-U0200-SED-B	58.7	2,4-DINITROTOLUENE	49	U	49	UJ	13
CBC-U0200-SED-B	58.7	2,6-DINITROTOLUENE	62	U	62	UJ	13
CBC-U0200-SED-B	58.7	2-CHLORONAPHTHALENE	13	U	13	UJ	13
CBC-U0200-SED-B	58.7	2-CHLOROPHENOL	49	U	49	UJ	13
CBC-U0200-SED-B	58.7	2-METHYLNAPHTHALENE	67	J	67	J	13
CBC-U0200-SED-B	58.7	2-METHYLPHENOL (O-CRESOL)	42	U	42	UJ	13
CBC-U0200-SED-B	58.7	2-NITROANILINE	270	U	270	UJ	13
CBC-U0200-SED-B	58.7	2-NITROPHENOL	66	U	66	UJ	13
CBC-U0200-SED-B	58.7	3,3'-DICHLOROBENZIDINE	64	U	64	UJ	13
CBC-U0200-SED-B	58.7	3-NITROANILINE	250	U	250	UJ	13
CBC-U0200-SED-B	58.7	4,6-DINITRO-2-METHYLPHENOL	240	U	240	UJ	13
CBC-U0200-SED-B	58.7	4-BROMOPHENYL PHENYL ETHER	52	U	52	UJ	13
CBC-U0200-SED-B	58.7	4-CHLORO-3-METHYL PHENOL	55	U	55	UJ	13
CBC-U0200-SED-B	58.7	4-CHLOROANILINE	48	U	48	UJ	13
CBC-U0200-SED-B	58.7	4-CHLOROPHENYL PHENYL ETHER	67	U	67	UJ	13
CBC-U0200-SED-B	58.7	4-NITROANILINE	240	U	240	UJ	13
CBC-U0200-SED-B	58.7	4-NITROPHENOL	220	U	220	UJ	13
CBC-U0200-SED-B	58.7	ACENAPHTHENE	12	U	12	UJ	13
CBC-U0200-SED-B	58.7	ACENAPHTHYLENE	41	J	41	J	13
CBC-U0200-SED-B	58.7	ACETOPHENONE	49	U	49	UJ	13
CBC-U0200-SED-B	58.7	ANTHRACENE	55	J	55	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-B	58.7	ATRAZINE	59	U*	59	UJ	13
CBC-U0200-SED-B	58.7	BENZALDEHYDE	800	NA	800	J	13
CBC-U0200-SED-B	58.7	BENZO(A)ANTHRACENE	290	NA	290	J	13
CBC-U0200-SED-B	58.7	BENZO(A)PYRENE	450	NA	450	J	13
CBC-U0200-SED-B	58.7	BENZO(B)FLUORANTHENE	650	NA	650	J	13
CBC-U0200-SED-B	58.7	BENZO(G,H,I)PERYLENE	470	NA	470	J	13
CBC-U0200-SED-B	58.7	BENZO(K)FLUORANTHENE	24	U	24	UJ	13
CBC-U0200-SED-B	58.7	BENZYL BUTYL PHTHALATE	93	J	93	J	13
CBC-U0200-SED-B	58.7	BIPHENYL (DIPHENYL)	54	U	54	UJ	13
CBC-U0200-SED-B	58.7	BIS(2-CHLOROETHOXY) METHANE	40	U	40	UJ	13
CBC-U0200-SED-B	58.7	BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	16	U	16	UJ	13
CBC-U0200-SED-B	58.7	BIS(2-CHLOROISOPROPYL) ETHER	13	U	13	UJ	13
CBC-U0200-SED-B	58.7	BIS(2-ETHYLHEXYL) PHTHALATE	97	U	97	UJ	13
CBC-U0200-SED-B	58.7	CAPROLACTAM	450	U	450	UJ	13
CBC-U0200-SED-B	58.7	CARBAZOLE	28	J	28	J	13
CBC-U0200-SED-B	58.7	CHRYSENE	390	NA	390	J	13
CBC-U0200-SED-B	58.7	CRESOLS, M & P	59	U	59	UJ	13
CBC-U0200-SED-B	58.7	DIBENZ(A,H)ANTHRACENE	89	J	89	J	13
CBC-U0200-SED-B	58.7	DIBENZOFURAN	59	U	59	UJ	13
CBC-U0200-SED-B	58.7	DIETHYL PHTHALATE	66	U	66	UJ	13
CBC-U0200-SED-B	58.7	DIMETHYL PHTHALATE	66	U	66	UJ	13
CBC-U0200-SED-B	58.7	DI-N-BUTYL PHTHALATE	75	U	75	UJ	13
CBC-U0200-SED-B	58.7	DI-N-OCTYLPHTHALATE	63	U	63	UJ	13
CBC-U0200-SED-B	58.7	FLUORANTHENE	490	NA	490	J	13
CBC-U0200-SED-B	58.7	FLUORENE	37	J	37	J	13
CBC-U0200-SED-B	58.7	HEXACHLOROBENZENE	13	U	13	UJ	13
CBC-U0200-SED-B	58.7	HEXACHLOROBUTADIENE	13	U	13	UJ	13
CBC-U0200-SED-B	58.7	HEXACHLOROCYCLO-PENTADIENE	65	U	65	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-B	58.7	HEXACHLOROETHANE	43	U	43	UJ	13
CBC-U0200-SED-B	58.7	INDENO(1,2,3-C,D)PYRENE	390	NA	390	J	13
CBC-U0200-SED-B	58.7	ISOPHORONE	45	U	45	UJ	13
CBC-U0200-SED-B	58.7	NAPHTHALENE	60	J	60	J	13
CBC-U0200-SED-B	58.7	NITROBENZENE	50	U	50	UJ	13
CBC-U0200-SED-B	58.7	N-NITROSODI-N-PROPYLAMINE	14	U	14	UJ	13
CBC-U0200-SED-B	58.7	N-NITROSODIPHENYL-AMINE	56	U	56	UJ	13
CBC-U0200-SED-B	58.7	PENTACHLOROPHENOL	54	U	54	UJ	13
CBC-U0200-SED-B	58.7	PHENANTHRENE	220	NA	220	J	13
CBC-U0200-SED-B	58.7	PHENOL	14	U	14	UJ	13
CBC-U0200-SED-B	58.7	PYRENE	390	NA	390	J	13
CBC-U0200-SED-D	57.6	ALPHA BHC	0.32	U	0.32	UJ	13
CBC-U0200-SED-D	57.6	ALPHA ENDOSULFAN	0.37	U	0.37	UJ	13
CBC-U0200-SED-D	57.6	BETA BHC	0.51	U	0.51	UJ	13
CBC-U0200-SED-D	57.6	BETA ENDOSULFAN	0.35	U	0.35	UJ	13
CBC-U0200-SED-D	57.6	CHLORDANE	0.86	U	0.86	UJ	13
CBC-U0200-SED-D	57.6	DIELDRIN	0.33	U	0.33	UJ	13
CBC-U0200-SED-D	57.6	ENDOSULFAN SULFATE	0.20	U	0.20	UJ	13
CBC-U0200-SED-D	57.6	ENDRIN	0.86	Jp	0.86	J	13
CBC-U0200-SED-D	57.6	ENDRIN ALDEHYDE	0.38	U	0.38	UJ	13
CBC-U0200-SED-D	57.6	ENDRIN KETONE	0.37	Jp	0.37	J	13
CBC-U0200-SED-D	57.6	GAMMA BHC (LINDANE)	0.34	U	0.34	UJ	13
CBC-U0200-SED-D	57.6	GAMMA-CHLORDANE	1.2	J	1.2	J	13
CBC-U0200-SED-D	57.6	HEPTACHLOR	0.43	U	0.43	UJ	13
CBC-U0200-SED-D	57.6	P,P'-DDD	2.6	B	2.6	J	13
CBC-U0200-SED-D	57.6	P,P'-DDE	3.1	NA	3.1	J	13
CBC-U0200-SED-D	57.6	TOXAPHENE	13	U	13	UJ	13
CBC-U0200-SED-D	57.6	ALDRIN	0.52	Jp	0.52	J	13
CBC-U0200-SED-D	57.6	ALPHA-CHLORDANE	0.40	J	0.40	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-D	57.6	DELTA BHC	0.37	Jp	0.37	J	13
CBC-U0200-SED-D	57.6	HEPTACHLOR EPOXIDE	2.3	NA	2.3	J	13
CBC-U0200-SED-D	57.6	METHOXYCHLOR	0.61	Jp	0.61	J	13
CBC-U0200-SED-D	57.6	P,P'-DDT	1.1	J	1.1	J	13
CBC-U0200-SED-D	57.6	PCB-1016	0.73	U	0.73	UJ	13
CBC-U0200-SED-D	57.6	PCB-1221	0.93	U	0.93	UJ	13
CBC-U0200-SED-D	57.6	PCB-1232	0.84	U	0.84	UJ	13
CBC-U0200-SED-D	57.6	PCB-1242	0.79	U	0.79	UJ	13
CBC-U0200-SED-D	57.6	PCB-1248	0.46	U	0.46	UJ	13
CBC-U0200-SED-D	57.6	PCB-1254	41	NA	41	J	13
CBC-U0200-SED-D	57.6	PCB-1260	0.69	U	0.69	UJ	13
CBC-U0200-SED-D	57.6	PCB-1262	1.1	U	1.1	UJ	13
CBC-U0200-SED-D	57.6	PCB-1268	0.63	U	0.63	UJ	13
CBC-U0200-SED-D	57.6	TOTAL PCBS	41	NA	41	J	13
CBC-U0200-SED-D	57.6	1,2,4,5-TETRACHLOROBENZENE	45	U	45	UJ	13
CBC-U0200-SED-D	57.6	2,3,4,6-TETRACHLOROPHENOL	38	U	38	UJ	13
CBC-U0200-SED-D	57.6	2,4,5-TRICHLOROPHENOL	63	U	63	UJ	13
CBC-U0200-SED-D	57.6	2,4,6-TRICHLOROPHENOL	88	U	88	UJ	13
CBC-U0200-SED-D	57.6	2,4-DICHLOROPHENOL	12	U	12	UJ	13
CBC-U0200-SED-D	57.6	2,4-DIMETHYLPHENOL	92	U	92	UJ	13
CBC-U0200-SED-D	57.6	2,4-DINITROPHENOL	700	U	700	UJ	13
CBC-U0200-SED-D	57.6	2,4-DINITROTOLUENE	47	U	47	UJ	13
CBC-U0200-SED-D	57.6	2,6-DINITROTOLUENE	61	U	61	UJ	13
CBC-U0200-SED-D	57.6	2-CHLORONAPHTHALENE	12	U	12	UJ	13
CBC-U0200-SED-D	57.6	2-CHLOROPHENOL	48	U	48	UJ	13
CBC-U0200-SED-D	57.6	2-METHYLNAPHTHALENE	67	J	67	J	13
CBC-U0200-SED-D	57.6	2-METHYLPHENOL (O-CRESOL)	41	U	41	UJ	13
CBC-U0200-SED-D	57.6	2-NITROANILINE	260	U	260	UJ	13
CBC-U0200-SED-D	57.6	2-NITROPHENOL	65	U	65	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-D	57.6	3,3'-DICHLOROBENZIDINE	62	U	62	UJ	13
CBC-U0200-SED-D	57.6	3-NITROANILINE	240	U	240	UJ	13
CBC-U0200-SED-D	57.6	4,6-DINITRO-2-METHYL PHENOL	240	U	240	UJ	13
CBC-U0200-SED-D	57.6	4-BROMOPHENYL PHENYL ETHER	51	U	51	UJ	13
CBC-U0200-SED-D	57.6	4-CHLORO-3-METHYL-PHENOL	54	U	54	UJ	13
CBC-U0200-SED-D	57.6	4-CHLOROANILINE	47	U	47	UJ	13
CBC-U0200-SED-D	57.6	4-CHLOROPHENYL PHENYL ETHER	65	U	65	UJ	13
CBC-U0200-SED-D	57.6	4-NITROANILINE	240	U	240	UJ	13
CBC-U0200-SED-D	57.6	4-NITROPHENOL	210	U	210	UJ	13
CBC-U0200-SED-D	57.6	ACENAPHTHENE	35	J	35	J	13
CBC-U0200-SED-D	57.6	ACENAPHTHYLENE	46	J	46	J	13
CBC-U0200-SED-D	57.6	ACETOPHENONE	48	U	48	UJ	13
CBC-U0200-SED-D	57.6	ANTHRACENE	56	J	56	J	13
CBC-U0200-SED-D	57.6	ATRAZINE	57	U*	57	UJ	13
CBC-U0200-SED-D	57.6	BENZALDEHYDE	770	NA	770	J	13
CBC-U0200-SED-D	57.6	BENZO(A)ANTHRACENE	280	NA	280	J	13
CBC-U0200-SED-D	57.6	BENZO(A)PYRENE	410	NA	410	J	13
CBC-U0200-SED-D	57.6	BENZO(B) FLUORANTHENE	600	NA	600	J	13
CBC-U0200-SED-D	57.6	BENZO(G,H,I) PERYLENE	480	NA	480	J	13
CBC-U0200-SED-D	57.6	BENZO(K) FLUORANTHENE	24	U	24	UJ	13
CBC-U0200-SED-D	57.6	BENZYL BUTYL PHTHALATE	89	J	89	J	13
CBC-U0200-SED-D	57.6	BIPHENYL (DIPHENYL)	52	U	52	UJ	13
CBC-U0200-SED-D	57.6	BIS(2-CHLOROETHOXY) METHANE	39	U	39	UJ	13
CBC-U0200-SED-D	57.6	BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	16	U	16	UJ	13
CBC-U0200-SED-D	57.6	BIS(2-CHLOROISOPROPYL) ETHER	13	U	13	UJ	13
CBC-U0200-SED-D	57.6	BIS(2-ETHYLHEXYL) PHTHALATE	170	J	170	J	13
CBC-U0200-SED-D	57.6	CAPROLACTAM	440	U	440	UJ	13
CBC-U0200-SED-D	57.6	CARBAZOLE	26	J	26	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-D	57.6	CHRYSENE	370	NA	370	J	13
CBC-U0200-SED-D	57.6	CRESOLS, M & P	58	U	58	UJ	13
CBC-U0200-SED-D	57.6	DIBENZ(A,H)ANTHRACENE	100	J	100	J	13
CBC-U0200-SED-D	57.6	DIBENZOFURAN	58	U	58	UJ	13
CBC-U0200-SED-D	57.6	DIETHYL PHTHALATE	64	U	64	UJ	13
CBC-U0200-SED-D	57.6	DIMETHYL PHTHALATE	64	U	64	UJ	13
CBC-U0200-SED-D	57.6	DI-N-BUTYL PHTHALATE	74	U	74	UJ	13
CBC-U0200-SED-D	57.6	DI-N-OCTYLPHTHALATE	62	U	62	UJ	13
CBC-U0200-SED-D	57.6	FLUORANTHENE	450	NA	450	J	13
CBC-U0200-SED-D	57.6	FLUORENE	29	J	29	J	13
CBC-U0200-SED-D	57.6	HEXACHLOROBENZENE	13	U	13	UJ	13
CBC-U0200-SED-D	57.6	HEXACHLOROBUTADIENE	13	U	13	UJ	13
CBC-U0200-SED-D	57.6	HEXACHLOROCYCLO-PENTADIENE	63	U	63	UJ	13
CBC-U0200-SED-D	57.6	HEXACHLOROETHANE	42	U	42	UJ	13
CBC-U0200-SED-D	57.6	INDENO(1,2,3-C,D)PYRENE	360	NA	360	J	13
CBC-U0200-SED-D	57.6	ISOPHORONE	44	U	44	UJ	13
CBC-U0200-SED-D	57.6	NAPHTHALENE	74	J	74	J	13
CBC-U0200-SED-D	57.6	NITROBENZENE	49	U	49	UJ	13
CBC-U0200-SED-D	57.6	N-NITROSODI-N-PROPYLAMINE	14	U	14	UJ	13
CBC-U0200-SED-D	57.6	N-NITROSODI-PHENYLAMINE	54	U	54	UJ	13
CBC-U0200-SED-D	57.6	PENTACHLOROPHENOL	53	U	53	UJ	13
CBC-U0200-SED-D	57.6	PHENANTHRENE	190	NA	190	J	13
CBC-U0200-SED-D	57.6	PHENOL	14	U	14	UJ	13
CBC-U0200-SED-D	57.6	PYRENE	350	NA	350	J	13
CBC-U0400-SED-B	67.9	PCB-1016	0.96	U	0.96	UJ	13
CBC-U0400-SED-B	67.9	PCB-1221	1.2	U	1.2	UJ	13
CBC-U0400-SED-B	67.9	PCB-1232	1.1	U	1.1	UJ	13
CBC-U0400-SED-B	67.9	PCB-1242	1.1	U	1.1	UJ	13
CBC-U0400-SED-B	67.9	PCB-1248	0.61	U	0.61	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-B	67.9	PCB-1254	32	NA	32	J	13
CBC-U0400-SED-B	67.9	PCB-1260	0.92	U	0.92	UJ	13
CBC-U0400-SED-B	67.9	PCB-1262	1.4	U	1.4	UJ	13
CBC-U0400-SED-B	67.9	PCB-1268	0.83	U	0.83	UJ	13
CBC-U0400-SED-B	67.9	TOTAL PCBS	32	NA	32	J	13
CBC-U0400-SED-B	67.9	1,2,4,5-TETRACHLOROBENZENE	59	U	59	UJ	13
CBC-U0400-SED-B	67.9	2,3,4,6-TETRACHLOROPHENOL	50	U	50	UJ	13
CBC-U0400-SED-B	67.9	2,4,5-TRICHLOROPHENOL	83	U	83	UJ	13
CBC-U0400-SED-B	67.9	2,4,6-TRICHLOROPHENOL	120	U	120	UJ	13
CBC-U0400-SED-B	67.9	2,4-DICHLOROPHENOL	16	U	16	UJ	13
CBC-U0400-SED-B	67.9	2,4-DIMETHYLPHENOL	120	U	120	UJ	13
CBC-U0400-SED-B	67.9	2,4-DINITROPHENOL	920	U	920	UJ	13
CBC-U0400-SED-B	67.9	2,4-DINITROTOLUENE	62	U	62	UJ	13
CBC-U0400-SED-B	67.9	2,6-DINITROTOLUENE	80	U	80	UJ	13
CBC-U0400-SED-B	67.9	2-CHLORONAPHTHALENE	16	U	16	UJ	13
CBC-U0400-SED-B	67.9	2-CHLOROPHENOL	63	U	63	UJ	13
CBC-U0400-SED-B	67.9	2-METHYLNAPHTHALENE	47	J	47	J	13
CBC-U0400-SED-B	67.9	2-METHYLPHENOL (O-CRESOL)	54	U	54	UJ	13
CBC-U0400-SED-B	67.9	2-NITROANILINE	350	U	350	UJ	13
CBC-U0400-SED-B	67.9	2-NITROPHENOL	85	U	85	UJ	13
CBC-U0400-SED-B	67.9	3,3'-DICHLOROBENZIDINE	82	U	82	UJ	13
CBC-U0400-SED-B	67.9	3-NITROANILINE	320	U	320	UJ	13
CBC-U0400-SED-B	67.9	4,6-DINITRO-2-METHYLPHENOL	310	U	310	UJ	13
CBC-U0400-SED-B	67.9	4-BROMOPHENYL PHENYL ETHER	67	U	67	UJ	13
CBC-U0400-SED-B	67.9	4-CHLORO-3-METHYLPHENOL	71	U	71	UJ	13
CBC-U0400-SED-B	67.9	4-CHLOROANILINE	62	U	62	UJ	13
CBC-U0400-SED-B	67.9	4-CHLOROPHENYL PHENYL ETHER	86	U	86	UJ	13
CBC-U0400-SED-B	67.9	4-NITROANILINE	310	U	310	UJ	13
CBC-U0400-SED-B	67.9	4-NITROPHENOL	280	U	280	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-B	67.9	ACENAPHTHENE	28	J	28	J	13
CBC-U0400-SED-B	67.9	ACENAPHTHYLENE	78	J	78	J	13
CBC-U0400-SED-B	67.9	ACETOPHENONE	64	U	64	UJ	13
CBC-U0400-SED-B	67.9	ANTHRACENE	86	J	86	J	13
CBC-U0400-SED-B	67.9	ATRAZINE	75	U*	75	UJ	13
CBC-U0400-SED-B	67.9	BENZALDEHYDE	1100	NA	1100	J	13
CBC-U0400-SED-B	67.9	BENZO(A)ANTHRACENE	280	NA	280	J	13
CBC-U0400-SED-B	67.9	BENZO(A)PYRENE	340	NA	340	J	13
CBC-U0400-SED-B	67.9	BENZO(B)FLUORANTHENE	370	NA	370	J	13
CBC-U0400-SED-B	67.9	BENZO(G,H,I)PERYLENE	350	NA	350	J	13
CBC-U0400-SED-B	67.9	BENZO(K)FLUORANTHENE	180	NA	180	J	13
CBC-U0400-SED-B	67.9	BENZYL BUTYL PHTHALATE	110	U	110	UJ	13
CBC-U0400-SED-B	67.9	BIPHENYL (DIPHENYL)	69	U	69	UJ	13
CBC-U0400-SED-B	67.9	BIS(2-CHLOROETHOXY) METHANE	51	U	51	UJ	13
CBC-U0400-SED-B	67.9	BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	21	U	21	UJ	13
CBC-U0400-SED-B	67.9	BIS(2-CHLOROISOPROPYL) ETHER	17	U	17	UJ	13
CBC-U0400-SED-B	67.9	BIS(2-ETHYLHEXYL) PHTHALATE	150	J	150	J	13
CBC-U0400-SED-B	67.9	CAPROLACTAM	580	U	580	UJ	13
CBC-U0400-SED-B	67.9	CARBAZOLE	28	J	28	J	13
CBC-U0400-SED-B	67.9	CHRYSENE	350	NA	350	J	13
CBC-U0400-SED-B	67.9	CRESOLS, M & P	76	U	76	UJ	13
CBC-U0400-SED-B	67.9	DIBENZ(A,H)ANTHRACENE	86	J	86	J	13
CBC-U0400-SED-B	67.9	DIBENZOFURAN	76	U	76	UJ	13
CBC-U0400-SED-B	67.9	DIETHYL PHTHALATE	85	U	85	UJ	13
CBC-U0400-SED-B	67.9	DIMETHYL PHTHALATE	84	U	84	UJ	13
CBC-U0400-SED-B	67.9	DI-N-BUTYL PHTHALATE	97	U	97	UJ	13
CBC-U0400-SED-B	67.9	DI-N-OCTYLPHTHALATE	82	U	82	UJ	13
CBC-U0400-SED-B	67.9	FLUORANTHENE	510	NA	510	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-B	67.9	FLUORENE	43	J	43	J	13
CBC-U0400-SED-B	67.9	HEXACHLOROBENZENE	16	U	16	UJ	13
CBC-U0400-SED-B	67.9	HEXACHLOROBUTADIENE	17	U	17	UJ	13
CBC-U0400-SED-B	67.9	HEXACHLOROCYCLO-PENTADIENE	83	U	83	UJ	13
CBC-U0400-SED-B	67.9	HEXACHLOROETHANE	56	U	56	UJ	13
CBC-U0400-SED-B	67.9	INDENO(1,2,3-C,D)PYRENE	290	NA	290	J	13
CBC-U0400-SED-B	67.9	ISOPHORONE	58	U	58	UJ	13
CBC-U0400-SED-B	67.9	NAPHTHALENE	59	J	59	J	13
CBC-U0400-SED-B	67.9	NITROBENZENE	64	U	64	UJ	13
CBC-U0400-SED-B	67.9	N-NITROSODI-N-PROPYLAMINE	18	U	18	UJ	13
CBC-U0400-SED-B	67.9	N-NITROSODI-PHENYLAMINE	72	U	72	UJ	13
CBC-U0400-SED-B	67.9	PENTACHLOROPHENOL	69	U	69	UJ	13
CBC-U0400-SED-B	67.9	PHENANTHRENE	250	NA	250	J	13
CBC-U0400-SED-B	67.9	PHENOL	18	U	18	UJ	13
CBC-U0400-SED-B	67.9	PYRENE	360	NA	360	J	13
CBC-U0400-SED-C	60.6	ALDRIN	0.38	U	0.38	UJ	13
CBC-U0400-SED-C	60.6	ALPHA BHC	0.34	U	0.34	UJ	13
CBC-U0400-SED-C	60.6	ALPHA ENDOSULFAN	0.40	U	0.40	UJ	13
CBC-U0400-SED-C	60.6	BETA BHC	0.55	U	0.55	UJ	13
CBC-U0400-SED-C	60.6	BETA ENDOSULFAN	0.37	U	0.37	UJ	13
CBC-U0400-SED-C	60.6	CHLORDANE	0.93	Up	0.93	UJ	13
CBC-U0400-SED-C	60.6	DIELDRIN	0.40	Jp	0.40	J	13
CBC-U0400-SED-C	60.6	ENDRIN	0.72	Jp	0.72	J	13
CBC-U0400-SED-C	60.6	ENDRIN ALDEHYDE	0.41	U	0.41	UJ	13
CBC-U0400-SED-C	60.6	ENDRIN KETONE	0.34	Jp	0.34	J	13
CBC-U0400-SED-C	60.6	GAMMA BHC (LINDANE)	0.37	U	0.37	UJ	13
CBC-U0400-SED-C	60.6	GAMMA-CHLORDANE	0.42	U	0.42	UJ	13
CBC-U0400-SED-C	60.6	HEPTACHLOR	0.47	U	0.47	UJ	13
CBC-U0400-SED-C	60.6	P,P'-DDD	2.3	B	2.3	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-C	60.6	TOXAPHENE	14	U	14	UJ	13
CBC-U0400-SED-C	60.6	ALPHA-CHLORDANE	0.84	J	0.84	J	13
CBC-U0400-SED-C	60.6	DELTA BHC	0.32	U	0.32	UJ	13
CBC-U0400-SED-C	60.6	ENDOSULFAN SULFATE	0.22	U	0.22	UJ	13
CBC-U0400-SED-C	60.6	HEPTACHLOR EPOXIDE	2.1	p	2.1	J	13
CBC-U0400-SED-C	60.6	METHOXYCHLOR	0.44	U	0.44	UJ	13
CBC-U0400-SED-C	60.6	P,P'-DDE	8.2	NA	8.2	J	13
CBC-U0400-SED-C	60.6	P,P'-DDT	0.32	U	0.32	UJ	13
CBC-U0400-SED-C	60.6	PCB-1016	0.79	U	0.79	UJ	13
CBC-U0400-SED-C	60.6	PCB-1221	1.0	U	1.0	UJ	13
CBC-U0400-SED-C	60.6	PCB-1232	0.90	U	0.90	UJ	13
CBC-U0400-SED-C	60.6	PCB-1242	0.86	U	0.86	UJ	13
CBC-U0400-SED-C	60.6	PCB-1248	0.50	U	0.50	UJ	13
CBC-U0400-SED-C	60.6	PCB-1254	42	NA	42	J	13
CBC-U0400-SED-C	60.6	PCB-1260	0.75	U	0.75	UJ	13
CBC-U0400-SED-C	60.6	PCB-1262	1.2	U	1.2	UJ	13
CBC-U0400-SED-C	60.6	PCB-1268	0.68	U	0.68	UJ	13
CBC-U0400-SED-C	60.6	TOTAL PCBS	42	NA	42	J	13
CBC-U0400-SED-C	60.6	1,2,4,5-TETRACHLOROBENZENE	48	U	48	UJ	13
CBC-U0400-SED-C	60.6	2,3,4,6-TETRACHLOROPHENOL	40	U	40	UJ	13
CBC-U0400-SED-C	60.6	2,4,5-TRICHLOROPHENOL	67	U	67	UJ	13
CBC-U0400-SED-C	60.6	2,4,6-TRICHLOROPHENOL	94	U	94	UJ	13
CBC-U0400-SED-C	60.6	2,4-DICHLOROPHENOL	13	U	13	UJ	13
CBC-U0400-SED-C	60.6	2,4-DIMETHYLPHENOL	99	U	99	UJ	13
CBC-U0400-SED-C	60.6	2,4-DINITROPHENOL	750	U	750	UJ	13
CBC-U0400-SED-C	60.6	2,4-DINITROTOLUENE	51	U	51	UJ	13
CBC-U0400-SED-C	60.6	2,6-DINITROTOLUENE	65	U	65	UJ	13
CBC-U0400-SED-C	60.6	2-CHLORONAPHTHALENE	13	U	13	UJ	13
CBC-U0400-SED-C	60.6	2-CHLOROPHENOL	52	U	52	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-C	60.6	2-METHYLNAPHTHALENE	54	J	54	J	13
CBC-U0400-SED-C	60.6	2-METHYLPHENOL (O-CRESOL)	44	U	44	UJ	13
CBC-U0400-SED-C	60.6	2-NITROANILINE	280	U	280	UJ	13
CBC-U0400-SED-C	60.6	2-NITROPHENOL	69	U	69	UJ	13
CBC-U0400-SED-C	60.6	3,3'-DICHLOROBENZIDINE	67	U	67	UJ	13
CBC-U0400-SED-C	60.6	3-NITROANILINE	260	U	260	UJ	13
CBC-U0400-SED-C	60.6	4,6-DINITRO-2-METHYLPHENOL	250	U	250	UJ	13
CBC-U0400-SED-C	60.6	4-BROMOPHENYL PHENYL ETHER	55	U	55	UJ	13
CBC-U0400-SED-C	60.6	4-CHLORO-3-METHYLPHENOL	58	U	58	UJ	13
CBC-U0400-SED-C	60.6	4-CHLOROANILINE	50	U	50	UJ	13
CBC-U0400-SED-C	60.6	4-CHLOROPHENYL PHENYL ETHER	70	U	70	UJ	13
CBC-U0400-SED-C	60.6	4-NITROANILINE	260	U	260	UJ	13
CBC-U0400-SED-C	60.6	4-NITROPHENOL	230	U	230	UJ	13
CBC-U0400-SED-C	60.6	ACENAPHTHENE	46	J	46	J	13
CBC-U0400-SED-C	60.6	ACENAPHTHYLENE	97	J	97	J	13
CBC-U0400-SED-C	60.6	ACETOPHENONE	52	U	52	UJ	13
CBC-U0400-SED-C	60.6	ANTHRACENE	100	J	100	J	13
CBC-U0400-SED-C	60.6	ATRAZINE	61	U*	61	UJ	13
CBC-U0400-SED-C	60.6	BENZALDEHYDE	860	NA	860	J	13
CBC-U0400-SED-C	60.6	BENZO(A)ANTHRACENE	360	NA	360	J	13
CBC-U0400-SED-C	60.6	BENZO(A)PYRENE	390	NA	390	J	13
CBC-U0400-SED-C	60.6	BENZO(B) FLUORANTHENE	570	NA	570	J	13
CBC-U0400-SED-C	60.6	BENZO(G,H,I) PERYLENE	450	NA	450	J	13
CBC-U0400-SED-C	60.6	BENZO(K)F LUORANTHENE	25	U	25	UJ	13
CBC-U0400-SED-C	60.6	BENZYL BUTYL PHTHALATE	86	U	86	UJ	13
CBC-U0400-SED-C	60.6	BIPHENYL (DIPHENYL)	56	U	56	UJ	13
CBC-U0400-SED-C	60.6	BIS(2-CHLOROETHOXY) METHANE	41	U	41	UJ	13
CBC-U0400-SED-C	60.6	BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	17	U	17	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-C	60.6	BIS(2-CHLOROISOPROPYL) ETHER	14	U	14	UJ	13
CBC-U0400-SED-C	60.6	BIS(2-ETHYLHEXYL) PHTHALATE	100	U	100	UJ	13
CBC-U0400-SED-C	60.6	CAPROLACTAM	480	U	480	UJ	13
CBC-U0400-SED-C	60.6	CARBAZOLE	37	J	37	J	13
CBC-U0400-SED-C	60.6	CHRYSENE	390	NA	390	J	13
CBC-U0400-SED-C	60.6	CRESOLS, M & P	62	U	62	UJ	13
CBC-U0400-SED-C	60.6	DIBENZ(A,H) ANTHRACENE	110	J	110	J	13
CBC-U0400-SED-C	60.6	DIBENZOFURAN	62	U	62	UJ	13
CBC-U0400-SED-C	60.6	DIETHYL PHTHALATE	69	U	69	UJ	13
CBC-U0400-SED-C	60.6	DIMETHYL PHTHALATE	69	U	69	UJ	13
CBC-U0400-SED-C	60.6	DI-N-BUTYL PHTHALATE	79	U	79	UJ	13
CBC-U0400-SED-C	60.6	DI-N-OCTYLPHTHALATE	66	U	66	UJ	13
CBC-U0400-SED-C	60.6	FLUORANTHENE	560	NA	560	J	13
CBC-U0400-SED-C	60.6	FLUORENE	41	J	41	J	13
CBC-U0400-SED-C	60.6	HEXACHLOROBENZENE	13	U	13	UJ	13
CBC-U0400-SED-C	60.6	HEXACHLOROBUTADIENE	14	U	14	UJ	13
CBC-U0400-SED-C	60.6	HEXACHLOROCYCLO-PENTADIENE	68	U	68	UJ	13
CBC-U0400-SED-C	60.6	HEXACHLOROETHANE	45	U	45	UJ	13
CBC-U0400-SED-C	60.6	INDENO(1,2,3-C,D) PYRENE	340	NA	340	J	13
CBC-U0400-SED-C	60.6	ISOPHORONE	47	U	47	UJ	13
CBC-U0400-SED-C	60.6	NAPHTHALENE	81	J	81	J	13
CBC-U0400-SED-C	60.6	NITROBENZENE	52	U	52	UJ	13
CBC-U0400-SED-C	60.6	N-NITROSODI-N-PROPYLAMINE	15	U	15	UJ	13
CBC-U0400-SED-C	60.6	N-NITROSODI-PHENYLAMINE	58	U	58	UJ	13
CBC-U0400-SED-C	60.6	PENTACHLOROPHENOL	56	U	56	UJ	13
CBC-U0400-SED-C	60.6	PHENANTHRENE	320	NA	320	J	13
CBC-U0400-SED-C	60.6	PHENOL	15	U	15	UJ	13
CBC-U0400-SED-C	60.6	PYRENE	460	NA	460	J	13
CBC-U0400-SED-D	54.6	ALDRIN	0.33	U	0.33	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-D	54.6	ALPHA BHC	0.30	U	0.30	UJ	13
CBC-U0400-SED-D	54.6	ALPHA ENDOSULFAN	0.34	U	0.34	UJ	13
CBC-U0400-SED-D	54.6	ALPHA-CHLORDANE	0.36	U	0.36	UJ	13
CBC-U0400-SED-D	54.6	BETA BHC	1.5	J	1.5	J	13
CBC-U0400-SED-D	54.6	BETA ENDOSULFAN	0.32	U	0.32	UJ	13
CBC-U0400-SED-D	54.6	CHLORDANE	0.80	U	0.80	UJ	13
CBC-U0400-SED-D	54.6	DIELDRIN	0.30	U	0.30	UJ	13
CBC-U0400-SED-D	54.6	ENDOSULFAN SULFATE	0.19	U	0.19	UJ	13
CBC-U0400-SED-D	54.6	ENDRIN ALDEHYDE	0.35	U	0.35	UJ	13
CBC-U0400-SED-D	54.6	ENDRIN KETONE	0.28	U	0.28	UJ	13
CBC-U0400-SED-D	54.6	GAMMA BHC (LINDANE)	0.32	U	0.32	UJ	13
CBC-U0400-SED-D	54.6	GAMMA-CHLORDANE	1.1	J	1.1	J	13
CBC-U0400-SED-D	54.6	HEPTACHLOR	0.40	U	0.40	UJ	13
CBC-U0400-SED-D	54.6	HEPTACHLOR EPOXIDE	0.65	Jp	0.65	J	13
CBC-U0400-SED-D	54.6	P,P'-DDD	0.67	JB	0.67	J	13
CBC-U0400-SED-D	54.6	P,P'-DDT	0.27	U	0.27	UJ	13
CBC-U0400-SED-D	54.6	TOXAPHENE	12	U	12	UJ	13
CBC-U0400-SED-D	54.6	DELTA BHC	0.28	U	0.28	UJ	13
CBC-U0400-SED-D	54.6	ENDRIN	0.52	J	0.52	J	13
CBC-U0400-SED-D	54.6	METHOXYCHLOR	0.55	Jp	0.55	J	13
CBC-U0400-SED-D	54.6	P,P'-DDE	4.4	NA	4.4	J	13
CBC-U0400-SED-D	54.6	PCB-1016	0.68	U	0.68	UJ	13
CBC-U0400-SED-D	54.6	PCB-1221	0.88	U	0.88	UJ	13
CBC-U0400-SED-D	54.6	PCB-1232	0.79	U	0.79	UJ	13
CBC-U0400-SED-D	54.6	PCB-1242	0.75	U	0.75	UJ	13
CBC-U0400-SED-D	54.6	PCB-1248	0.43	U	0.43	UJ	13
CBC-U0400-SED-D	54.6	PCB-1254	54	NA	54	J	13
CBC-U0400-SED-D	54.6	PCB-1260	0.65	U	0.65	UJ	13
CBC-U0400-SED-D	54.6	PCB-1262	1.0	U	1.0	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-D	54.6	PCB-1268	0.59	U	0.59	UJ	13
CBC-U0400-SED-D	54.6	TOTAL PCBS	54	NA	54	J	13
CBC-U0400-SED-D	54.6	1,2,4,5-TETRACHLOROBENZENE	41	U	41	UJ	13
CBC-U0400-SED-D	54.6	2,3,4,6-TETRACHLOROPHENOL	35	U	35	UJ	13
CBC-U0400-SED-D	54.6	2,4,5-TRICHLOROPHENOL	58	U	58	UJ	13
CBC-U0400-SED-D	54.6	2,4,6-TRICHLOROPHENOL	82	U	82	UJ	13
CBC-U0400-SED-D	54.6	2,4-DICHLOROPHENOL	11	U	11	UJ	13
CBC-U0400-SED-D	54.6	2,4-DIMETHYLPHENOL	86	U	86	UJ	13
CBC-U0400-SED-D	54.6	2,4-DINITROPHENOL	650	U	650	UJ	13
CBC-U0400-SED-D	54.6	2,4-DINITROTOLUENE	44	U	44	UJ	13
CBC-U0400-SED-D	54.6	2,6-DINITROTOLUENE	56	U	56	UJ	13
CBC-U0400-SED-D	54.6	2-CHLORONAPHTHALENE	11	U	11	UJ	13
CBC-U0400-SED-D	54.6	2-CHLOROPHENOL	45	U	45	UJ	13
CBC-U0400-SED-D	54.6	2-METHYLNAPHTHALENE	49	J	49	J	13
CBC-U0400-SED-D	54.6	2-METHYLPHENOL (O-CRESOL)	38	U	38	UJ	13
CBC-U0400-SED-D	54.6	2-NITROANILINE	250	U	250	UJ	13
CBC-U0400-SED-D	54.6	2-NITROPHENOL	60	U	60	UJ	13
CBC-U0400-SED-D	54.6	3,3'-DICHLOROBENZIDINE	58	U	58	UJ	13
CBC-U0400-SED-D	54.6	3-NITROANILINE	230	U	230	UJ	13
CBC-U0400-SED-D	54.6	4,6-DINITRO-2-METHYL PHENOL	220	U	220	UJ	13
CBC-U0400-SED-D	54.6	4-BROMOPHENYL PHENYL ETHER	48	U	48	UJ	13
CBC-U0400-SED-D	54.6	4-CHLORO-3-METHYL PHENOL	50	U	50	UJ	13
CBC-U0400-SED-D	54.6	4-CHLOROANILINE	44	U	44	UJ	13
CBC-U0400-SED-D	54.6	4-CHLOROPHENYL PHENYL ETHER	61	U	61	UJ	13
CBC-U0400-SED-D	54.6	4-NITROANILINE	220	U	220	UJ	13
CBC-U0400-SED-D	54.6	4-NITROPHENOL	200	U	200	UJ	13
CBC-U0400-SED-D	54.6	ACENAPHTHENE	11	U	11	UJ	13
CBC-U0400-SED-D	54.6	ACENAPHTHYLENE	64	J	64	J	13
CBC-U0400-SED-D	54.6	ACETOPHENONE	45	U	45	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-D	54.6	ANTHRACENE	72	J	72	J	13
CBC-U0400-SED-D	54.6	ATRAZINE	53	U*	53	UJ	13
CBC-U0400-SED-D	54.6	BENZALDEHYDE	740	NA	740	J	13
CBC-U0400-SED-D	54.6	BENZO(A)ANTHRACENE	210	NA	210	J	13
CBC-U0400-SED-D	54.6	BENZO(A)PYRENE	240	NA	240	J	13
CBC-U0400-SED-D	54.6	BENZO(B)FLUORANTHENE	350	NA	350	J	13
CBC-U0400-SED-D	54.6	BENZO(G,H,I)PERYLENE	260	NA	260	J	13
CBC-U0400-SED-D	54.6	BENZO(K)FLUORANTHENE	22	U	22	UJ	13
CBC-U0400-SED-D	54.6	BENZYL BUTYL PHTHALATE	75	U	75	UJ	13
CBC-U0400-SED-D	54.6	BIPHENYL (DIPHENYL)	49	U	49	UJ	13
CBC-U0400-SED-D	54.6	BIS(2-CHLOROETHOXY) METHANE	36	U	36	UJ	13
CBC-U0400-SED-D	54.6	BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	15	U	15	UJ	13
CBC-U0400-SED-D	54.6	BIS(2-CHLOROISOPROPYL) ETHER	12	U	12	UJ	13
CBC-U0400-SED-D	54.6	BIS(2-ETHYLHEXYL) PHTHALATE	88	U	88	UJ	13
CBC-U0400-SED-D	54.6	CAPROLACTAM	410	U	410	UJ	13
CBC-U0400-SED-D	54.6	CARBAZOLE	10	U	10	UJ	13
CBC-U0400-SED-D	54.6	CHRYSENE	300	NA	300	J	13
CBC-U0400-SED-D	54.6	CRESOLS, M & P	57	J	57	J	13
CBC-U0400-SED-D	54.6	DIBENZ(A,H)ANTHRACENE	65	J	65	J	13
CBC-U0400-SED-D	54.6	DIBENZOFURAN	54	U	54	UJ	13
CBC-U0400-SED-D	54.6	DIETHYL PHTHALATE	60	U	60	UJ	13
CBC-U0400-SED-D	54.6	DIMETHYL PHTHALATE	60	U	60	UJ	13
CBC-U0400-SED-D	54.6	DI-N-BUTYL PHTHALATE	69	U	69	UJ	13
CBC-U0400-SED-D	54.6	DI-N-OCTYLPHTHALATE	58	U	58	UJ	13
CBC-U0400-SED-D	54.6	FLUORANTHENE	380	NA	380	J	13
CBC-U0400-SED-D	54.6	FLUORENE	46	J	46	J	13
CBC-U0400-SED-D	54.6	HEXACHLOROBENZENE	12	U	12	UJ	13
CBC-U0400-SED-D	54.6	HEXACHLOROBUTADIENE	12	U	12	UJ	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-D	54.6	HEXACHLOROCYCLO-PENTADIENE	59	U	59	UJ	13
CBC-U0400-SED-D	54.6	HEXACHLOROETHANE	39	U	39	UJ	13
CBC-U0400-SED-D	54.6	INDENO(1,2,3-C,D)PYRENE	200	NA	200	J	13
CBC-U0400-SED-D	54.6	ISOPHORONE	41	U	41	UJ	13
CBC-U0400-SED-D	54.6	NAPHTHALENE	62	J	62	J	13
CBC-U0400-SED-D	54.6	NITROBENZENE	46	U	46	UJ	13
CBC-U0400-SED-D	54.6	N-NITROSODI-N-PROPYLAMINE	13	U	13	UJ	13
CBC-U0400-SED-D	54.6	N-NITROSODIPHENYL-AMINE	51	U	51	UJ	13
CBC-U0400-SED-D	54.6	PENTACHLOROPHENOL	49	U	49	UJ	13
CBC-U0400-SED-D	54.6	PHENANTHRENE	200	NA	200	J	13
CBC-U0400-SED-D	54.6	PHENOL	13	U	13	UJ	13
CBC-U0400-SED-D	54.6	PYRENE	280	NA	280	J	13
DS-006-L-SED-C	52.5	PCB-1016	0.65	U	0.65	UJ	13
DS-006-L-SED-C	52.5	PCB-1221	0.83	U	0.83	UJ	13
DS-006-L-SED-C	52.5	PCB-1232	0.75	U	0.75	UJ	13
DS-006-L-SED-C	52.5	PCB-1242	0.71	U	0.71	UJ	13
DS-006-L-SED-C	52.5	PCB-1248	0.41	U	0.41	UJ	13
DS-006-L-SED-C	52.5	PCB-1254	0.62	U	0.62	UJ	13
DS-006-L-SED-C	52.5	PCB-1260	0.62	U	0.62	UJ	13
DS-006-L-SED-C	52.5	PCB-1262	0.96	U	0.96	UJ	13
DS-006-L-SED-C	52.5	PCB-1268	0.56	U	0.56	UJ	13
DS-006-L-SED-C	52.5	TOTAL PCBS	0.96	U	0.96	UJ	13
DS-006-L-SED-D	66.5	PCB-1016	0.92	U	0.92	UJ	13
DS-006-L-SED-D	66.5	PCB-1221	1.2	U	1.2	UJ	13
DS-006-L-SED-D	66.5	PCB-1232	1.1	U	1.1	UJ	13
DS-006-L-SED-D	66.5	PCB-1242	1.0	U	1.0	UJ	13
DS-006-L-SED-D	66.5	PCB-1248	0.59	U	0.59	UJ	13
DS-006-L-SED-D	66.5	PCB-1254	12	NA	12	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
DS-006-L-SED-D	66.5	PCB-1260	0.88	U	0.88	UJ	13
DS-006-L-SED-D	66.5	PCB-1262	1.4	U	1.4	UJ	13
DS-006-L-SED-D	66.5	PCB-1268	0.80	U	0.80	UJ	13
DS-006-L-SED-D	66.5	TOTAL PCBS	12	NA	12	J	13
WA-005-LL-SED-C	58.6	PCB-1016	0.74	U	0.74	UJ	13
WA-005-LL-SED-C	58.6	PCB-1221	0.95	U	0.95	UJ	13
WA-005-LL-SED-C	58.6	PCB-1232	0.86	U	0.86	UJ	13
WA-005-LL-SED-C	58.6	PCB-1242	0.82	U	0.82	UJ	13
WA-005-LL-SED-C	58.6	PCB-1248	0.47	U	0.47	UJ	13
WA-005-LL-SED-C	58.6	PCB-1254	9.6	NA	9.6	J	13
WA-005-LL-SED-C	58.6	PCB-1260	0.71	U	0.71	UJ	13
WA-005-LL-SED-C	58.6	PCB-1262	1.1	U	1.1	UJ	13
WA-005-LL-SED-C	58.6	PCB-1268	0.64	U	0.64	UJ	13
WA-005-LL-SED-C	58.6	TOTAL PCBS	9.6	NA	9.6	J	13
WA-005-LL-SED-D	56.1	PCB-1016	0.70	U	0.70	UJ	13
WA-005-LL-SED-D	56.1	PCB-1221	0.90	U	0.90	UJ	13
WA-005-LL-SED-D	56.1	PCB-1232	0.81	U	0.81	UJ	13
WA-005-LL-SED-D	56.1	PCB-1242	0.77	U	0.77	UJ	13
WA-005-LL-SED-D	56.1	PCB-1248	0.45	U	0.45	UJ	13
WA-005-LL-SED-D	56.1	PCB-1254	0.67	U	0.67	UJ	13
WA-005-LL-SED-D	56.1	PCB-1260	0.67	U	0.67	UJ	13
WA-005-LL-SED-D	56.1	PCB-1262	1.0	U	1.0	UJ	13
WA-005-LL-SED-D	56.1	PCB-1268	0.61	U	0.61	UJ	13
WA-005-LL-SED-D	56.1	TOTAL PCBS	1.0	U	1.0	UJ	13

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
p-The %RPD between the primary and confirmation column/detector was >40%. The lower value was reported
NA-not applicable

Sample ID	Percent Moisture	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SED-D	54.8	ALUMINUM	8800	NA	8800	J	13
CBC-DUP-01-SED-D	54.8	ANTIMONY	0.62	J	0.62	J	13
CBC-DUP-01-SED-D	54.8	ARSENIC	7.2	NA	7.2	J	13
CBC-DUP-01-SED-D	54.8	BARIUM	160	NA	160	J	13
CBC-DUP-01-SED-D	54.8	BERYLLIUM	0.53	NA	0.53	J	13
CBC-DUP-01-SED-D	54.8	CADMIUM	0.75	NA	0.75	J	13
CBC-DUP-01-SED-D	54.8	CALCIUM	18000	B	18000	J	13
CBC-DUP-01-SED-D	54.8	CHROMIUM, TOTAL	24	NA	24	J	13
CBC-DUP-01-SED-D	54.8	COBALT	7.6	NA	7.6	J	13
CBC-DUP-01-SED-D	54.8	COPPER	98	B	98	J	13
CBC-DUP-01-SED-D	54.8	IRON	19000	B	19000	J	13
CBC-DUP-01-SED-D	54.8	LEAD	150	NA	150	J	13
CBC-DUP-01-SED-D	54.8	MAGNESIUM	2500	B	2500	J	13
CBC-DUP-01-SED-D	54.8	MANGANESE	360	NA	360	J	13
CBC-DUP-01-SED-D	54.8	NICKEL	57	NA	57	J	13
CBC-DUP-01-SED-D	54.8	POTASSIUM	880	B	880	J	13
CBC-DUP-01-SED-D	54.8	SELENIUM	1.1	NA	1.1	J	13
CBC-DUP-01-SED-D	54.8	SILVER	0.33	J	0.33	J	13
CBC-DUP-01-SED-D	54.8	SODIUM	150	JB	150	J	13
CBC-DUP-01-SED-D	54.8	THALLIUM	0.62	J	0.62	J	13
CBC-DUP-01-SED-D	54.8	VANADIUM	14	NA	14	J	13
CBC-DUP-01-SED-D	54.8	ZINC	280	B	280	J	13
CBC-DUP-01-SED-D	54.8	CHROMIUM, HEXAVALENT	0.22	U	0.22	UJ	13
CBC-DUP-01-SED-D	54.8	MERCURY	0.19	NA	0.19	J	13
CBC-DUP-01-SED-D	54.8	CYANIDE	0.81	NA	0.81	J	13
CBC-U0200-SED-B	58.7	ALUMINUM	6500	NA	6500	J	13
CBC-U0200-SED-B	58.7	ANTIMONY	0.31	J	0.31	J	13
CBC-U0200-SED-B	58.7	ARSENIC	4.6	NA	4.6	J	13
CBC-U0200-SED-B	58.7	BARIUM	110	NA	110	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-B	58.7	BERYLLIUM	0.40	J	0.40	J	13
CBC-U0200-SED-B	58.7	CADMIUM	0.71	NA	0.71	J	13
CBC-U0200-SED-B	58.7	CALCIUM	21000	B	21000	J	13
CBC-U0200-SED-B	58.7	CHROMIUM, TOTAL	23	NA	23	J	13
CBC-U0200-SED-B	58.7	COBALT	6.9	NA	6.9	J	13
CBC-U0200-SED-B	58.7	COPPER	94	B	94	J	13
CBC-U0200-SED-B	58.7	IRON	16000	B	16000	J	13
CBC-U0200-SED-B	58.7	LEAD	93	NA	93	J	13
CBC-U0200-SED-B	58.7	MAGNESIUM	1900	B	1900	J	13
CBC-U0200-SED-B	58.7	MANGANESE	310	NA	310	J	13
CBC-U0200-SED-B	58.7	NICKEL	93	NA	93	J	13
CBC-U0200-SED-B	58.7	POTASSIUM	770	B	770	J	13
CBC-U0200-SED-B	58.7	SELENIUM	2.0	NA	2.0	J	13
CBC-U0200-SED-B	58.7	SILVER	0.39	J	0.39	J	13
CBC-U0200-SED-B	58.7	SODIUM	220	JB	220	J	13
CBC-U0200-SED-B	58.7	THALLIUM	0.41	J	0.41	J	13
CBC-U0200-SED-B	58.7	VANADIUM	12	NA	12	J	13
CBC-U0200-SED-B	58.7	ZINC	320	B	320	J	13
CBC-U0200-SED-B	58.7	CHROMIUM, HEXAVALENT	0.24	U	0.24	UJ	13
CBC-U0200-SED-B	58.7	MERCURY	0.11	NA	0.11	J	13
CBC-U0200-SED-B	58.7	CYANIDE	1.3	NA	1.3	J	13
CBC-U0200-SED-D	57.6	ALUMINUM	6600	NA	6600	J	13
CBC-U0200-SED-D	57.6	ANTIMONY	0.46	J	0.46	J	13
CBC-U0200-SED-D	57.6	ARSENIC	4.0	NA	4.0	J	13
CBC-U0200-SED-D	57.6	BARIUM	94	NA	94	J	13
CBC-U0200-SED-D	57.6	BERYLLIUM	0.40	J	0.40	J	13
CBC-U0200-SED-D	57.6	CADMIUM	0.69	NA	0.69	J	13
CBC-U0200-SED-D	57.6	CALCIUM	19000	B	19000	J	13
CBC-U0200-SED-D	57.6	CHROMIUM, TOTAL	22	NA	22	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-U0200-SED-D	57.6	COBALT	6.3	NA	6.3	J	13
CBC-U0200-SED-D	57.6	COPPER	86	B	86	J	13
CBC-U0200-SED-D	57.6	IRON	16000	B	16000	J	13
CBC-U0200-SED-D	57.6	LEAD	91	NA	91	J	13
CBC-U0200-SED-D	57.6	MAGNESIUM	1900	B	1900	J	13
CBC-U0200-SED-D	57.6	MANGANESE	370	NA	370	J	13
CBC-U0200-SED-D	57.6	NICKEL	72	NA	72	J	13
CBC-U0200-SED-D	57.6	POTASSIUM	760	B	760	J	13
CBC-U0200-SED-D	57.6	SELENIUM	1.4	NA	1.4	J	13
CBC-U0200-SED-D	57.6	SILVER	0.25	J	0.25	J	13
CBC-U0200-SED-D	57.6	SODIUM	210	JB	210	J	13
CBC-U0200-SED-D	57.6	THALLIUM	0.44	J	0.44	J	13
CBC-U0200-SED-D	57.6	VANADIUM	13	NA	13	J	13
CBC-U0200-SED-D	57.6	ZINC	280	B	280	J	13
CBC-U0200-SED-D	57.6	CHROMIUM, HEXAVALENT	0.24	U	0.24	UJ	13
CBC-U0200-SED-D	57.6	MERCURY	0.15	NA	0.15	J	13
CBC-U0200-SED-D	57.6	CYANIDE	0.60	NA	0.60	J	13
CBC-U0400-SED-B	67.9	ALUMINUM	7000	NA	7000	J	13
CBC-U0400-SED-B	67.9	ANTIMONY	0.90	J	0.90	J	13
CBC-U0400-SED-B	67.9	ARSENIC	3.8	NA	3.8	J	13
CBC-U0400-SED-B	67.9	BARIUM	140	NA	140	J	13
CBC-U0400-SED-B	67.9	BERYLLIUM	0.41	J	0.41	J	13
CBC-U0400-SED-B	67.9	CADMIUM	0.78	NA	0.78	J	13
CBC-U0400-SED-B	67.9	CALCIUM	53000	B	53000	J	13
CBC-U0400-SED-B	67.9	CHROMIUM, TOTAL	16	NA	16	J	13
CBC-U0400-SED-B	67.9	COBALT	6.0	J	6.0	J	13
CBC-U0400-SED-B	67.9	COPPER	87	B	87	J	13
CBC-U0400-SED-B	67.9	IRON	17000	B	17000	J	13
CBC-U0400-SED-B	67.9	LEAD	120	NA	120	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-B	67.9	MAGNESIUM	2400	B	2400	J	13
CBC-U0400-SED-B	67.9	MANGANESE	370	NA	370	J	13
CBC-U0400-SED-B	67.9	NICKEL	33	NA	33	J	13
CBC-U0400-SED-B	67.9	POTASSIUM	850	B	850	J	13
CBC-U0400-SED-B	67.9	SELENIUM	1.5	NA	1.5	J	13
CBC-U0400-SED-B	67.9	SILVER	0.17	J	0.17	J	13
CBC-U0400-SED-B	67.9	SODIUM	240	JB	240	J	13
CBC-U0400-SED-B	67.9	THALLIUM	0.61	J	0.61	J	13
CBC-U0400-SED-B	67.9	VANADIUM	12	NA	12	J	13
CBC-U0400-SED-B	67.9	ZINC	420	B	420	J	13
CBC-U0400-SED-B	67.9	CHROMIUM, HEXAVALENT	0.31	U	0.31	UJ	13
CBC-U0400-SED-B	67.9	MERCURY	0.18	NA	0.18	J	13
CBC-U0400-SED-B	67.9	CYANIDE	0.93	NA	0.93	J	13
CBC-U0400-SED-C	60.6	ALUMINUM	10000	NA	10000	J	13
CBC-U0400-SED-C	60.6	ANTIMONY	0.71	J	0.71	J	13
CBC-U0400-SED-C	60.6	ARSENIC	6.9	NA	6.9	J	13
CBC-U0400-SED-C	60.6	BARIUM	180	NA	180	J	13
CBC-U0400-SED-C	60.6	BERYLLIUM	0.57	NA	0.57	J	13
CBC-U0400-SED-C	60.6	CADMIUM	0.88	NA	0.88	J	13
CBC-U0400-SED-C	60.6	CALCIUM	35000	B	35000	J	13
CBC-U0400-SED-C	60.6	CHROMIUM, TOTAL	24	NA	24	J	13
CBC-U0400-SED-C	60.6	COBALT	8.5	NA	8.5	J	13
CBC-U0400-SED-C	60.6	COPPER	110	B	110	J	13
CBC-U0400-SED-C	60.6	IRON	21000	B	21000	J	13
CBC-U0400-SED-C	60.6	LEAD	170	NA	170	J	13
CBC-U0400-SED-C	60.6	MAGNESIUM	2900	B	2900	J	13
CBC-U0400-SED-C	60.6	MANGANESE	440	NA	440	J	13
CBC-U0400-SED-C	60.6	NICKEL	62	NA	62	J	13
CBC-U0400-SED-C	60.6	POTASSIUM	1000	B	1000	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-C	60.6	SELENIUM	1.3	NA	1.3	J	13
CBC-U0400-SED-C	60.6	SILVER	0.44	J	0.44	J	13
CBC-U0400-SED-C	60.6	SODIUM	180	JB	180	J	13
CBC-U0400-SED-C	60.6	THALLIUM	0.58	J	0.58	J	13
CBC-U0400-SED-C	60.6	VANADIUM	16		16	J	13
CBC-U0400-SED-C	60.6	ZINC	320	B	320	J	13
CBC-U0400-SED-C	60.6	CHROMIUM, HEXAVALENT	0.26	U	0.26	UJ	13
CBC-U0400-SED-C	60.6	MERCURY	0.29	NA	0.29	J	13
CBC-U0400-SED-C	60.6	CYANIDE	0.86	NA	0.86	J	13
CBC-U0400-SED-D	54.6	ALUMINUM	8500	NA	8500	J	13
CBC-U0400-SED-D	54.6	ANTIMONY	0.48	J	0.48	J	13
CBC-U0400-SED-D	54.6	ARSENIC	7.0	NA	7.0	J	13
CBC-U0400-SED-D	54.6	BARIUM	170	NA	170	J	13
CBC-U0400-SED-D	54.6	BERYLLIUM	0.51	NA	0.51	J	13
CBC-U0400-SED-D	54.6	CADMIUM	0.92	NA	0.92	J	13
CBC-U0400-SED-D	54.6	CALCIUM	17000	B	17000	J	13
CBC-U0400-SED-D	54.6	CHROMIUM, TOTAL	24	NA	24	J	13
CBC-U0400-SED-D	54.6	COBALT	7.2	NA	7.2	J	13
CBC-U0400-SED-D	54.6	COPPER	96	B	96	J	13
CBC-U0400-SED-D	54.6	IRON	18000	B	18000	J	13
CBC-U0400-SED-D	54.6	LEAD	150		150	J	13
CBC-U0400-SED-D	54.6	MAGNESIUM	2300	B	2300	J	13
CBC-U0400-SED-D	54.6	MANGANESE	320	NA	320	J	13
CBC-U0400-SED-D	54.6	NICKEL	58	NA	58	J	13
CBC-U0400-SED-D	54.6	POTASSIUM	820	B	820	J	13
CBC-U0400-SED-D	54.6	SELENIUM	1.1	NA	1.1	J	13
CBC-U0400-SED-D	54.6	SILVER	0.36	J	0.36	J	13
CBC-U0400-SED-D	54.6	SODIUM	140	JB	140	J	13
CBC-U0400-SED-D	54.6	THALLIUM	0.50	J	0.50	J	13

Sample ID	Percent Moisture	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-U0400-SED-D	54.6	VANADIUM	14	NA	14	J	13
CBC-U0400-SED-D	54.6	ZINC	280	B	280	B	13
CBC-U0400-SED-D	54.6	CHROMIUM, HEXAVALENT	0.22	U	0.22	UJ	13
CBC-U0400-SED-D	54.6	MERCURY	0.19	NA	0.19	J	13
CBC-U0400-SED-D	54.6	CYANIDE	0.89	NA	0.89	J	13

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable

---

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable – Polychlorinated Biphenyls by EPA Methods 3541/8082 and Percent Moisture/Solids by ASTM Method D2974-07– TestAmerica Work Order Numbers 180-12818-2 and 180-12818-2 Revision 1**

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of seven sediment samples collected on July 24-25, 2012 as part of the Unisys sampling event. TestAmerica Pittsburgh, Pennsylvania, analyzed the samples. The samples were analyzed for the following tests:

- EPA Methods 3541/8082 - Polychlorinated Biphenyls (PCBs)
- ASTM Method D2974-07 - Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010, USEPA Region II, Data Validation SOP of Organic Analysis of PCBs by Gas Chromatography SW-846 Method 8082A, SOP HW-45 Revision 1, October 2006, USEPA Contract Laboratory

Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12818-4	WA-005-LL-SED-B
180-12818-7	WA-006-LL-SED-B
180-12818-10	WA-007-LL-SED-B
180-12818-16	WA-013-L-SED-B

Lab ID	Client ID
180-12818-19	WA-014-L-SED-B
180-12818-22	WA-015-SED-B
180-12818-47	DS-006-L-SED-B

The samples were received at the laboratory at 1.5°C and 2.3°C, slightly outside and within the QAPP criteria of 4 ± 2°C, respectively. Based on professional judgment, no qualifications were applied to the data. No other sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the correction was not followed.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

The report was revised to remove Total PCBs and to include the ICV forms in the report.

1.0 POLYCHLORINATED BIPHENYLS

Seven sediment samples were analyzed for PCBs per EPA Methods 3541/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Initial Calibration
⊗ Continuing Calibration Verification
✓ Method Blanks
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates

- ✓ Field Duplicate
- ✓ Target Compound Identification
- ✓ Compound Quantitation
- ⊗ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Times

The holding time for PCB analysis of solids is 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Initial Calibration

Initial calibration of the target compounds was performed for the primary (quantitation) column and confirmation column as required by this method. The %RSDs were less than or equal to 20% or the coefficient of determination (r2) was greater than or equal to 0.990 for the curve fit calibrations.

Initial calibration verification (ICV) was performed at the required frequency. The ICV met the laboratory acceptance criteria.

1.4 Continuing Calibration Verification

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits, with the following exception. The %D for PCB 1260 was 18.8% with high bias in the CCV analyzed on the RTX-50 column on 8/15/12, 3:55. Aroclor 1254 was reported in the sample bracketed by this CCV. Based on professional judgment, the concentration of Aroclor 1254 in sample WA-014-L-SED-B was J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
WA-014-L-SED-B	PCB-1254	15	NA	15	J	9

NA-not applicable

1.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with the data (batches 44032, 44033 and 44034). PCBs were not detected in the method blanks above the method detection limits (MDLs).

1.6 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were not reported.

1.7 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were analyzed. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

1.8 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria.

1.9 Field Duplicate

A field duplicate sample was not collected with the sample set.

1.10 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.11 Compound Quantitation

The compound quantitations were within the validation criteria.

1.12 Sensitivity

The samples were reported to the MDLs. The MDLs were greater than the Human Health Bioaccumulation Sediment Criteria listed in Table 2 of the work plan.

Parameters	HH Sediment Criteria (µg/kg)	Lab MDL (µg/kg)
Total PCBs	0.008	89

HH - Human Health Bioaccumulation

1.13 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process and the automated data review process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 PERCENT MOISTURE/SOLIDS

The percent moisture/solid content of each sediment sample and the field duplicate were reported. The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. Therefore, the sample results for samples DS-006-L-SED-B and WA-005-LL-SED-B were J qualified as estimated; the non-detect values were UJ qualified as estimated less than the MDLs.

Client Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
DS-006-L-SED-B	76.2	PCB-1016	1.3	UJ	1.3	UJ	13
DS-006-L-SED-B	76.2	PCB-1221	1.7	UJ	1.7	UJ	13
DS-006-L-SED-B	76.2	PCB-1232	1.5	UJ	1.5	UJ	13
DS-006-L-SED-B	76.2	PCB-1242	1.4	UJ	1.4	UJ	13
DS-006-L-SED-B	76.2	PCB-1248	0.83	UJ	0.83	UJ	13

Client Sample ID	Percent Moisture	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
DS-006-L-SED-B	76.2	PCB-1254	110	NA	110	J	13
DS-006-L-SED-B	76.2	PCB-1260	1.2	UJ	1.2	UJ	13
DS-006-L-SED-B	76.2	PCB-1262	1.9	UJ	1.9	UJ	13
DS-006-L-SED-B	76.2	PCB-1268	1.1	UJ	1.1	UJ	13
DS-006-L-SED-B	76.2	TOTAL PCBS	110	NA	110	J	13
WA-005-LL-SED-B	60.6	PCB-1016	0.78	U	0.78	UJ	13
WA-005-LL-SED-B	60.6	PCB-1221	1.0	U	1.0	UJ	13
WA-005-LL-SED-B	60.6	PCB-1232	0.90	U	0.90	UJ	13
WA-005-LL-SED-B	60.6	PCB-1242	0.86	U	0.86	UJ	13
WA-005-LL-SED-B	60.6	PCB-1248	0.50	U	0.50	UJ	13
WA-005-LL-SED-B	60.6	PCB-1254	8.8	NA	8.8	J	13
WA-005-LL-SED-B	60.6	PCB-1260	0.75	U	0.75	UJ	13
WA-005-LL-SED-B	60.6	PCB-1262	1.2	U	1.2	UJ	13
WA-005-LL-SED-B	60.6	PCB-1268	0.67	U	0.67	UJ	13
WA-005-LL-SED-B	60.6	TOTAL PCBS	8.8	NA	8.8	J	13

U-not detected at the stated MDL
NA-not applicable

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable – Polychlorinated Biphenyls by EPA Methods 3510C/8082 and 3541/8082, Metals by EPA Methods 3010C/6010B and 3050B/6010B, Mercury by EPA Methods 7470A and 7471A and Percent Moisture/Solids by ASTM Method D2974-07– TestAmerica Work Order Numbers 180-12908-1 and 180-12908-1 Revisions 1 and 2**

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of thirty-three sediment and solid samples, three field duplicate samples and seven equipment blanks collected on July 26-27, 2012 as part of the Unisys sampling event. The analyses were performed at TestAmerica Pittsburgh, Pennsylvania. The sample was analyzed for the following tests:

- EPA Methods 3510C/8082 and 3541/8082 - Polychlorinated Biphenyls (PCBs)
- EPA Methods 3010C/6010B and 3050B/6010B – Metals
- EPA Methods 7470A and 7471A – Mercury
- ASTM Method D2974-07- Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010, USEPA Region II, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the QAPP, USEPA Region II, Evaluation of Metals Data for the CLP Program, SOP HW-2 Rev.13, ILM05.3, September 2006, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, OSWER 9240.1-51, EPA 540-R-10-011, January 2010, as well as by the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12908-1	EB-02-RI-072612
180-12908-2	CBC-1440-W-SS-A
180-12908-3	CBC-1440-W-SUB-C
180-12908-4	CBC-1440-W-CUB-D
180-12908-5	CBC-1270-W-SS-A
180-12908-6	CBC-1270-W-SUB-C
180-12908-7	CBC-1270-W-SUB-D
180-12908-8	CBC-DUP-01-SS-A
180-12908-9	CBC-0720-W-SS-A
180-12908-10	CBC-0720-W-SUB-C
180-12908-11	CBC-0720-W-SUB-D
180-12908-12	CBC-0200-EE-SS-A
180-12908-13	CBC-0200-EE-SUB-C
180-12908-14	CBC-0200-EE-SUB-D
180-12908-15	CBC-DUP-02-SS-A
180-12908-16	CBC-0550-EE-SS-A
180-12908-17	CBC-0550-EE-SUB-C
180-12908-18	CBC-0550-EE-SUB-D
180-12908-19	EB-03-RI-072712
180-12908-20	WA-006-RR-SED-B
180-12908-22	WA-006-RR-SED-C
180-12908-23	WA-006-RR-SED-D

Lab ID	Client ID
180-12908-24	DS-050-R-SS-A
180-12908-25	DS-050-R-SUB-C
180-12908-26	DS-050-R-SUB-D
180-12908-27	DS-000-RR-SS-A
180-12908-28	DS-000-RR-SUB-C
180-12908-29	DS-000-RR-SUB-D
180-12908-30	DS-DUP-01-SS-A
180-12908-31	DS-100-RR-SS-A
180-12908-32	DS-100-RR-SUB-C
180-12908-33	DS-100-RR-SUB-D
180-12908-34	DS-190-RR-SS-A
180-12908-35	DS-190-RR-SUB-C
180-12908-36	DS-190-RR-SUB-D
180-12908-37	DS-290-RR-SS-A
180-12908-38	DS-290-RR-SUB-C
180-12908-39	DS-290-RR-SUB-D
180-12908-40	EB-04-RI-072712
180-12908-41	EB-05-RI-072712
180-12908-42	EB-06-RI-072712
180-12908-43	EB-07-RI-072712
180-12908-44	EB-08-RI-072712

The samples were received at the laboratory at 1.5ºC, 1.8ºC and 2.6ºC.; two coolers were slightly outside the QAPP criteria of 4 $\pm$ 2ºC. Based on professional judgment, no qualifications were applied to the data. No sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the correction was not followed.

No dates or times of collection were listed on the chain of custody (COC) for field duplicates CBC-DUP-01-SS-A and CBC-DUP-02-SS-A. The laboratory assigned the collection dates/times of 7/26/12, 00:00 for both. In addition, many samples were marked on the COC as hold for analysis. Additional information from the laboratory indicated that the samples were taken off hold by the client.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

The report was revised twice; the first revision was performed to remove Total PCBs and include the ICV forms for PCBs in the hardcopy laboratory report. The PCB portion of the data package was revised in Revision 2 to correct the PCB concentration for PCB 1260 for sample CBC-0720-W-SSA (180-12908-9) and to correct the PCB calibration data.

1.0 POLYCHLORINATED BIPHENYLS

Twenty-seven sediment samples, two field duplicate samples and seven equipment blanks were analyzed for PCBs per EPA Methods 3510C/8082 and 3541/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Initial Calibration
⊗ Continuing Calibration Verification
✓ Method Blanks
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
✓ Equipment Blank
⊗ Field Duplicate

- ✓ Target Compound Identification
- ✓ Compound Quantitation
- ⊗ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Times

The holding times for PCB analysis of solids are 14 days from sample collection to extraction and 40 days from extraction to analysis; the holding times for waters are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Initial Calibration

Initial calibration of the target compounds was performed as required by the method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

1.4 Continuing Calibration Verification (CCV)

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits, with the following exception.

The percent difference was greater than 15% for PCB 1260, with a high bias in the CCV bracketing samples CBC-0720-W-SS-A, CBC-0200-EE-SS-A and DS-050-R-SS-A; the %D was 16%. Therefore, the concentrations of PCB 1260 in samples CBC-0720-W-SS-A, CBC-0200-EE-SS-A and DS-050-R-SS-A were J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
CBC-0200-EE-SS-A	PCB-1260	33	NA	33	J	9
DS-050-R-SS-A	PCB-1260	24	NA	24	J	9
CBC-0720-W-SS-A	PCB-1260	23	NA	23	J	9

NA-not applicable

1.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported with the data (batches 43523, 44380, 44524 and 44526). PCBs were not detected in the method blanks above the method detection limits (MDLs).

1.6 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Two sample set specific MS/MSD pairs, using samples CBC-0720-W-SS-A and DS-000-RR-SS-A, were reported. The MS/MSD pairs had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria.

1.7 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and two LCS/LCS duplicate (LCSD) pairs were analyzed. The results for the LCSs and LCS/LCSD pairs were within the laboratory specified acceptance criteria for recovery and RPD.

1.8 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria.

1.9 Equipment Blank

Two equipment blanks, EB-01-RI-072412 and EB-02-RI-072412, were collected with the samples. PCBs were not detected in the equipment blanks above the MDLs.

1.10 Field Duplicate

Two field duplicate samples, CBC-DUP-02-SS-A and DS-DUP-01-SS-A, were collected with the sample set. Acceptable precision [RPD <40% for results >5 times the reporting limit (RL), < ± 2 times the RL for results < 5 times the RL] was demonstrated between the field duplicates and the original samples, CBC-0200-EE-SS-A and DS-000-RR-SS-A, respectively, with the following exception.

PCB-1260 was detected in one sample and not detected in the other sample in duplicate pair CBC-0200-EE-SS-A/CBC-DUP-02-SS-A, resulting in a noncalculable RPD between the results. Therefore, the detected concentration was J qualified as estimated and the undetected value was UJ qualified as estimated less than the MDL.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-0200-EE-SS-A	PCB-1260	33	J	NC	33	J	7
CBC-DUP-02-SS-A	PCB-1260	3.0	U		3.0	UJ	7
CBC-0200-EE-SS-A	The other PCBs	ND	NA	0	NA	NA	NA
CBC-DUP-02-SS-A	The other PCBs	ND	NA		NA	NA	NA

J-estimated concentration less than the RL and greater than the MDL
U-not detected at the reported MDL
NA-not applicable
ND-not detected at the MDL
NC-not calculable

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
DS-000-RR-SS-A	PCB-1242	36	NA	34	NA	NA	NA
DS-DUP-01-SS-A	PCB-1242	51	NA		NA	NA	NA
DS-000-RR-SS-A	PCB-1260	26	NA	21	NA	NA	NA
DS-DUP-01-SS-A	PCB-1260	32	NA		NA	NA	NA
DS-000-RR-SS-A	The other PCBs	ND	NA	0	NA	NA	NA
DS-DUP-01-SS-A	The other PCBs	ND	NA		NA	NA	NA

NA-not applicable
ND-not detected at the MDL

1.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.12 Compound Quantitation

The compound quantitations were within the validation criteria.

1.13 Sensitivity

The samples were reported to the MDLs. The MDLs were greater than the Human Health Bioaccumulation Sediment Criteria listed in Table 2 of the work plan.

Parameters	HH Sediment Criteria (µg/kg)	Lab MDL (µg/kg)	Matrix
Total PCBs	0.008	0.039-0.091	Sediment
Total PCBs	0.008	2.1-3.7	Solid

HH - Human Health Bioaccumulation

1.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 METALS

Six sediment samples, one field duplicate sample and two equipment blanks were analyzed for metals per EPA Methods 3010C/6010B and 3050B/6010B (Mercury evaluated separately in Section 3.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ⊗ Method Blank
- ⊗ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Duplicate
- ✓ Laboratory Control Sample
- ⊗ Serial Dilution
- ✓ Equipment Blank
- ⊗ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Times

The holding time for metals analysis of solids is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Initial Calibration

The initial calibration requirements were met for the inductively coupled plasma-atomic emission spectrometer (ICP-AES).

The reporting limit standards were within the laboratory control limits.

The interference check standards (ICSA and ICSAB) met the method acceptance criteria.

2.4 Initial and Continuing Calibration Verifications (ICV and CCV)

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

2.5 Initial and Continuing Calibration Blanks (ICB and CCB)

The ICBs and CCBs met the method acceptance criteria.

2.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 43798 and 43629). Metals were not detected in the method blanks above the MDLs, with the following exceptions.

Zinc was detected in the method blank in batch 43798. Therefore, the estimated concentrations of zinc in the associated samples were U qualified as not detected at the RL.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
EB-06-RI-072712	ZINC	5.4	JB	20	U	3
EB-07-RI-072712	ZINC	5.6	JB	20	U	3

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample

Calcium, iron, magnesium, sodium and zinc were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 43629. Since calcium, iron, magnesium and zinc were detected in the associated sample at concentrations greater than the RLs, no qualifications were applied to the data. The estimated concentrations of sodium in the associated samples were U qualified as not detected at the RL.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CBC-1270-W-SS-A	SODIUM	46	JB	620	U	3
CBC-1270-W-SUB-C	SODIUM	110	JB	480	U	3
CBC-1270-W-SUB-D	SODIUM	160	JB	540	U	3
CBC-1440-W-	SODIUM	70	JB	630	U	3

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CUB-D						
CBC-1440-W-SS-A	SODIUM	44	JB	550	U	3
CBC-1440-W-SUB-C	SODIUM	45	JB	530	U	3
CBC-DUP-01-SS-A	SODIUM	49	JB	640	U	3

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample

2.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-1270-W-SS-A, was reported. The recovery and RPD results were within the laboratory specified acceptance criteria, with the following exceptions.

The recoveries of chromium and antimony were low and outside the laboratory specified acceptance criteria. Therefore, the concentrations of chromium and antimony in sample CBC-1270-W-SS-A were J- qualified as estimated with low biases.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CBC-1270-W-SS-A	ANTIMONY	0.34	J	0.34	J-	4
CBC-1270-W-SS-A	CHROMIUM, TOTAL	87	NA	87	J-	4

J-estimated concentration less than the RL and greater than the MDL
NA-not applicable

2.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were analyzed. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

2.9 Serial Dilution

A serial dilution, using sample CBC-1270-W-SS-A was reported. The results for the serial dilution were within the method acceptance criteria, with the following exceptions. The %D for

cadmium and zinc were high and outside the method acceptance criteria. Therefore, the concentrations of cadmium and zinc in sample CBC-1270-W-SS-A were J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CBC-1270-W-SS-A	CADMIUM	2.5	NA	2.5	J	8
CBC-1270-W-SS-A	VANADIUM	12	NA	12	J	8

NA-not applicable

2.10 Equipment Blank

Two equipment blanks, EB-06-RI-072712 and EB-07-RI-072712, were collected with the samples. Metals were not detected in the equipment blanks above the MDLs, with the following exceptions.

Estimated concentrations, greater than the MDLs and less than the RLs, of calcium, iron, manganese and zinc were detected in both equipment blanks. The estimated concentrations of zinc in the equipment blanks were U qualified as not detected at the RL due to method blank contamination; therefore, no qualifications were applied to the zinc data. In addition, since the concentrations of calcium, iron and manganese in the associated samples were greater than the RLs, no qualifications were applied to the calcium, iron and manganese data.

2.11 Field Duplicate

One field duplicate sample, CBC-DUP-01-SS-A, was collected with the samples. Acceptable precision (< 40% RPD for results greater than five times the RL) was demonstrated between the field duplicate and the original sample CBC-1270-W-SS-A, with the following exception.

The RPD for cadmium was greater than 40% RPD; therefore, cadmium concentrations were J qualified as estimated in the duplicate pair.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-1270-W-SS-A	ALUMINUM	8500	NA	6	NA	NA	NA
CBC-DUP-01-SS-A	ALUMINUM	8000	NA		NA	NA	NA
CBC-1270-W-SS-A	ANTIMONY	0.34	J	NC	NA	NA	NA

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-DUP-01-SS-A	ANTIMONY	0.42	J		NA	NA	NA
CBC-1270-W-SS-A	ARSENIC	6.7	NA	6	NA	NA	NA
CBC-DUP-01-SS-A	ARSENIC	6.3	NA		NA	NA	NA
CBC-1270-W-SS-A	BARIUM	82	NA	1	NA	NA	NA
CBC-DUP-01-SS-A	BARIUM	83	NA		NA	NA	NA
CBC-1270-W-SS-A	BERYLLIUM	0.47	J	NC	NA	NA	NA
CBC-DUP-01-SS-A	BERYLLIUM	0.44	J		NA	NA	NA
CBC-1270-W-SS-A	CADMIUM	2.5	NA	51	2.5	J	7
CBC-DUP-01-SS-A	CADMIUM	4.2	NA		4.2	J	7
CBC-1270-W-SS-A	CALCIUM	10000	B	10	NA	NA	NA
CBC-DUP-01-SS-A	CALCIUM	11000	B		NA	NA	NA
CBC-1270-W-SS-A	CHROMIUM, TOTAL	87	NA	5	NA	NA	NA
CBC-DUP-01-SS-A	CHROMIUM, TOTAL	83	NA		NA	NA	NA
CBC-1270-W-SS-A	COBALT	7.8	NA	3	NA	NA	NA
CBC-DUP-01-SS-A	COBALT	7.6	NA		NA	NA	NA
CBC-1270-W-SS-A	COPPER	43	NA	9	NA	NA	NA
CBC-DUP-01-SS-A	COPPER	47	NA		NA	NA	NA
CBC-1270-W-SS-A	IRON	15000	B	0	NA	NA	NA
CBC-DUP-01-SS-A	IRON	15000	B		NA	NA	NA
CBC-1270-W-SS-A	LEAD	33	NA	0	NA	NA	NA
CBC-DUP-01-SS-A	LEAD	33	NA		NA	NA	NA
CBC-1270-W-SS-A	MAGNESIUM	3300	B	6	NA	NA	NA
CBC-DUP-01-SS-A	MAGNESIUM	3100	B		NA	NA	NA

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-1270-W-SS-A	MANGANESE	260	NA	0	NA	NA	NA
CBC-DUP-01-SS-A	MANGANESE	260	NA		NA	NA	NA
CBC-1270-W-SS-A	NICKEL	190	NA	5	NA	NA	NA
CBC-DUP-01-SS-A	NICKEL	180	NA		NA	NA	NA
CBC-1270-W-SS-A	POTASSIUM	1300	NA	8	NA	NA	NA
CBC-DUP-01-SS-A	POTASSIUM	1200	NA		NA	NA	NA
CBC-1270-W-SS-A	SELENIUM	0.61	J	NC	NA	NA	NA
CBC-DUP-01-SS-A	SELENIUM	0.63	J		NA	NA	NA
CBC-1270-W-SS-A	SILVER		U	NC	NA	NA	NA
CBC-DUP-01-SS-A	SILVER		U		NA	NA	NA
CBC-1270-W-SS-A	SODIUM	46	JB	6	NA	NA	NA
CBC-DUP-01-SS-A	SODIUM	49	JB		NA	NA	NA
CBC-1270-W-SS-A	THALLIUM		U	0	NA	NA	NA
CBC-DUP-01-SS-A	THALLIUM		U		NA	NA	NA
CBC-1270-W-SS-A	VANADIUM	12	NA	0	NA	NA	NA
CBC-DUP-01-SS-A	VANADIUM	12	NA		NA	NA	NA
CBC-1270-W-SS-A	ZINC	170	B	11	NA	NA	NA
CBC-DUP-01-SS-A	ZINC	190	B		NA	NA	NA

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable

2.12 Compound Quantitations

The compound quantitations were within the validation criteria.

2.13 Sensitivity

The samples were reported to the MDLs.

2.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

3.0 MERCURY

Six sediment samples, one field duplicate sample and two equipment blanks were analyzed for mercury per EPA Methods 7470A and 7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ⊗ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The mercury data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

3.2 Holding Times

The holding time for mercury analysis of solids is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

3.3 Initial Calibration

The initial calibration requirements were met. The coefficient of determination (r^2) was greater than or equal to 0.990 for the linear calibration.

The reporting limit standard was within the laboratory control limits.

3.4 Initial and Continuing Calibration Verifications

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

3.5 Initial and Continuing Calibration Blanks

The ICBs and CCBs met the method acceptance criteria.

3.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 44892 and 45015). Mercury was not detected in the method blanks above the MDL.

3.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-1270-W-SS-A, was reported. The recovery and RPD results were within the laboratory specified acceptance criteria.

3.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were analyzed. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

3.9 Field Duplicate

One field duplicate sample, CBC-DUP-01-SS-A, was collected with the samples. Acceptable precision (< 40% RPD for results greater than five times the RL) was demonstrated between the field duplicate and the original sample CBC-1270-W-SS-A.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-1270-W-SS-A	MERCURY	0.065	NA	0	NA	NA	NA
CBC-DUP-01-SS-A	MERCURY	0.065	NA		NA	NA	NA

NA-not applicable

3.10 Compound Quantitations

The compound quantitations were within the validation criteria.

3.11 Sensitivity

The samples were reported to the MDL..

3.12 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

4.0 PERCENT MOISTURE/SOLIDS

The percent moisture/solid content of each sediment sample was reported. The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. Since the percent moisture contents were less than 50% for the samples, no qualifications were applied to the data.

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: Stage 4 Data Validation - Level IV Data deliverable – Polychlorinated Biphenyls by EPA Methods 3541/8082 and Percent Moisture/Solids by ASTM Method D2974-07– TestAmerica Work Order Numbers 180-12908-2 and 180-12908-2 Revision1

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of one sediment sample collected on July 28, 2012 as part of the Unisys sampling event. TestAmerica Pittsburgh, Pennsylvania analyzed the sample. The sample was analyzed for the following tests:

- EPA Methods 3541/8082 - Polychlorinated Biphenyls (PCBs)
- ASTM Method D2974-07 - Percent Moisture/Solids

EXECUTIVE SUMMARY

The sample was handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering quality control (QC) parameters listed below, the data are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010, USEPA Region II, Data Validation SOP of Organic Analysis of PCBs by Gas Chromatography (GC) SW-846 Method 8082A, SOP HW-45 Revision 1, October 2006, USEPA Contract

Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12908-1	WA-006-RR-SED-A

The temperature at laboratory receipt was not documented in the data package; the report narrative indicated the temperature of the cooler was within acceptable temperature criteria. No sample preservation issues were noted by the laboratory.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

The report was revised to remove Total PCBs and to include the ICV forms in the report.

1.0 POLYCHLORINATED BIPHENYLS

One sediment sample was analyzed for PCBs per EPA Methods 3541/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Initial Calibration
✓ Continuing Calibration Verification
✓ Method Blanks
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
✓ Field Duplicate
✓ Target Compound Identification
✓ Compound Quantitation
⊗ Sensitivity
✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Times

The holding time for PCB analysis of solids is 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Initial Calibration

Initial calibration of the target compounds was performed for the primary (quantitation) column and confirmation column as required by this method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

Initial calibration verification (ICV) was performed at the required frequency. The ICV met the laboratory acceptance criteria.

1.4 Continuing Calibration Verification

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits.

1.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 43189). PCBs were not detected in the method blank above the method detection limits (MDLs).

1.6 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample WA-006-RR-SED-A, was reported. The MS/MSD pair had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria.

1.7 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

1.8 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria, with the following exception. The tetrachloroxylene recovery in sample WA-006-RR-SED-A was low and outside the laboratory specified acceptance criteria. Since the other surrogate (decachlorobiphenyl) recovery was acceptable, no qualifications were applied to the data.

1.9 Field Duplicate

A field duplicate sample was not collected with the sample set.

1.10 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.11 Compound Quantitation

The compound quantitations were within the validation criteria.

1.12 Sensitivity

The samples were reported to the MDLs. The MDLs were greater than the Human Health Bioaccumulation Sediment Criteria listed in Table 2 of the work plan.

Parameters	HH Sediment Criteria (µg/kg)	Lab MDL (µg/kg)
Total PCBs	0.008	0.091

HH - Human Health Bioaccumulation

1.13 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix

was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 PERCENT MOISTURE/SOLIDS

The percent moisture/solid content of the sediment sample was reported. The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. The sample results were not qualified since the moisture content in the sample was less than 50%.

---

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable – Volatile Organic Compounds by EPA Methods 5030B/8260B, Semivolatile Organic Compounds by EPA Methods 3520C/8270C, Organochlorine Pesticides by EPA Methods 3510C/8081A, Polychlorinated Biphenyls by EPA Methods 3510C/8082 and 3541/8082, Total and Dissolved Metals by EPA Methods 3005A/3010A/6020, Total and Dissolved Mercury by EPA Method 7470A, Cyanide by EPA Method 9012A, Hexavalent Chromium by EPA Method 7196A, Total Hardness by Standard Method 2340C and Percent Moisture/Solids by ASTM Method D2974-07 – TestAmerica Work Order Number 180-12937-1**

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of four solid samples, eight water samples, one field duplicate sample and one trip blank collected on July 30, 2012 as part of the Unisys sampling event. The analyses were performed at TestAmerica Pittsburgh, Pennsylvania. The sample was analyzed for the following tests:

- EPA Methods 5030B/8260B - Volatile Organic Compounds (VOCs)
- EPA Methods 3520C/8270C - Semivolatile Organic Compounds (SVOCs)
- EPA Methods 3510C/8081A - Organochlorine Pesticides
- EPA Methods 3510C/8082 and 3541/8082 - Polychlorinated Biphenyls (PCBs)
- EPA Methods 3005A/3010A/6020 – Total and Dissolved Metals
- EPA Method 7470A – Total and Dissolved Mercury
- EPA Method 9012A – Cyanide
- EPA Method 7196A – Hexavalent Chromium
- Standard Method 2340C – Total Hardness
- ASTM Method D2974-07 - Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives, with the following exceptions. Qualified data should be used within the limitations of the qualification.

The average RRF for 1,4-dioxane was 0.0019, below the validation criteria of 0.005; therefore, the undetected values of 1,4-dioxane in the associated samples were R qualified as rejected.

The undetected value of endrin aldehyde in sample CBC-U0400-SW was R qualified as rejected due to matrix spike/matrix spike duplicate (MS/MSD) recoveries less than 10%.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010, USEPA Region II, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the QAPP, USEPA Region II, Evaluation of Metals Data for the CLP Program, SOP HW-2 Rev.13, ILM05.3, September 2006, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, OSWER 9240.1-51, EPA 540-R-10-011, January 2010, as well as by the pertinent methods referenced by the data package and professional judgment.

The following sample was analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12937-1	DS-004-L-SUB-C
180-12937-2	DS-004-L-SUB-D
180-12937-3	DS-000-LL-SUB-C
180-12937-4	DS-000-LL-SUB-D
180-12937-5	CBC-1670-SW
180-12937-6	CBC-1470-SW
180-12937-7	CBC-1270-SW

Lab ID	Client ID
180-12937-8	CBC-10+70-SW
180-12937-9	CBC-05+90-SW
180-12937-10	CBC-U0200-SW
180-12937-11	CBC-U0400-SW
180-12937-12	CBC-U0550-SW
180-12937-13	CBC-DUP-01-SW
180-12937-14	TRIP BLANK-073012

The samples were received at the laboratory within the QAPP criteria of 4 ± 2°C. No sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the correction was not followed.

No date or time of collection was listed on the COC for the trip blank; the time of collection was not listed on the COC for sample CBC-DUP-01-SW. The laboratory assigned the collection date/time of 7/30/12, 00:00 to the trip blank and a collection time of 00:00 to the field duplicate.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

The report was revised to remove Total PCBs and include the ICV forms for PCBs in the hardcopy laboratory report.

1.0 VOLATILE ORGANIC COMPOUND ANALYSIS

Three water samples, one field duplicate and one trip blank were analyzed for VOCs per EPA Methods 5030B/8260B.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Times
✓ Instrument Performance Check
⊗ Initial Calibration
✓ Continuing Calibration Verification
✓ Method Blanks
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
✓ Equipment Blank
⊗ Field Duplicate
✓ Internal Standards
✓ Target Compound Identifications

⊗ Target Compound Quantitations
✓ Sensitivity
✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The VOC data reported in this package are considered to be usable for meeting project objectives, with the following exception. The analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 98%. The average RRF for 1,4-dioxane was 0.0019, below the validation criteria of 0.005; therefore, the undetected values of 1,4-dioxane in the associated samples were R qualified as rejected.

1.2 Holding Times

The holding time for a preserved water sample is 14 days from sample collection. The holding times were met for the sample analyses.

1.3 Instrument Performance Check

An instrument performance check sample (tune standard) was analyzed at the beginning of each 12-hour period during sample analysis. The samples were analyzed within the 12-hour period. All ion abundance criteria were met for bromofluorobenzene (BFB).

1.4 Initial Calibration

Appropriate initial calibrations were performed for each analyte. Based on the method of calibration, the laboratory calculated percent relative standard deviation (%RSD) of the relative response factors (RRFs). The %RSDs of the calibration check compounds (CCCs) met the method criteria of less than or equal to 30% and the minimum average RRFs for the compounds were above the method and validation criteria, with the exception noted below.

For the target analytes, the average RRFs and the %RSDs were within the method and validation criteria for the target compounds or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

The average RRF for 1,4-dioxane was 0.0029, below the validation criteria of 0.005. Therefore, the undetected values of 1,4-dioxane in the associated samples were R qualified as rejected.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualifier*	Reason Code**
CBC-DUP-01-SW	1,4-Dioxane	98	U	98	R	9
CBC-U0200-SW	1,4-Dioxane	98	U	98	R	9
CBC-U0400-SW	1,4-Dioxane	98	U	98	R	9
CBC-U0550-SW	1,4-Dioxane	98	U	98	R	9
TRIP BLANK-073012	1,4-Dioxane	98	U	98	R	9

U-not detected at the reported MDL
*Validation qualifiers are defined in Attachment 1 at the end of this report
**EDD reason codes are defined in Attachment 2 at the end of this report

1.5 Continuing Calibration Verification (CCV)

For the target analytes, the CCVs were performed at the required frequency. The CCV RRFs met the method and validation criteria.

The percent differences (%Ds) between the RRFs in the initial and continuing calibration standards for the target analytes were within the method and validation acceptance criteria of less than or equal to 20% for CCCs and the validation criteria of 40% difference for poor performing compounds and 25% difference for the non-CCC compounds.

1.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 43618). VOCs were not detected in the method blank above the method detection limits (MDLs).

1.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0400-SW, was reported. The MS/MSD pairs had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria, with the following exception. The RPD for acetone was high and outside the laboratory specified acceptance criteria. Since acetone was not detected in sample CBC-U0400-SW, no qualifications were applied to the data.

1.8 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery. It was noted that 1,4-dioxane was not spiked into the LCS. Since the undetected values of 1,4-dioxane were R qualified as rejected in the associated samples due to the initial calibration results, no additional qualifications were applied to the data.

1.9 Surrogates

Acceptable surrogate recoveries were reported for the sample analyses.

1.10 Trip Blank

A trip blank, TRIP BLANK-073012, was submitted with the samples. VOCs were not detected in the trip blank above the MDLs.

1.11 Equipment Blank

An equipment blank was not collected with the sample set.

1.12 Field Duplicate

One field duplicate sample, CBC-DUP-01-SW, was collected with the samples. Acceptable precision [< 35% RPD for results greater than five times the reporting limit (RL) or < ±RL for results less than five times the RL] was demonstrated between the field duplicate and the original sample CBC-U0400-SW, with the following exceptions.

Compounds were detected in one sample and not detected in the other sample in the duplicate pair, resulting in noncalculable RPDs between the results. Therefore, the detected concentrations were J qualified as estimated and the undetected values were UJ qualified as estimated less than the MDLs.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-DUP-01-SW	1,1,2-TRICHLOROETHANE	1.2	U	NC	1.2	UJ	7
CBC-U0400-SW	1,1,2-TRICHLOROETHANE	4.0	J		4.0	J	7
CBC-DUP-01-	1,2-	0.96	U	NC	0.96	UJ	7

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
SW	DICHLOROETHANE						
CBC-U0400-SW	1,2-DICHLOROETHANE	1.9	J		1.9	J	7
CBC-DUP-01-SW	METHYL ISOBUTYL KETONE	0.59	U	NC	0.59	UJ	7
CBC-U0400-SW	METHYL ISOBUTYL KETONE	1.2	J		1.2	J	7
CBC-DUP-01-SW	The other VOCs	ND	NA	0	NA	NA	NA
CBC-U0400-SW	The other VOCs	ND	NA		NA	NA	NA

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
NA-not applicable
ND-not detected at the MDL
NC-not calculable

1.1 Internal Standards

The internal standard areas and retention times were within method limits.

1.2 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.3 Target Compound Quantitation

The compound quantitations were within the validation criteria.

1.4 Sensitivity

The samples were reported to the MDLs.

1.5 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20%. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 SEMIVOLATILE ORGANIC COMPOUNDS

Three water samples and one field duplicate sample were analyzed for SVOCs per EPA Methods 3520C/8270C.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Instrument Performance Check
- ✓ Initial Calibration
- ✓ Continuing Calibration Verification
- ✓ Blanks
- ⊗ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Field Duplicate
- ✓ Internal Standards
- ✓ Target Compound Identifications
- ✓ Target Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The SVOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Times

The holding time for SVOC analysis of water samples are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

2.3 Instrument Performance Check

An instrument performance check sample (tune standard) was analyzed at the beginning of each 12-hour period during sample analysis. The samples were analyzed within the 12-hour period. All ion abundance criteria were met for decafluorotriphenylphosphine (DFTPP).

Method 8270C describes the analysis of a standard to assess the gas chromatography (GC) column performance and injection port inertness; analyses of the standard resulted in acceptable results.

2.4 Initial Calibration

Appropriate initial calibrations were performed for each analyte. Based on the method of calibration, the laboratory calculated the percent relative standard deviation (%RSD) of the relative response factors (RRFs). The %RSDs of the calibration check compounds (CCCs) met the method criteria of less than or equal to 30% and the minimum average RRFs for the system performance check compounds (SPCCs) were above the method criteria.

For the target analytes, the average RRFs were within the method (15% RSD), and/or validation (20% RSD for compounds not considered poor responders, 40% for poor responders) criteria for the compounds or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

2.5 Continuing Calibration Verification (CCV)

For the target analytes, the CCV was performed at the required frequency. The CCV RRFs met the method and validation criteria.

The percent differences (%Ds) between the RRFs in the initial and continuing calibration standards for the target analytes were within the method acceptance criteria of less than or equal to 20% for CCCs and the validation criteria of 40% difference for poor performing compounds and 25% difference for the non-CCC compounds.

2.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 43448). SVOCs were not detected in the method blank above the MDLs.

2.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0400-SW, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria, with the following exceptions.

The MS/MSD pair had low hexachlorocyclopentadiene recoveries, outside the laboratory specified acceptance criteria. Therefore, the undetected value of hexachlorocyclopentadiene in sample CBC-U0400-SW was UJ qualified as estimated less than the MDL. In addition, there were high recoveries, outside the laboratory specified acceptance criteria, for atrazine. Since atrazine was not detected in sample CBC-U0400-SW, no qualifications were applied to the data.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-U0400-SW	HEXACHLORO-CYCLOPENTADIENE	0.050	U	0.050	U	4

U-not detected at the reported MDL

2.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery, with the following exception. The recovery of atrazine was high and outside the laboratory specified acceptance criteria. Since atrazine was not detected in the associated samples, no qualifications were applied to the data.

2.9 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

2.10 Equipment Blank

An equipment blank was not collected with the sample set.

2.11 Field Duplicate

One field duplicate sample, CBC-DUP-01-SW, was collected with the samples. Acceptable precision (< 35% RPD for results greater than five times the RL or < ±RL for results less than

five times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SW. The RPDs between the results were 0%.

2.12 Internal Standards

The internal standard areas and retention times were within the method acceptance limits.

2.13 Target Compound Identifications

The target compound identifications were within the validation criteria.

2.14 Compound Quantitation

The compound quantitations were within the validation criteria.

2.15 Sensitivity

The samples were reported to the MDLs.

2.16 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

3.0 ORGANOCHLORINE PESTICIDES

Four water samples and one field duplicate sample were analyzed for organochlorine pesticides per EPA Methods 3510C/8081A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Initial Calibration
⊗ Continuing Calibration Verification

- ✓ Method Blanks
- ⊗ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Target Compound Identification
- ✓ Compound Quantitation
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The pesticide data reported in this package are considered to be usable for meeting project objectives, with the following exception. The analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 99.1%. Based on professional judgment and MS/MSD recoveries less than 10%, the undetected value of endrin aldehyde in sample CBC-U0400-SW was R qualified as rejected.

3.2 Holding Times

The holding times for pesticide analysis of water samples are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

3.3 Initial Calibration

Initial calibration of the target compounds was performed for the primary (quantitation) column and confirmation column as required by this method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

3.4 Continuing Calibration Verification

The performance evaluation standards (PEM) were analyzed at the required frequency. The 4,4'-DDT and endrin breakdown results were within the method specified acceptance criteria.

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the method 15% D limits, with the following exceptions.

The %Ds for 4,4'-DDT (p,p'-DDT) and methoxychlor were greater than 15% D, with low biases, in the CCVs bracketing the water samples. Therefore, the undetected values of 4,4'-DDT and methoxychlor in the associated samples were UJ qualified as estimated less than the MDLs.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
CBC-DUP-01-SW	METHOXYCHLOR	0.0043	U	0.0043	UJ	9
CBC-DUP-01-SW	P,P'-DDT	0.0035	U	0.0035	UJ	9
CBC-U0200-SW	METHOXYCHLOR	0.00088	U	0.00088	UJ	9
CBC-U0200-SW	P,P'-DDT	0.00071	U	0.00071	UJ	9
CBC-U0400-SW	METHOXYCHLOR	0.00086	U	0.00086	UJ	9
CBC-U0400-SW	P,P'-DDT	0.00070	U	0.00070	UJ	9
CBC-U0550-SW	METHOXYCHLOR	0.0043	U	0.0043	UJ	9
CBC-U0550-SW	P,P'-DDT	0.0035	U	0.0035	UJ	9

U-not detected at the reported MDL

3.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 43513 and 43523). Pesticides were not detected in the method blanks above the MDLs.

3.6 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0400-SW, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria, with the following exceptions

The MS/MSD pair had low endrin aldehyde recoveries (7% and 5%), outside the laboratory specified acceptance criteria. Therefore, based on professional judgment and recoveries less than

10%, the undetected value of endrin aldehyde in sample CBC-U0400-SW was R qualified as rejected. The MSD recovery of endrin ketone was low and outside the laboratory specified acceptance criteria. Therefore, the undetected value of endrin ketone in sample CBC-U0400-SW was UJ qualified as estimated less than the MDL.

In addition, the RPDs for 4,4'-DDT, endrin and heptachlor expoxide were high and outside the laboratory specified acceptance criteria. Since 4,4'-DDT, endrin and heptachlor expoxide were not detected in sample CBC-U0400-SW, no qualifications were applied to the data.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
CBC-U0400-SW	ENDRIN ALDEHYDE	0.00085	U	0.00085	R	4
CBC-U0400-SW	ENDRIN KETONE	0.00087	U	0.00087	UJ	4

U-not detected at the reported MDL

3.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCS duplicate (LCSD) pair were analyzed. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

3.8 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

3.9 Equipment Blank

An equipment blank was not collected with the sample set.

3.10 Field Duplicate

One field duplicate sample, CBC-DUP-01-SW, was collected with the samples. Acceptable precision (< 35% RPD for results greater than five times the RL or < ±RL for results less than five times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SW. The RPDs between the results were 0%.

3.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

3.12 Compound Quantitation

The compound quantitations were within the validation criteria.

3.13 Sensitivity

The samples were reported to the MDLs.

3.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

4.0 POLYCHLORINATED BIPHENYLS

Four solid samples, eight water samples, and one field duplicate sample were analyzed for PCBs per EPA Methods 3510C/8082 and 3541/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Initial Calibration
- ✓ Continuing Calibration Verification
- ✓ Method Blanks
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Equipment Blank
- ✓ Field Duplicate

✓ Target Compound Identification
✓ Compound Quantitation
⊗ Sensitivity
✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

4.2 Holding Times

The holding times for PCB analysis of solids are 14 days from sample collection to extraction and 40 days from extraction to analysis; the holding times for PCB analysis of waters are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

4.3 Initial Calibration

Initial calibration of the target compounds was performed as required by the method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

4.4 Continuing Calibration Verification

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits.

4.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with the data (batches 43513, 43523 and 44524). PCBs were not detected in the method blanks above the MDLs.

4.6 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0400-SW, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria.

4.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and one LCS/LCSD pair were analyzed. The results for the LCSs and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

4.8 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

4.9 Equipment Blank

An equipment blank was not collected with the sample set.

4.10 Field Duplicate

One field duplicate sample, CBC-DUP-01-SW, was collected with the samples. Acceptable precision (< 35% RPD for results greater than five times the RL or < ±RL for results less than five times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SW. The RPDs between the results were 0%.

4.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

4.12 Compound Quantitation

The compound quantitations were within the validation criteria.

4.13 Sensitivity

The samples were reported to the MDLs. The MDLs were greater than the Human Health Bioaccumulation Sediment Criteria listed in Table 2 of the work plan.

Parameters	HH Sediment Criteria (µg/kg)	Lab MDL (µg/kg)
Total PCBs	0.008	89

HH - Human Health Bioaccumulation

4.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

5.0 TOTAL AND DISSOLVED METALS

Three water samples and one field duplicate sample were analyzed for total and dissolved metals per EPA Methods 3005A/3010A/6020 (Mercury evaluated separately in Section 6.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Times
✓ Initial Calibration
✓ Initial and Continuing Calibration Verification
⊗ Initial and Continuing Calibration Blanks
⊗ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
⊗ Serial Dilution
✓ Equipment Blank
✓ Field Duplicate
✓ Compound Quantitations
✓ Sensitivity
⊗ Assessment of Total vs. Dissolved Metals
✓ Electronic Data Deliverables Review

5.1 Overall Assessment

The metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

5.2 Holding Times

The holding time for metals analysis of solids is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

5.3 Initial Calibration

The initial calibration requirements were met for the inductively coupled plasma-atomic emission spectrometer (ICP-AES).

The reporting limit standards were within the laboratory control limits.

5.4 Initial and Continuing Calibration Verifications (ICV and CCV)

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

5.5 Initial and Continuing Calibration Blanks (ICB and CCB)

The ICBs and CCBs met the method acceptance criteria. There were estimated concentrations of aluminum, cobalt, iron, antimony and manganese in the bracketing CCBs, greater than the MDLs and less than the RLs. The estimated concentrations of aluminum, cobalt, iron, antimony and manganese in the associated samples were U qualified as not detected at the RLs as applicable.

Sample ID	Total Metals	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
CBC-U0200-SW	ALUMINUM	18	J	30	U	3
CBC-U0200-SW	COBALT	0.13	J	0.50	U	3
CBC-DUP-01-SW	ALUMINUM	27	J	30	U	3
CBC-DUP-01-SW	COBALT	0.11	J	0.50	U	3
CBC-U0400-SW	ALUMINUM	12	J	30	U	3
CBC-U0400-SW	COBALT	0.11	J	0.50	U	3

Sample ID	Total Metals	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
CBC-U0550-SW	ALUMINUM	13	J	30	U	3
CBC-U0550-SW	COBALT	0.12	J	0.50	U	3

J-estimated concentration less than the RL and greater than the MDL

Sample ID	Dissolved Metals	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
CBC-U0200-SW	COBALT	0.14	J	0.50	U	3
CBC-DUP-01-SW	COBALT	0.13	J	0.50	U	3
CBC-U0400-SW	COBALT	0.093	J	0.50	U	3
CBC-U0550-SW	COBALT	0.14	J	0.50	U	3

J-estimated concentration less than the RL and greater than the MDL

5.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batches 44580 and 45048). Total and dissolved metals were not detected in the method blanks above the MDLs, with the following exceptions.

Total calcium, copper, lead, potassium, magnesium, manganese, sodium, antimony and zinc were detected at estimated concentrations greater than the MDLs and less than the RLs. Since total calcium, copper, potassium magnesium, manganese, sodium, and zinc were detected in the associated sample at concentrations greater than the RLs, no qualifications were applied to the data. The estimated concentrations of total lead and antimony in the associated samples were U qualified as not detected at the RLs.

Sample ID	Total Metal	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
CBC-DUP-01-SW	ANTIMONY	0.25	JB	2.0	U	3
CBC-DUP-01-SW	LEAD	0.91	JB	1.0	U	3
CBC-U0200-SW	ANTIMONY	0.53	JB	2.0	U	3
CBC-U0200-SW	LEAD	0.31	JB	1.0	U	3
CBC-U0400-SW	ANTIMONY	0.28	JB	2.0	U	3
CBC-U0400-SW	LEAD	0.48	JB	1.0	U	3
CBC-U0550-SW	ANTIMONY	0.40	JB	2.0	U	3
CBC-U0550-SW	LEAD	0.38	JB	1.0	U	3

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample

Dissolved lead, potassium, vanadium and manganese were detected at estimated concentrations greater than the MDLs and less than the RLs. Since dissolved potassium was detected in the associated sample at concentrations greater than the RLs, no qualifications were applied to the data. The estimated concentrations of dissolved lead, vanadium and manganese in the associated samples were U qualified as not detected at the RLs.

Sample ID	Dissolved Metal	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
CBC-DUP-01-SW	LEAD	0.045	JB	1.0	U	3
CBC-DUP-01-SW	MANGANESE	1.6	JB	5.0	U	3
CBC-U0200-SW	LEAD	0.054	JB	1.0	U	3
CBC-U0200-SW	MANGANESE	1.5	JB	5.0	U	3
CBC-U0400-SW	LEAD	0.079	JB	1.0	U	3
CBC-U0400-SW	MANGANESE	3.7	JB	5.0	U	3
CBC-U0400-SW	VANADIUM	0.16	JB	1.0	U	3
CBC-U0550-SW	LEAD	0.066	JB	1.0	U	3
CBC-U0550-SW	MANGANESE	0.45	JB	5.0	U	3
CBC-U0550-SW	VANADIUM	0.094	JB	1.0	U	3

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample

5.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Two sample set specific MS/MSD pairs, both using sample CBC-U0400-SW, were reported. The recovery and RPD results were within the laboratory specified acceptance criteria.

5.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were analyzed. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

5.9 Serial Dilution

Two serial dilutions, both using sample CBC-U0400-SW, were reported. The results for the serial dilutions were within the method acceptance criteria, with the following exception. The %D for total vanadium was high and outside the method acceptance criteria. Therefore, the concentration of vanadium in sample CBC-U0400-SW was J qualified as estimated.

Sample ID	Total Metal	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
CBC-U0400-SW	VANADIUM	4.6	B	4.6	J	8

B-compound found in the blank and sample

5.10 Equipment Blank

An equipment blank was not collected with the sample set.

5.11 Field Duplicate

One field duplicate sample, CBC-DUP-01-SW, was collected with the samples. Acceptable precision (< 35% RPD for results greater than five times the RL or < ±RL for results less than five times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SW.

It was noted that dissolved vanadium was not detected in the field duplicate and detected at an estimated concentration in sample CBC-U0400-SW; since the concentration of dissolved vanadium in in sample CBC-U0400-SW was U qualified as not detected at the RL due the method blank contamination, no additional qualifications were applied to the duplicate pair.

Sample ID	Total Metal	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-DUP-01-SW	ALUMINUM	27	J	NC	NA	NA	NA
CBC-U0400-SW	ALUMINUM	12	J		NA	NA	NA
CBC-DUP-01-SW	ANTIMONY	0.25	JB	NC	NA	NA	NA
CBC-U0400-SW	ANTIMONY	0.28	JB		NA	NA	NA
CBC-DUP-01-SW	ARSENIC	ND	U	0	NA	NA	NA

Sample ID	Total Metal	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-U0400-SW	ARSENIC	ND	U		NA	NA	NA
CBC-DUP-01-SW	BARIUM	110	NA	10	NA	NA	NA
CBC-U0400-SW	BARIUM	100	NA		NA	NA	NA
CBC-DUP-01-SW	BERYLLIUM	ND	U	0	NA	NA	NA
CBC-U0400-SW	BERYLLIUM	ND	U		NA	NA	NA
CBC-DUP-01-SW	CADMIUM	ND	U	0	NA	NA	NA
CBC-U0400-SW	CADMIUM	ND	U		NA	NA	NA
CBC-DUP-01-SW	CALCIUM	52000	B	0	NA	NA	NA
CBC-U0400-SW	CALCIUM	52000	B		NA	NA	NA
CBC-DUP-01-SW	CHROMIUM, TOTAL	5.2	NA	0	NA	NA	NA
CBC-U0400-SW	CHROMIUM, TOTAL	5.2	NA		NA	NA	NA
CBC-DUP-01-SW	COBALT	0.11	J	NC	NA	NA	NA
CBC-U0400-SW	COBALT	0.11	J		NA	NA	NA
CBC-DUP-01-SW	COPPER	2.6	B	21	NA	NA	NA
CBC-U0400-SW	COPPER	3.2	B		NA	NA	NA
CBC-DUP-01-SW	IRON	160	NA	13	NA	NA	NA
CBC-U0400-SW	IRON	140	NA		NA	NA	NA
CBC-DUP-01-SW	LEAD	0.91	JB	NC	NA	NA	NA
CBC-U0400-SW	LEAD	0.48	JB		NA	NA	NA
CBC-DUP-01-SW	MAGNESIUM	13000	B	0	NA	NA	NA
CBC-U0400-SW	MAGNESIUM	13000	B		NA	NA	NA
CBC-DUP-01-SW	MANGANESE	46	B	0	NA	NA	NA
CBC-U0400-SW	MANGANESE	46	B		NA	NA	NA

Sample ID	Total Metal	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-DUP-01-SW	NICKEL	1.4	NA	7	NA	NA	NA
CBC-U0400-SW	NICKEL	1.5	NA		NA	NA	NA
CBC-DUP-01-SW	POTASSIUM	3400	B	0	NA	NA	NA
CBC-U0400-SW	POTASSIUM	3400	B		NA	NA	NA
CBC-DUP-01-SW	SELENIUM	ND	U	0	NA	NA	NA
CBC-U0400-SW	SELENIUM	ND	U		NA	NA	NA
CBC-DUP-01-SW	SILVER	ND	U	0	NA	NA	NA
CBC-U0400-SW	SILVER	ND	U		NA	NA	NA
CBC-DUP-01-SW	SODIUM	53000	B	2	NA	NA	NA
CBC-U0400-SW	SODIUM	52000	B		NA	NA	NA
CBC-DUP-01-SW	THALLIUM	0.060	J	NC	NA	NA	NA
CBC-U0400-SW	THALLIUM	0.024	J		NA	NA	NA
CBC-DUP-01-SW	VANADIUM	4.0	B	14	NA	NA	NA
CBC-U0400-SW	VANADIUM	4.6	B		NA	NA	NA
CBC-DUP-01-SW	ZINC	7.2	NA	42	NA	NA	NA
CBC-U0400-SW	ZINC	11	NA		NA	NA	NA

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable
NC-not calculable

Sample ID	Dissolved Metal	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-DUP-01-SW	ALUMINUM	ND	U	0	NA	NA	NA
CBC-U0400-SW	ALUMINUM	ND	U		NA	NA	NA

Sample ID	Dissolved Metal	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-DUP-01-SW	ANTIMONY	1.1	J	NC	NA	NA	NA
CBC-U0400-SW	ANTIMONY	0.87	J		NA	NA	NA
CBC-DUP-01-SW	ARSENIC	ND	U	0	NA	NA	NA
CBC-U0400-SW	ARSENIC	ND	U		NA	NA	NA
CBC-DUP-01-SW	BARIUM	77	NA	6	NA	NA	NA
CBC-U0400-SW	BARIUM	82	NA		NA	NA	NA
CBC-DUP-01-SW	BERYLLIUM	ND	U	0	NA	NA	NA
CBC-U0400-SW	BERYLLIUM	ND	U		NA	NA	NA
CBC-DUP-01-SW	CADMIUM	ND	U	0	NA	NA	NA
CBC-U0400-SW	CADMIUM	ND	U		NA	NA	NA
CBC-DUP-01-SW	CALCIUM	50000	NA	2	NA	NA	NA
CBC-U0400-SW	CALCIUM	51000	NA		NA	NA	NA
CBC-DUP-01-SW	CHROMIUM, TOTAL	0.77	J	NC	NA	NA	NA
CBC-U0400-SW	CHROMIUM, TOTAL	0.74	J		NA	NA	NA
CBC-DUP-01-SW	COBALT	0.13	J	NC	NA	NA	NA
CBC-U0400-SW	COBALT	0.093	J		NA	NA	NA
CBC-DUP-01-SW	COPPER	1.3	J	NC	NA	NA	NA
CBC-U0400-SW	COPPER	1.2	J		NA	NA	NA
CBC-DUP-01-SW	IRON	23	J	NC	NA	NA	NA
CBC-U0400-SW	IRON	35	J		NA	NA	NA
CBC-DUP-01-SW	LEAD	0.045	JB	NC	NA	NA	NA
CBC-U0400-SW	LEAD	0.079	JB		NA	NA	NA
CBC-DUP-01-SW	MAGNESIUM	8800	NA	7	NA	NA	NA

Sample ID	Dissolved Metal	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-U0400-SW	MAGNESIUM	9400	NA		NA	NA	NA
CBC-DUP-01-SW	MANGANESE	1.6	JB	NC	NA	NA	NA
CBC-U0400-SW	MANGANESE	3.7	JB		NA	NA	NA
CBC-DUP-01-SW	NICKEL	1.9	NA	17	NA	NA	NA
CBC-U0400-SW	NICKEL	1.6	NA		NA	NA	NA
CBC-DUP-01-SW	POTASSIUM	2600	B	7	NA	NA	NA
CBC-U0400-SW	POTASSIUM	2800	B		NA	NA	NA
CBC-DUP-01-SW	SELENIUM	ND	U	0	NA	NA	NA
CBC-U0400-SW	SELENIUM	ND	U		NA	NA	NA
CBC-DUP-01-SW	SILVER	ND	U	0	NA	NA	NA
CBC-U0400-SW	SILVER	ND	U		NA	NA	NA
CBC-DUP-01-SW	SODIUM	52000	NA	2	NA	NA	NA
CBC-U0400-SW	SODIUM	53000	NA		NA	NA	NA
CBC-DUP-01-SW	THALLIUM	ND	U	0	NA	NA	NA
CBC-U0400-SW	THALLIUM	ND	U		NA	NA	NA
CBC-DUP-01-SW	VANADIUM	0.082	U	NC	NA	NA	NA
CBC-U0400-SW	VANADIUM	0.16	JB		NA	NA	NA
CBC-DUP-01-SW	ZINC	8.5	NA	19	NA	NA	NA
CBC-U0400-SW	ZINC	7.0	NA		NA	NA	NA

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable
NC-not calculable

5.12 Compound Quantitations

The compound quantitations were within the validation criteria.

5.13 Sensitivity

The samples were reported to the MDLs.

5.14 Assessment of Total vs. Dissolved Metals

The concentrations of total metals were greater than or equal to the concentrations of dissolved metals in the samples, with the following exceptions listed in the table below.

For metals that were detected at estimated concentrations for both total and dissolved metals, no qualifications were applied to the data. For cases of dissolved metals greater than the total metals and the %Ds between the results were greater than 10%, the concentrations were J qualified as estimated. For cases of estimated total metals concentrations and dissolved metals concentrations greater than the RLs, the concentrations of both total and dissolved metals were J qualified as estimated.

Sample ID	Total or Dissolved	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	%D	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-U0200-SW	Dissolved	ANTIMONY	1.8	J	NC	NA	NA	NA
CBC-U0200-SW	Total	ANTIMONY	0.53	JB		NA	NA	NA
CBC-U0200-SW	Dissolved	COBALT	0.14	J	NC	NA	NA	NA
CBC-U0200-SW	Total	COBALT	0.13	J		NA	NA	NA
CBC-U0200-SW	Dissolved	ZINC	8.4	NA	18	8.4	J	13
CBC-U0200-SW	Total	ZINC	7.1	NA		7.1	J	13
CBC-U0400-SW	Dissolved	ANTIMONY	0.87	J	NC	NA	NA	NA
CBC-U0400-SW	Total	ANTIMONY	0.28	JB		NA	NA	NA
CBC-U0400-SW	Dissolved	NICKEL	1.6	NA	7	NA	NA	NA
CBC-U0400-SW	Total	NICKEL	1.5	NA		NA	NA	NA
CBC-U0550-SW	Dissolved	ANTIMONY	2.6	NA	NC	2.6	J	13

Sample ID	Total or Dissolved	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	%D	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-U0550-SW	Total	ANTIMONY	0.40	JB		0.40	J	13
CBC-U0550-SW	Dissolved	COBALT	0.14	J	NC	NA	NA	NA
CBC-U0550-SW	Total	COBALT	0.12	J		NA	NA	NA
CBC-U0550-SW	Dissolved	SODIUM	57000	NA	6	NA	NA	NA
CBC-U0550-SW	Total	SODIUM	54000	B		NA	NA	NA
CBC-U0550-SW	Dissolved	ZINC	6.9	NA	33	6.9	J	7
CBC-U0550-SW	Total	ZINC	5.2	NA		5.2	J	7
CBC-DUP-01-SW	Dissolved	ANTIMONY	1.1	J	NC	NA	NA	NA
CBC-DUP-01-SW	Total	ANTIMONY	0.25	JB		NA	NA	NA
CBC-DUP-01-SW	Dissolved	COBALT	0.13	J	NC	NA	NA	NA
CBC-DUP-01-SW	Total	COBALT	0.11	J		NA	NA	NA
CBC-DUP-01-SW	Dissolved	NICKEL	1.9	NA	36	1.9	J	7
CBC-DUP-01-SW	Total	NICKEL	1.4	NA		1.4	J	7
CBC-DUP-01-SW	Dissolved	ZINC	8.5	NA	18	8.5	J	7
CBC-DUP-01-SW	Total	ZINC	7.2	NA		7.2	J	7

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable
NC-not calculable

5.15 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

6.0 TOTAL AND DISSOLVED MERCURY

Four water samples and one field duplicate sample were analyzed for mercury per EPA Method 7470A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ⊗ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Assessment of Total and Dissolved Mercury
- ✓ Electronic Data Deliverables Review

6.1 Overall Assessment

The mercury data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

6.2 Holding Times

The holding time for mercury analysis of solids is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

6.3 Initial Calibration

The initial calibration requirements were met. The coefficient of determination (r^2) was greater than or equal to 0.990 for the linear calibration.

The reporting limit standard was within the laboratory control limits.

6.4 Initial and Continuing Calibration Verifications

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

6.5 Initial and Continuing Calibration Blanks

The ICBs and CCBs met the method acceptance criteria.

6.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 45355). Mercury was not detected in the method blank above the MDL.

6.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample CBC-U0400-SW, was reported. The recovery and RPD results were within the laboratory specified acceptance criteria.

6.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The result for the was within the laboratory specified acceptance criteria for recovery.

6.9 Equipment Blank

An equipment blank was not collected with the sample set.

6.10 Field Duplicate

One field duplicate sample, CBC-DUP-01-SW, was collected with the samples. Acceptable precision (< 35% RPD for results > 5 x RL or < ±RL for results < 5 x RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SW. The RPDs between the results were 0%.

6.11 Compound Quantitations

The compound quantitations were within the validation criteria.

6.12 Sensitivity

The samples were reported to the MDL.

6.13 Assessment of Total vs. Dissolved Mercury

Total mercury and dissolved mercury were not detected in the samples.

6.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

7.0 CYANIDE, HEXAVALENT CHROMIUM AND HARDNESS

Four water samples and one field duplicate sample were analyzed for cyanide by EPA Method 9012A, hexavalent chromium by EPA Method 7196A and hardness by Standard Method 2340C.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Method Blank
- ✓ Matrix Spike
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Electronic Data Deliverables Review

7.1 Overall Assessment

The cyanide, hexavalent chromium and total hardness data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100% for the data.

7.2 Holding Times

The holding time for cyanide analysis of waters is 14 days from sample collection to analysis. The holding times for the hexavalent analysis of waters are 24 hours from collection to analysis. The holding time for hardness is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

7.3 Initial Calibration

The initial calibration data met the method requirements.

7.4 Initial and Continuing Calibration Verification

The percent recoveries in the associated ICVs and CCVs were within the QC acceptance limits.

7.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the each analysis

(batches 43351-hexavalent chromium, 44732-cyanide and 45743-hardness). Hexavalent chromium, cyanide and hardness were not detected in the method blanks above the MDLs.

7.6 Matrix Spike/Matrix Spike Duplicate

MS and MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). Sample set specific MS/MSD pairs, using sample CBC-U0400-SW, were reported for the hexavalent chromium and cyanide data. The recovery and RPD results were within the laboratory specified acceptance criteria

7.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported with the hexavalent chromium data and the hardness data; two LCSs and an LCS/LCSD pair were reported with the cyanide data. The results for the LCSs and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

7.8 Laboratory Duplicate

A laboratory duplicate was reported for the hardness data, using sample CBC-U0400-SW. The %D between the results was within the laboratory specified acceptance criteria.

7.9 Equipment Blank

An equipment blank was not collected with the sample set.

7.10 Field Duplicate

One field duplicate sample, CBC-DUP-01-SW, was collected with the samples. Acceptable precision (< 35% RPD for results greater than five times the RL) was demonstrated between the field duplicate and the original sample CBC-U0400-SW.

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	RPD	Validation Concentration (µg/L)	Validation Qualifier	Reason Code
CBC-DUP-01-SW	CYANIDE	ND	NA	0	NA	NA	NA
CBC-U0400-SW	CYANIDE	ND	NA		NA	NA	NA

ND-not detected at the MDL
NA-not applicable

Sample ID	Compound	Laboratory Concentration (mg/L)	Laboratory Flag	RPD	Validation Concentration (mg/L)	Validation Qualifier	Reason Code
CBC-DUP-01-SW	HARDNESS (AS CACO3)	190	NA	0	NA	NA	NA
CBC-U0400-SW	HARDNESS (AS CACO3)	190	NA		NA	NA	NA
CBC-DUP-01-SW	CHROMIUM, HEXAVALENT	ND	U	0	NA	NA	NA
CBC-U0400-SW	CHROMIUM, HEXAVALENT	ND	U		NA	NA	NA

ND-not detected at the MDL
NA-not applicable

7.11 Compound Quantitation

The compound quantitations were within the validation criteria.

7.12 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level II report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

8.0 PERCENT MOISTURE/SOLIDS

The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. The percent moisture contents of the samples were less than 50%, so no qualifications were applied to the data.

---

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable – Polychlorinated Biphenyls by EPA Methods 3550B/8082 and Percent Moisture/Solids by ASTM Method D2974-07– TestAmerica Work Order Numbers 180-12953-1 and 180-12953-1 Revisions 1, 2 and 3**

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of two sediment samples and one field duplicate collected on July 30, 2012 as part of the Unisys sampling event. TestAmerica Buffalo, New York, analyzed the samples. The samples were analyzed for the following tests:

- EPA Methods 3550B/8082 - Polychlorinated Biphenyls (PCBs)
- ASTM Method D2974-07 - Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering quality control (QC) parameters listed below, the data are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010, USEPA Region II, Data Validation SOP of Organic Analysis of PCBs by Gas Chromatography

SW-846 Method 8082A, SOP HW-45 Revision 1, October 2006, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12953-1	DS-004-L-SS-A
180-12953-2	DS-000-L-SS-A

Lab ID	Client ID
180-12953-3	DS-DUP-02-SS-A

The samples were received at the laboratory at 2.3^{o}C, within the QAPP criteria of 4 $\pm$ 2^{o}C. No sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the correction was not followed.

The sample collection time was not listed on the COC for sample DS-DUP-02-SS-A. the laboratory assigned a collection time of 00:00.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

The laboratory report was revised three times, to correct the sample integrations, to include the initial calibration verification standards and to explain the PCB reporting rationale.

1.0 POLYCHLORINATED BIPHENYLS

Two sediment samples and one field duplicate were analyzed for PCBs per EPA Methods 3550B/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Initial Calibration
- ✓ Continuing Calibration Verification

- ✓ Method Blanks
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Field Duplicate
- ✓ Target Compound Identification
- ✓ Compound Quantitation
- ⊗ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Times

The holding time for PCB analysis of solids is 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Initial Calibration

Initial calibration of the target compounds was performed for the primary (quantitation) column and confirmation column as required by this method. The %RSDs were less than or equal to 20% or the coefficient of determination (r2) was greater than or equal to 0.990 for the curve fit calibrations.

Initial calibration verification (ICV) was performed at the required frequency. The ICV met the laboratory acceptance criteria.

1.4 Continuing Calibration Verification

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits.

1.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 74710). PCBs were not detected in the method blank above the method detection limits (MDLs).

1.6 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one pair per batch of 20 samples). A sample set specific MS/MSD pair, using sample DS-004-L-SS-A, was reported. The MS/MSD pair had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria.

1.7 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

1.8 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria.

1.9 Field Duplicate

One field duplicate sample, DS-DUP-02-SS-A, was collected with the sample set. Acceptable precision [RPD <40% for results >5 times the reporting limit (RL), < ± 2 times the RL for results < 5 times the RL] was demonstrated between the field duplicate and the original sample, DS-000-L-SS-A.

Client Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD (%)	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
DS-000-L-SS-A	PCB-1248	100	J	NC	NA	NA	NA
DS-DUP-02-SS-A	PCB-1248	130	J		NA	NA	NA
DS-000-L-SS-A	PCB-1254	160	J	NC	NA	NA	NA
DS-DUP-02-SS-A	PCB-1254	280	J		NA	NA	NA
DS-000-L-SS-A	The other PCBs	ND	NA	0	NA	NA	NA

Client Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD (%)	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
DS-DUP-02-SS-A	The other PCBs	ND	NA		NA	NA	NA

J-estimated concentration
NA-not applicable
ND-not detected at or above the RL
NC-not calculable

1.10 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.11 Compound Quantitation

The compound quantitations were within the validation criteria. It was noted that the PCB concentrations were determined from the primary calibrated column (column ZB-5). Although EPA method 8000 recommends that quantitative values be compared between the two columns, the second column (column ZB-35) data was used for pattern recognition only. The data from the second column was removed from the data package (revision 3).

1.12 Sensitivity

The samples were reported to the MDLs. The MDLs were greater than the Human Health Bioaccumulation Sediment Criteria listed in Table 2 of the work plan.

Parameters	HH Sediment Criteria (µg/kg)	Lab MDL (µg/kg)
Total PCBs	0.008	89

HH - Human Health Bioaccumulation

1.13 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 PERCENT MOISTURE/SOLIDS

The percent moisture/solid content of each sediment sample and the field duplicate were reported. The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. The sample results were not qualified since the moisture contents in the samples were less than 50%.

---

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 09 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable –Semivolatile Organic Compounds by EPA Methods 3520C/8270C and 3541/8270C, Organochlorine Pesticides by EPA Methods 3510C/8081A and 3541/8081A, Polychlorinated Biphenyls by EPA Methods 3510C/8082 and 3541/8082, Metals by EPA Methods 3010A/6010B and 3050B/6010B, Mercury by EPA Methods 7470A and 7471A, Cyanide by EPA Method 9012A, Hexavalent Chromium by EPA Methods 3060A/7196A and 7196A and Percent Moisture/Solids by Standard Method 2540B – TestAmerica Work Order Numbers 180-12970-1 and 180-12970-1 Revision 1**

SITE: Unisys – RI MN0832-07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of twelve solid samples, one sediment sample, six water samples, one field duplicate sample and two equipment blanks collected on July 31, 2012 as part of the Unisys sampling event. The analyses were performed at TestAmerica Pittsburgh, Pennsylvania. The sample was analyzed for the following tests:

- EPA Methods 3520C/8270C and 3541/8270C - Semivolatile Organic Compounds (SVOCs)
- EPA Methods 3510C/8081A and 3541/8081A - Organochlorine Pesticides
- EPA Methods 3510C/8082 and 3541/8082 - Polychlorinated Biphenyls (PCBs)
- EPA Methods 3010A/6010B and 3050B/6010B – Metals
- EPA Methods 7470A and 7471A –Mercury
- EPA Method 9012A – Cyanide
- EPA Methods 3060A/7196A and 7196A – Hexavalent Chromium
- Standard Method 2540B - Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives, with the following exceptions. Qualified data should be used within the limitations of the qualification.

The undetected value of 2,4-dinitrophenol in sample RR-650-SUB-C was R qualified as rejected due to no matrix spike/matrix spike duplicate (MS/MSD) recoveries (0%). In addition, the recoveries of endrin aldehyde were less than 20% (14% and 12%) in the MS/MSD using sample RR-650-SUB-C; therefore, the undetected value of endrin aldehyde was R qualified as rejected.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09-2480-04, July 7, 2010, Revised November 11, 2010, USEPA Region II, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the QAPP, USEPA Region II, Evaluation of Metals Data for the CLP Program, SOP HW-2 Rev.13, ILM05.3, September 2006, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, OSWER 9240.1-51, EPA 540-R-10-011, January 2010, as well as by the pertinent methods referenced by the data package and professional judgment.

The following sample was analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180-12970-1	WA-007-SW
180-12970-2	WA-003-SW
180-12970-3	CBC-00+20-SW
180-12970-4	CBC-00-20-SW
180-12970-5	DS-5+60-SW
180-12970-6	DS-0+00-SW
180-12970-7	EB-09-RI-073112
180-12970-8	RR-U0100-SS-A
180-12970-9	RR-U0100-SUB-C
180-12970-10	RR-U0100-SUB-D
180-12970-11	RR-050-SS-A

Lab ID	Client ID
180-12970-12	RR-050-SUB-C
180-12970-13	RR-050-SUB-D
180-12970-14	RR-350-SS-A
180-12970-15	RR-350-SUB-C
180-12970-16	RR-350-SUB-D
180-12970-17	RR-650-SS-A
180-12970-18	RR-650-SUB-C
180-12970-19	RR-650-SUB-D
180-12970-20	RR-DUP-01-SUB-C
180-12970-21	CBC-U0550-SUB-B
180-12970-22	EB-10-RI-073112

The samples were received at the laboratory within the QAPP criteria of 4 ± 2°C, with one exception. One cooler was received at 1.3°C; based on professional judgment, no qualifications were applied to the data. No other sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC). The proper procedure of a single strike-through correction and initials and date of the person making the correction was not followed.

No date or time of collection was listed on the COC for the field duplicate. The laboratory assigned the collection date/time of 7/31/12, 00:00.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

The report was revised to remove Total PCBs and include the ICV forms for PCBs in the hardcopy laboratory report.

1.0 SEMIVOLATILE ORGANIC COMPOUNDS

Eight solid samples, one sediment sample, one field duplicate sample and one equipment blank were analyzed for SVOCs per EPA Methods 3520C/8270C and 3541/8270C.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Times
✓ Instrument Performance Check
✓ Initial Calibration
✓ Continuing Calibration Verification
✓ Blanks
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
⊗ Field Duplicate
✓ Internal Standards
✓ Target Compound Identifications
✓ Target Compound Quantitations

- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The SVOC data reported in this package are considered to be usable for meeting project objectives, with the following exceptions. The analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 99.9%. The MS/MSD pair had no 2,4-dinitrophenol recoveries (0%). The undetected value of 2,4-dinitrophenol in sample RR-650-SUB-C was R qualified as rejected due to no MS/MSD recoveries.

1.2 Holding Times

The holding time for SVOC analysis of solid samples are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding time for SVOC analysis of water samples are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Instrument Performance Check

An instrument performance check sample (tune standard) was analyzed at the beginning of each 12-hour period during sample analysis. The samples were analyzed within the 12-hour period. All ion abundance criteria were met for decafluorotriphenylphosphine (DFTPP).

Method 8270C describes the analysis of a standard to assess the gas chromatography (GC) column performance and injection port inertness; analyses of the standard resulted in acceptable results.

1.4 Initial Calibration

Appropriate initial calibrations were performed for each analyte. Based on the method of calibration, the laboratory calculated the percent relative standard deviation (%RSD) of the relative response factors (RRFs). The %RSDs of the calibration check compounds (CCCs) met the method criteria of less than or equal to 30% and the minimum average RRFs for the system performance check compounds (SPCCs) were above the method criteria.

For the target analytes, the average RRFs were within the method (15% RSD), and/or validation (20% RSD for compounds not considered poor responders, 40% for poor responders) criteria for the compounds or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

1.5 Continuing Calibration Verification (CCV)

For the target analytes, the CCV was performed at the required frequency. The CCV RRFs met the method and validation criteria.

The percent differences (%Ds) between the RRFs in the initial and continuing calibration standards for the target analytes were within the method acceptance criteria of less than or equal to 20% for CCCs and the validation criteria of 40% difference for poor performing compounds and 25% difference for the non-CCC compounds.

1.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with the data (batches 44642, 44727 and 44728). SVOCs were not detected in the method blanks above the method detection limits (MDLs).

1.7 Matrix Spike/Matrix Spike Duplicate

A sample set specific MS/MSD pair, using sample RR-650-SUB-C, was reported. The MS/MSD pair had recovery and relative percent difference (RPD) results within the laboratory specified acceptance criteria, with the following exception.

The MS/MSD pair had no 2,4-dinitrophenol recoveries (0%). Therefore, the undetected value of 2,4-dinitrophenol in sample RR-650-SUB-C was R qualified as rejected.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier*	Reason Code**
RR-650-SUB-C	2,4-DINITROPHENOL	4200	U	4200	R	4

U-not detected at the reported MDL
* Validation qualifiers are defined in Attachment 1 at the end of this report
**Reason codes are defined in Attachment 2 at the end of this report

1.8 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery, with the following exceptions. The recoveries of atrazine were high and outside the laboratory specified acceptance criteria in the LCSs in batches 44642 and 44727. Since atrazine was not detected in the associated samples, no qualifications were applied to the data.

1.9 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses.

1.10 Equipment Blank

An equipment blank, EB-10-RI-073112, was collected with the sample set. SVOCs were not detected in the equipment blank above the MDLs.

1.11 Field Duplicate

One field duplicate sample, RR-DUP-01-SUB-C, was collected with the samples. Acceptable precision [RPD <40% for results >5 times the reporting limit (RL), < ± 2 times the RL for results < 5 times the RL] was demonstrated between the field duplicate and the original sample RR-650-SUB-C, with the following exceptions.

Compounds were detected in one sample and not detected in the other sample in the duplicate pair or detected at an estimated concentration in one sample and above the reporting limit (RL) in the other sample in the duplicate pair, resulting in a noncalculable RPD between the results. Therefore, the detected concentrations were J qualified as estimated and the undetected values were UJ qualified as estimated less than the MDL.

Compounds with RPDs greater than 40% were J qualified as estimated in the duplicate pair.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
RR-650-SUB-C	2-METHYLNAPHTHALENE	830	NA	NC	830	J	7
RR-DUP-01-SUB-C	2-METHYLNAPHTHALENE	660	J		660	J	7
RR-650-SUB-C	ACENAPHTHENE	120	J	NC	NA	NA	NA

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
RR-DUP-01-SUB-C	ACENAPHTHENE	72	J		NA	NA	NA
RR-650-SUB-C	ACENAPHTHYLENE	350	J	NC	NA	NA	NA
RR-DUP-01-SUB-C	ACENAPHTHYLENE	260	J		NA	NA	NA
RR-650-SUB-C	ANTHRACENE	480	J	NC	NA	NA	NA
RR-DUP-01-SUB-C	ANTHRACENE	340	J		NA	NA	NA
RR-650-SUB-C	BENZALDEHYDE	530	U	NC	530	UJ	7
RR-DUP-01-SUB-C	BENZALDEHYDE	1800	J		1800	J	7
RR-650-SUB-C	BENZO(A) ANTHRACENE	1800	NA	32	NA	NA	NA
RR-DUP-01-SUB-C	BENZO(A) ANTHRACENE	1300	NA		NA	NA	NA
RR-650-SUB-C	BENZO(A)PYRENE	1500	NA	31	NA	NA	NA
RR-DUP-01-SUB-C	BENZO(A)PYRENE	1100	NA		NA	NA	NA
RR-650-SUB-C	BENZO(B) FLUORANTHENE	2600	NA	0	NA	NA	NA
RR-DUP-01-SUB-C	BENZO(B) FLUORANTHENE	2600	NA		NA	NA	NA
RR-650-SUB-C	BENZO(G,H,I)PERYLENE	1100	NA	18	NA	NA	NA
RR-DUP-01-SUB-C	BENZO(G,H,I)PERYLENE	920	NA		NA	NA	NA
RR-650-SUB-C	BENZO(K) FLUORANTHENE	1100	NA	NC	1100	J	7
RR-DUP-01-SUB-C	BENZO(K) FLUORANTHENE	140	U		140	UJ	7
RR-650-SUB-C	CARBAZOLE	160	J	NC	NA	NA	NA
RR-DUP-01-SUB-C	CARBAZOLE	100	J		NA	NA	NA
RR-650-SUB-C	CHRYSENE	2400	NA	46	2400	J	7
RR-DUP-01-SUB-C	CHRYSENE	1500	NA		1500	J	7
RR-650-SUB-C	DIBENZ(A,H) ANTHRACENE	380	J	NC	NA	NA	NA
RR-DUP-01-SUB-C	DIBENZ(A,H) ANTHRACENE	250	J		NA	NA	NA

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
RR-650-SUB-C	DIBENZOFURAN	480	J	NC	NA	NA	NA
RR-DUP-01-SUB-C	DIBENZOFURAN	360	J		NA	NA	NA
RR-650-SUB-C	FLUORANTHENE	2600	NA	48	2600	J	7
RR-DUP-01-SUB-C	FLUORANTHENE	1600	NA		1600	J	7
RR-650-SUB-C	FLUORENE	110	J	NC	110	J	7
RR-DUP-01-SUB-C	FLUORENE	93	U		93	UJ	7
RR-650-SUB-C	INDENO(1,2,3-C,D) PYRENE	1100	NA	33	NA	NA	NA
RR-DUP-01-SUB-C	INDENO(1,2,3-C,D) PYRENE	790	NA		NA	NA	NA
RR-650-SUB-C	NAPHTHALENE	860	NA	NC	860	J	7
RR-DUP-01-SUB-C	NAPHTHALENE	640	J		640	J	7
RR-650-SUB-C	PHENANTHRENE	1800	NA	32	NA	NA	NA
RR-DUP-01-SUB-C	PHENANTHRENE	1300	NA		NA	NA	NA
RR-650-SUB-C	PYRENE	2500	NA	33	NA	NA	NA
RR-DUP-01-SUB-C	PYRENE	1800	NA		NA	NA	NA
RR-650-SUB-C	The other SVOCs	ND	NA	0	NA	NA	NA
RR-DUP-01-SUB-C	The other SVOCs	ND	NA		NA	NA	NA

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
NA-not applicable
ND-not detected at the MDL
NC-not calculable

1.12 Internal Standards

The internal standard areas and retention times were within the method acceptance limits.

1.13 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.14 Compound Quantitation

The compound quantitations were within the validation criteria.

1.15 Sensitivity

The samples were reported to the MDLs.

1.16 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 ORGANOCHLORINE PESTICIDES

Eight solid samples, one sediment sample, one field duplicate sample and one equipment blank were analyzed for organochlorine pesticides per EPA Methods 3510C/8081A and 3541/8081A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

⊗ Overall Assessment
✓ Holding Time
✓ Initial Calibration
⊗ Continuing Calibration Verification
✓ Method Blanks
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
⊗ Surrogates
✓ Equipment Blank
⊗ Field Duplicate

- ✓ Target Compound Identification
- ✓ Compound Quantitation
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The pesticide data reported in this package are considered to be usable for meeting project objectives, with the following exception. The analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 99.5%. There were no recoveries (0%) of endrin aldehyde in the MS/MSD pair using sample RR-650-SUB-C. Therefore, the undetected value endrin aldehyde in sample RR-650-SUB-C was R qualified as rejected.

2.2 Holding Times

The holding times for pesticide analysis of solid samples are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for pesticide analysis of water samples are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

2.3 Initial Calibration

Initial calibration of the target compounds was performed for the primary (quantitation) column and confirmation column as required by this method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

2.4 Continuing Calibration Verification

The performance evaluation standards (PEM) were analyzed at the required frequency. The 4,4'-DDT and endrin breakdown results were within the method specified acceptance criteria.

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the method 15% D limits, with the following exceptions.

The %Ds for 4,4'-DDD (p,p'-DDT), endosulfan II (beta endosulfan), 4,4'-DDT, endosulfan sulfate and methoxychlor were greater than 15% D, with low biases, in the CCV bracketing the solid samples analyzed on instrument GC15, column MR-1. In addition, the %Ds for beta-BHC, heptachlor epoxide, gamma-chlordane, alpha-chlordane, endosulfan I (alpha endosulfan), 4,4'-DDE (p,p'-DDE), dieldrin, endosulfan II (beta endosulfan), 4,4'-DDT, endrin aldehyde and methoxychlor were greater than 15% D, with low biases, in the CCV bracketing the solid samples analyzed on instrument GC15, column MR-2. Therefore, the undetected values of these compounds in the associated samples were UJ qualified as estimated less than the MDLs and the detected concentrations were J qualified as estimated.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
RR-U0100-SUB-C	BETA ENDOSULFAN	0.65	Jp	0.65	J	9
RR-U0100-SUB-C	ENDOSULFAN SULFATE	0.19	U	0.19	UJ	9
RR-U0100-SUB-C	METHOXYCHLOR	1.4	Jp	1.4	J	9
RR-U0100-SUB-C	P,P'-DDT	0.27	U	0.27	UJ	9
RR-U0100-SUB-D	BETA ENDOSULFAN	0.32	U	0.32	UJ	9
RR-U0100-SUB-D	ENDOSULFAN SULFATE	0.19	Jp	0.19	J	9
RR-U0100-SUB-D	METHOXYCHLOR	3.2	Jp	3.2	J	9
RR-U0100-SUB-D	P,P'-DDT	0.32	Jp	0.32	J	9
RR-U0100-SUB-D	ALPHA ENDOSULFAN	0.34	U	0.34	UJ	9
RR-U0100-SUB-D	ALPHA-CHLORDANE	3.2	NA	3.2	J	9
RR-U0100-SUB-D	ENDRIN ALDEHYDE	0.38	J	0.38	J	9
RR-050-SUB-C	BETA ENDOSULFAN	1.6	U	1.6	UJ	9
RR-050-SUB-C	ENDOSULFAN SULFATE	0.93	U	0.93	UJ	9
RR-050-SUB-C	METHOXYCHLOR	12	Jp	12	J	9
RR-050-SUB-C	P,P'-DDD	1.2	U	1.2	UJ	9
RR-050-SUB-C	ALPHA ENDOSULFAN	1.7	U	1.7	UJ	9
RR-050-SUB-	P,P'-DDT	4.1	J	4.1	J	9

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
C						
RR-050-SUB-D	BETA ENDOSULFAN	0.31	U	0.31	UJ	9
RR-050-SUB-D	ENDOSULFAN SULFATE	0.18	U	0.18	UJ	9
RR-050-SUB-D	METHOXYCHLOR	0.95	Jp	0.95	J	9
RR-050-SUB-D	P,P'-DDD	0.23	U	0.23	UJ	9
RR-050-SUB-D	P,P'-DDT	0.46	Jp	0.46	J	9
RR-050-SUB-D	ALPHA ENDOSULFAN	0.33	U	0.33	UJ	9
RR-050-SUB-D	GAMMA-CHLORDANE	0.35	U	0.35	UJ	9
RR-350-SUB-C	ENDOSULFAN SULFATE	1.3	J	1.3	J	9
RR-350-SUB-C	METHOXYCHLOR	4.8	Jp	4.8	J	9
RR-350-SUB-C	P,P'-DDT	1.4	Jp	1.4	J	9
RR-350-SUB-C	ALPHA ENDOSULFAN	1.7	U	1.7	UJ	9
RR-350-SUB-D	BETA ENDOSULFAN	1.6	U	1.6	UJ	9
RR-350-SUB-D	ENDOSULFAN SULFATE	0.92	U	0.92	UJ	9
RR-350-SUB-D	P,P'-DDD	1.2	U	1.2	UJ	9
RR-350-SUB-D	P,P'-DDT	1.3	U	1.3	UJ	9
RR-350-SUB-D	ALPHA ENDOSULFAN	1.7	U	1.7	UJ	9
RR-350-SUB-D	METHOXYCHLOR	4.9	J	4.9	J	9
RR-650-SUB-C	BETA ENDOSULFAN	1.6	U	1.6	UJ	9
RR-650-SUB-C	METHOXYCHLOR	8.4	Jp	8.4	J	9
RR-650-SUB-C	P,P'-DDT	3.1	Jp	3.1	J	9
RR-650-SUB-C	ALPHA ENDOSULFAN	1.7	U	1.7	UJ	9
RR-650-SUB-C	GAMMA-CHLORDANE	1.7	U	1.7	UJ	9

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
RR-650-SUB-D	BETA ENDOSULFAN	1.5	U	1.5	UJ	9
RR-650-SUB-D	METHOXYCHLOR	9.9	Jp	9.9	J	9
RR-650-SUB-D	P,P'-DDT	2.7	Jp	2.7	J	9
RR-650-SUB-D	ALPHA ENDOSULFAN	1.6	U	1.6	UJ	9
RR-DUP-01-SUB-C	BETA ENDOSULFAN	1.9	Jp	1.9	J	9
RR-DUP-01-SUB-C	METHOXYCHLOR	21	p	21	J	9
RR-DUP-01-SUB-C	P,P'-DDT	5.7	Jp	5.7	J	9
RR-DUP-01-SUB-C	ALPHA ENDOSULFAN	1.6	U	1.6	UJ	9

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
NA-not applicable

2.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported with the data (batch 43513 and 43523). Pesticides were not detected in the method blanks above the MDLs.

2.6 Matrix Spike/Matrix Spike Duplicate

A sample set specific MS/MSD pair, using sample RR-650-SUB-C, was reported. The MS/MSD pair had RPD results within the laboratory specified acceptance criteria. However, the recovery results for all pesticides except alpha-BHC, delta-BHC and endosulfan II were low and outside the laboratory specified acceptance criteria. The recoveries of endrin aldehyde were less than 20% (14% and 12%), therefore, the undetected value of endrin aldehyde was R qualified as rejected. The other pesticides with low recoveries were either J qualified as estimated or UJ qualified as estimated less than the MDLs.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
RR-650-SUB-C	ALDRIN	1.6	U	1.6	UJ	**4**
RR-650-SUB-C	ALPHA-	1.8	U	1.8	UJ	**4**

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
	CHLORDANE					
RR-650-SUB-C	BETA BHC	2.3	U	2.3	UJ	**4**
RR-650-SUB-C	DIELDRIN	3.2	Jp	1.5	J	**4**
RR-650-SUB-C	ENDRIN	1.7	U	1.7	UJ	**4**
RR-650-SUB-C	ENDRIN ALDEHYDE	1.7	U	1.7	R	**4**
RR-650-SUB-C	GAMMA BHC (LINDANE)	1.6	U	1.6	UJ	**4**
RR-650-SUB-C	HEPTACHLOR	2.0	U	2.0	UJ	**4**
RR-650-SUB-C	HEPTACHLOR EPOXIDE	1.7	U	1.7	UJ	**4**
RR-650-SUB-C	METHOXYCHLOR	8.4	Jp	1.8	J	**4**
RR-650-SUB-C	P,P'-DDE	1.3	U	1.3	UJ	**4**
RR-650-SUB-C	P,P'-DDT	3.1	Jp	1.3	J	**4**
RR-650-SUB-C	ALPHA ENDOSULFAN	1.7	U	1.7	UJ	**4**
RR-650-SUB-C	ENDOSULFAN SULFATE	5.3	J	0.92	J	**4**
RR-650-SUB-C	ENDRIN KETONE	2.7	Jp	1.4	J	**4**
RR-650-SUB-C	GAMMA-CHLORDANE	1.7	U	1.7	UJ	**4**
RR-650-SUB-C	P,P'-DDD	1.9	Jp	1.2	J	**4**

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
p-The %RPD between the primary and confirmation column/detector was >40%. The lower value was reported

2.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCS duplicate (LCSD) pair were analyzed. The results for the LCS and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

2.8 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses, with the following exceptions.

Low decachlorobiphenyl recoveries, outside the laboratory specified acceptance criteria, were reported in the analyses of samples RR-U0100-SUB-C and RR-350-SUB-D on the MR-2 column and in the analyses of samples RR-050-SUB-C and RR-650-SUB-C on the MR-1 column. However, since the other surrogate (tetrachloro-m-xylene) recoveries were acceptable, no qualifications were applied to the data based on professional judgment.

The recoveries of both surrogates were low and outside the laboratory specified acceptance criteria in the analysis of sample RR-U0100-SUB-D on the MR-2 column. Therefore, the concentrations of the compounds reported in sample RR-U0100-SUB-D from the MR-2 column were J qualified as estimated and the undetected values were UJ qualified as estimated less than the MDLs.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
RR-U0100-SUB-D_07/31/12	ALPHA ENDOSULFAN	0.34	U	0.34	UJ	6
RR-U0100-SUB-D_07/31/12	ALPHA-CHLORDANE	3.2	NA	3.2	J	6
RR-U0100-SUB-D_07/31/12	DELTA BHC	0.28	U	0.28	UJ	6
RR-U0100-SUB-D_07/31/12	ENDRIN LDEHYDE	0.38	J	0.38	J	6
RR-U0100-SUB-D_07/31/12	GAMMA BHC (LINDANE)	0.32	U	0.32	UJ	6
RR-U0100-SUB-D_07/31/12	P,P'-DDD	0.59	Jp	0.59	J	6

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
p-The %RPD between the primary and confirmation column/detector was >40%. The lower value was reported
NA-not applicable

2.9 Equipment Blank

An equipment blank, EB-10-RI-073112, was collected with the sample set. Pesticides were not detected in the equipment blank above the MDLs.

2.10 Field Duplicate

One field duplicate sample, RR-DUP-01-SUB-C, was collected with the samples. Acceptable precision (RPD <40% for results >5 times the RL, < ± 2 times the RL for results < 5 times the RL) was demonstrated between the field duplicate and the original sample RR-650-SUB-C, with the following exceptions.

Compounds were detected in one sample and not detected in the other sample in the duplicate pair or detected at an estimated concentration in one sample and above the RL in the other sample in the duplicate pair, resulting in a noncalculable RPD between the results. Therefore, the detected concentrations were J qualified as estimated and the undetected values were UJ qualified as estimated less than the MDL.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
RR-650-SUB-C	BETA ENDOSULFAN	1.6	U	NC	1.6	U	7
RR-DUP-01-SUB-C	BETA ENDOSULFAN	1.9	Jp		1.9	J	7
RR-650-SUB-C	DIELDRIN	3.2	Jp	NC	NA	NA	NA
RR-DUP-01-SUB-C	DIELDRIN	4.2	Jp		NA	NA	NA
RR-650-SUB-C	ENDOSULFAN SULFATE	5.3	J	NC	NA	NA	NA
RR-DUP-01-SUB-C	ENDOSULFAN SULFATE	8.4	J		NA	NA	NA
RR-650-SUB-C	ENDRIN	1.7	U	NC	1.7	UJ	7
RR-DUP-01-SUB-C	ENDRIN	2.4	Jp		2.4	J	7
RR-650-SUB-C	ENDRIN KETONE	2.7	Jp	NC	2.7	J	7
RR-DUP-01-SUB-C	ENDRIN KETONE	1.3	U		1.3	UJ	7
RR-650-SUB-C	GAMMA BHC (LINDANE)	1.6	U	NC	1.6	UJ	7
RR-DUP-01-SUB-C	GAMMA BHC (LINDANE)	3.7	J		3.7	J	7
RR-650-SUB-C	METHOXYCHLOR	8.4	Jp	NC	8.4	J	7
RR-DUP-01-SUB-C	METHOXYCHLOR	21	p		21	J	7
RR-650-SUB-C	P,P'-DDD	1.9	Jp	NC	NA	NA	NA

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	RPD	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
RR-DUP-01-SUB-C	P,P'-DDD	4.0	Jp		NA	NA	NA
RR-650-SUB-C	P,P'-DDE	1.3	U	NC	1.3	UJ	7
RR-DUP-01-SUB-C	P,P'-DDE	1.5	Jp		1.5	J	7
RR-650-SUB-C	P,P'-DDT	3.1	Jp	NC	NA	NA	NA
RR-DUP-01-SUB-C	P,P'-DDT	5.7	Jp		NA	NA	NA
RR-650-SUB-C	The other pesticides	ND	NA	0	NA	NA	NA
RR-DUP-01-SUB-C	The other pesticides	ND	NA		NA	NA	NA

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
p-The %RPD between the primary and confirmation column/detector was >40%. The lower value was reported
NA-not applicable
ND-not detected at the MDL
NC-not calculable

2.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

2.12 Compound Quantitation

The compound quantitations were within the validation criteria.

2.13 Sensitivity

The samples were reported to the MDLs.

2.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

3.0 POLYCHLORINATED BIPHENYLS

Twelve solid samples, one sediment sample, six water samples, one field duplicate sample and two equipment blanks were analyzed for PCBs per EPA Methods 3510C/8082 and 3541/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Initial Calibration
⊗ Continuing Calibration Verification
✓ Method Blanks
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
✓ Equipment Blank
✓ Field Duplicate
✓ Target Compound Identification
✓ Compound Quantitation
✓ Sensitivity
✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

3.2 Holding Times

The holding times for PCB analysis of solids are 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times for PCB analysis of water samples are 7 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

3.3 Initial Calibration

Initial calibration of the target compounds was performed as required by the method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

3.4 Continuing Calibration Verification (CCV)

Continuing calibration was performed at the required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits, with the following exception.

The %Ds for PCB 1260 was greater than 15% D (19%), with a high bias, in the closing CCV bracketing sample CBC-U0550-SUB-B. Therefore, based on professional judgment, the concentration of PCB 1254 in sample CBC-U0550-SUB-B is J qualified as estimated; PCB 1260 was not detected in the sample.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
CBC-U0550-SUB-B	PCB-1254	21	NA	21	J	9

NA-not applicable

3.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with the data (batches 44647, 44645 and 44738). PCBs were not detected in the method blanks above the MDLs.

3.6 Matrix Spike/Matrix Spike Duplicate

A sample set specific MS/MSD pair, using sample RR-650-SUB-C, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria, with the following exception. There was low PCB 1016 recovery, less than the laboratory specified acceptance criteria in the MSD. Therefore, based on professional judgment, the undetected values of PCBs 1016, 1221, 1242, 1248 and 1232 in sample RR-650-SUB-C were UJ qualified as estimated less than the MDLs.

Sample ID	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
RR-650-SUB-C	PCB-1016	2.6	U	2.6	UJ	4
RR-650-SUB-C	PCB-1221	3.4	U	3.4	UJ	4
RR-650-SUB-C	PCB-1232	3.0	U	3.0	UJ	4
RR-650-SUB-C	PCB-1242	2.9	U	2.9	UJ	4
RR-650-SUB-C	PCB-1248	1.7	U	1.7	UJ	4

U-not detected at the reported MDL

3.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and one LCS/LCSD pair were analyzed. The results for the LCSs and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

3.8 Surrogate

Acceptable surrogate recoveries were reported for the sample analyses, with the following exception. There was low tetrachloro-m-xylene recovery, less than the laboratory specified acceptance criteria, in sample RR-350-SS-A. However, since the other surrogate (decachlorobiphenyl) recovery was acceptable, no qualifications were applied to the data based on professional judgment.

3.9 Equipment Blank

An equipment blank, EB-10-RI-073112, was collected with the sample set. PCBs were not detected in the equipment blank above the MDLs.

3.10 Field Duplicate

One field duplicate sample, RR-DUP-01-SUB-C, was collected with the samples. Acceptable precision (< 35% RPD for results greater than five times the RL) was demonstrated between the field duplicate and the original sample RR-650-SUB-C.

Sample ID	Compound	Laboratory Concentration (µg/kg)	RPD	Validation Concentration (µg/kg)	Validation Qualification	Reason Code
RR-650-SUB-C	PCB-1260	220	15	NA	NA	NA
RR-DUP-01-SUB-C	PCB-1260	190		NA	NA	NA
RR-650-SUB-C	The other PCBs	ND	0	NA	NA	NA
RR-DUP-01-SUB-C	The other PCBs	ND		NA	NA	NA

ND-not detected at the MDL
NA-not applicable

3.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

3.12 Compound Quantitation

The compound quantitations were within the validation criteria.

3.13 Sensitivity

The samples were reported to the MDLs.

3.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

4.0 METALS

Twelve solid samples, one sediment sample, one field duplicate sample and one equipment blank were analyzed for metals per EPA Methods 3010A/6010B and 3050B/6010B (Mercury evaluated separately in Section 5.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ⊗ Method Blank
- ⊗ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Serial Dilution
- ✓ Equipment Blank
- ⊗ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

4.2 Holding Times

The holding times for metals analysis of waters and solids are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Initial Calibration

The initial calibration requirements were met for the inductively coupled plasma-atomic emission spectrometer (ICP-AES).

The reporting limit standards were within the laboratory control limits.

The interference check standards (ICSA and ICSAB) met the method acceptance criteria.

4.4 Initial and Continuing Calibration Verifications (ICV and CCV)

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

4.5 Initial and Continuing Calibration Blanks (ICB and CCB)

The ICBs and CCBs met the method acceptance criteria.

4.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with the data (batches 43656, 43793, and 43798). Metals were not detected in the method blanks above the MDLs, with the following exceptions.

Aluminum, calcium, copper, magnesium, sodium and zinc were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 43656. Calcium, calcium, iron, potassium, magnesium, sodium and zinc were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 43793. Zinc was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 43798. Therefore, the estimated concentrations of the metals detected in the method blanks were U qualified as not detected at the RLs in the associated samples.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
CBC-U0550-SUB-B	SODIUM	100	JB	340	U	3
RR-050-SS-A	SODIUM	80	JB	590	U	3
RR-050-SUB-C	SODIUM	74	JB	500	U	3
RR-050-SUB-D	SODIUM	120	JB	460	U	3
RR-350-SS-A	SODIUM	100	JB	600	U	3
RR-350-SUB-C	SODIUM	72	JB	540	U	3
RR-350-SUB-D	SODIUM	83	JB	450	U	3
RR-650-SS-A	SODIUM	82	JB	520	U	3
RR-650-SUB-C	SODIUM	120	JB	520	U	3
RR-650-SUB-D	SODIUM	79	JB	500	U	3
RR-DUP-01-SUB-C	SODIUM	89	JB	480	U	3
RR-U0100-SS-A	MAGNESIUM	470	JB	530	U	3

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
RR-U0100-SS-A	SODIUM	67	JB	530	U	3
RR-U0100-SUB-C	MAGNESIUM	370	JB	500	U	3
RR-U0100-SUB-C	SODIUM	72	JB	500	U	3
RR-U0100-SUB-D	SODIUM	63	JB	490	U	3

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample

Sample ID	Compound	Laboratory Concentration (µg/L)	Laboratory Flag	Validation Concentration (µg/L)	Validation Qualification	Reason Code
EB-10-RI-073112	ZINC	7.8	JB	20	U	3

J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample

4.7 Matrix Spike/Matrix Spike Duplicate

A sample set specific MS/MSD pair, using sample RR-650-SUB-C, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria, with the following exceptions.

The recoveries and RPDs for arsenic and barium were high and outside the laboratory specified acceptance criteria. Therefore, the concentrations of arsenic and barium in sample RR-650-SUB-C were J+ qualified as estimated with high biases. In addition, the recoveries of cadmium, calcium and zinc were low and outside the laboratory specified acceptance criteria. Therefore, the concentrations of calcium and zinc in sample RR-650-SUB-C were J- qualified as estimated with low biases and the undetected value of cadmium was UJ qualified as estimated less than the MDL.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
RR-650-SUB-C	ARSENIC	150	NA	150	J+	4
RR-650-SUB-C	BARIUM	76	NA	76	J+	4
RR-650-SUB-C	CALCIUM	18000	B	18000	J-	4
RR-650-SUB-C	CADMIUM	2.6	U	2.6	UJ	4
RR-650-SUB-C	ZINC	100	B	100	J-	4

U-not detected at the reported MDL

B-compound found in the blank and sample
NA-not applicable

4.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were analyzed. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

4.9 Serial Dilution

A serial dilution, using sample RR-650-SUB-C, was reported. The results for the serial dilution were within the laboratory acceptance criteria.

4.10 Equipment Blank

An equipment blank, EB-10-RI-073112, was collected with the sample set. Metals were not detected in the equipment blank above the MDLs, with the following exceptions.

Calcium and zinc were detected in the equipment blank at estimated concentrations greater than the MDLs and less than the RLs, 19 µg/L and 7.8 µg/L, respectively. Since zinc was U qualified as not detected at the RL due to method blank contamination, no qualifications were applied to the data. The concentrations of calcium in the associated samples were greater than the RL; therefore, no qualifications were applied to the data.

4.11 Field Duplicate

One field duplicate sample, RR-DUP-01-SUB-C, was collected with the samples. Acceptable precision (RPD <40% for results >5 times the RL, < ± 2 times the RL for results < 5 times the RL) was demonstrated between the field duplicate and the original sample RR-650-SUB-C, with the following exceptions. The compounds with RPDs greater than 40% were J qualified as estimated in the duplicate pair.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
RR-650-SUB-C	ALUMINUM	4000	B	29	NA	NA	NA
RR-DUP-01-SUB-C	ALUMINUM	3000	B		NA	NA	NA
RR-650-SUB-	ANTIMONY	34	NA	28	NA	NA	NA

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
C							
RR-DUP-01-SUB-C	ANTIMONY	45	NA		NA	NA	NA
RR-650-SUB-C	ARSENIC	150	NA	31	NA	NA	NA
RR-DUP-01-SUB-C	ARSENIC	110	NA		NA	NA	NA
RR-650-SUB-C	BARIUM	76	NA	10	NA	NA	NA
RR-DUP-01-SUB-C	BARIUM	69	NA		NA	NA	NA
RR-650-SUB-C	BERYLLIUM	0.77	NA	12	NA	NA	NA
RR-DUP-01-SUB-C	BERYLLIUM	0.68	NA		NA	NA	NA
RR-650-SUB-C	CADMIUM	0.12	U	0	NA	NA	NA
RR-DUP-01-SUB-C	CADMIUM	0.12	U		NA	NA	NA
RR-650-SUB-C	CALCIUM	18000	B	81	18000	J	7
RR-DUP-01-SUB-C	CALCIUM	7600	B		7600	J	7
RR-650-SUB-C	CHROMIUM, TOTAL	14	NA	24	NA	NA	NA
RR-DUP-01-SUB-C	CHROMIUM, TOTAL	11	NA		NA	NA	NA
RR-650-SUB-C	COBALT	8.6	NA	28	NA	NA	NA
RR-DUP-01-SUB-C	COBALT	6.5	NA		NA	NA	NA
RR-650-SUB-C	COPPER	130	B	8	NA	NA	NA
RR-DUP-01-SUB-C	COPPER	120	B		NA	NA	NA
RR-650-SUB-C	IRON	42000	NA	47	42000	J	7
RR-DUP-01-SUB-C	IRON	26000	NA		26000	J	7
RR-650-SUB-C	LEAD	550	NA	17	NA	NA	NA
RR-DUP-01-SUB-C	LEAD	650	NA		NA	NA	NA
RR-650-SUB-C	MAGNESIUM	1400	B	55	1400	J	7

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
RR-DUP-01-SUB-C	MAGNESIUM	800	B		800	J	7
RR-650-SUB-C	MANGANESE	240	NA	53	240	J	7
RR-DUP-01-SUB-C	MANGANESE	140	NA		140	J	7
RR-650-SUB-C	NICKEL	21	NA	27	NA	NA	NA
RR-DUP-01-SUB-C	NICKEL	16	NA		NA	NA	NA
RR-650-SUB-C	POTASSIUM	820	NA	33	NA	NA	NA
RR-DUP-01-SUB-C	POTASSIUM	590	NA		NA	NA	NA
RR-650-SUB-C	SELENIUM	2.0	NA	5	NA	NA	NA
RR-DUP-01-SUB-C	SELENIUM	1.9	NA		NA	NA	NA
RR-650-SUB-C	SILVER	0.060	U	0	NA	NA	NA
RR-DUP-01-SUB-C	SILVER	0.056	U		NA	NA	NA
RR-650-SUB-C	SODIUM	120	JB	NC	NA	NA	NA
RR-DUP-01-SUB-C	SODIUM	89	JB		NA	NA	NA
RR-650-SUB-C	THALLIUM	1.1	U	0	NA	NA	NA
RR-DUP-01-SUB-C	THALLIUM	0.20	U		NA	NA	NA
RR-650-SUB-C	VANADIUM	17	NA	19	NA	NA	NA
RR-DUP-01-SUB-C	VANADIUM	14	NA		NA	NA	NA
RR-650-SUB-C	ZINC	100	B	25	NA	NA	NA
RR-DUP-01-SUB-C	ZINC	78	B		NA	NA	NA

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable

4.12 Compound Quantitations

The compound quantitations were within the validation criteria.

4.13 Sensitivity

The samples were reported to the MDLs.

4.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

5.0 MERCURY

Twelve solid samples, one sediment sample, one field duplicate sample and one equipment blank were analyzed for mercury per EPA Methods 7470A and 7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

5.1 Overall Assessment

The mercury data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

5.2 Holding Times

The holding times for mercury analysis of waters and solids are 28 days from sample collection to analysis. The holding times were met for the sample analyses.

5.3 Initial Calibration

The initial calibration requirements were met. The coefficient of determination (r^2) was greater than or equal to 0.990 for the linear calibration.

The reporting limit standard was within the laboratory control limits.

5.4 Initial and Continuing Calibration Verifications

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

5.5 Initial and Continuing Calibration Blanks

The ICBs and CCBs met the method acceptance criteria.

5.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with the data (batches 45329, 44195 and 45355). Mercury was not detected in the method blanks above the MDL.

5.7 Matrix Spike/Matrix Spike Duplicate

A sample set specific MS/MSD pair, using sample RR-650-SUB-C, was reported. The MS/MSD pair had recovery and RPD results within the laboratory specified acceptance criteria.

5.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were analyzed. The result for the LCSs were within the laboratory specified acceptance criteria for recovery.

5.9 Equipment Blank

An equipment blank, EB-10-RI-073112, was collected with the sample set. Mercury was not detected in the equipment blank above the MDL.

5.10 Field Duplicate

One field duplicate sample, RR-DUP-01-SUB-C, was collected with the samples. Acceptable precision (RPD <40% for results >5 times the RL, < ± 2 times the RL for results < 5 times the RL) was demonstrated between the field duplicate and the original sample RR-650-SUB-C.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
RR-650-SUB-C	MERCURY	0.17	NA	6	NA	NA	NA
RR-DUP-01-SUB-C	MERCURY	0.19	NA		NA	NA	NA

NA-not applicable

5.11 Compound Quantitations

The compound quantitations were within the validation criteria.

5.12 Sensitivity

The samples were reported to the MDL.

5.13 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

6.0 CYANIDE AND HEXAVALENT CHROMIUM

Twelve solid samples, one sediment sample, one field duplicate sample and one equipment blank were analyzed for cyanide by EPA Method 9012A and hexavalent chromium by EPA Methods 3060A/7196A and 7196A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Method Blank
- ✓ Matrix Spike
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Electronic Data Deliverables Review

6.1 Overall Assessment

The cyanide, hexavalent chromium and total hardness data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100% for the data.

6.2 Holding Times

The holding times for cyanide analysis of waters and soils are 14 days from sample collection to analysis. The holding times for the hexavalent analysis of waters are 24 hours from collection to analysis. The holding times for the hexavalent analysis of soils are 30 days from collection to extraction and 168 hours from extraction to analysis. The holding times were met for the sample analyses.

6.3 Initial Calibration

The initial calibration data met the method requirements.

6.4 Initial and Continuing Calibration Verification

The percent recoveries in the associated ICVs and CCVs were within the QC acceptance limits.

6.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported with each analysis (batches 43481, 44936 and 45390-hexavalent chromium and batches 44731, 44732 and 44743-cyanide). Hexavalent chromium and cyanide were not detected in the method blanks above the MDLs.

6.6 Matrix Spike/Matrix Spike Duplicate

A sample set specific MS was reported for hexavalent chromium and one sample set specific MS/MSD pair was reported for cyanide, using sample RR-650-SUB-C. The cyanide recovery and RPD results were within the laboratory specified acceptance criteria. There was low recovery of hexavalent chromium in the soluble MS (18%); the insoluble MS had acceptable recovery (91%). The insoluble MS is used by the laboratory to evaluate the dissolution of hexavalent chromium during the digestion process. Therefore, based on professional judgment, no qualifications were applied to the hexavalent chromium data.

6.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Six LCSs and one LCS/LCSD pair were reported with the hexavalent chromium data; six LCSs and three LCS/LCSD pairs were reported with the cyanide data. The results for the LCSs and LCS/LCSD pair were within the laboratory specified acceptance criteria for recovery and RPD.

6.8 Laboratory Duplicate

A laboratory duplicate was reported for the hexavalent chromium data, using sample RR-650-SUB-C. The %D between the results was within the laboratory specified acceptance criteria.

6.9 Equipment Blank

An equipment blank, EB-10-RI-073112, was collected with the sample set. Hexavalent chromium and cyanide were not detected in the equipment blank above the MDLs.

6.10 Field Duplicate

One field duplicate sample, RR-DUP-01-SUB-C, was collected with the samples. Acceptable precision (< 35% RPD for results greater than five times the RL) was demonstrated between the field duplicate and the original sample RR-650-SUB-C.

Sample ID	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	RPD	Validation Concentration (mg/kg)	Validation Qualification	Reason Code
RR-650-SUB-C	CHROMIUM, HEXAVALENT	0.41	J	NC	NA	NA	NA
RR-650-SUB-C	CYANIDE	0.32	J		NA	NA	NA
RR-DUP-01-SUB-C	CHROMIUM, HEXAVALENT	0.13	J	NC	NA	NA	NA
RR-DUP-01-SUB-C	CYANIDE	0.32	J		NA	NA	NA

J-estimated concentration less than the RL and greater than the MDL
NA-not applicable
NC-not calculable

6.11 Compound Quantitation

The compound quantitations were within the validation criteria.

6.12 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level II report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

7.0 PERCENT MOISTURE/SOLIDS

The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. The percent

moisture contents of the samples were less than 50%, so no qualifications were applied to the data.

---

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Geosyntec consultants

2240 Sutherland Avenue, Suite 107
Knoxville, TN 37919
PH 865.330.0037
FAX 865.330.9949
www.geosyntec.com

Memorandum

Date: 10 October 2012

To: Aron Krasnopler

From: Mary Tyler

CC: J. Caprio

Subject: **Stage 4 Data Validation - Level IV Data deliverable – Semivolatile Organic Compounds by EPA Methods 3550B/8270C, Polychlorinated Biphenyls by EPA Methods 3550B/8082, Metals by EPA Methods 3050B/6010B, Mercury by EPA Method 7471A, Cyanide by EPA Method 9012A, Hexavalent Chromium by EPA Methods 3060A/7196A and Percent Moisture/Solids by ASTM Method D2974- 07 – TestAmerica Work Order Numbers 180-13011- 1 and 180- 13011- 1 Revisions 1 and 2**

SITE: Unisys – RI MN0832- 07

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of one sediment sample collected on July 31, 2012 as part of the Unisys sampling event. TestAmerica Pittsburgh, Pennsylvania performed the hexavalent chromium and total solids analyses; the rest of the analyses were performed at TestAmerica Buffalo, New York. The sample was analyzed for the following tests:

- EPA Methods 3550B/8270C - Semivolatile Organic Compounds
- EPA Methods 3550B/8082 - Polychlorinated Biphenyls
- EPA Methods 3050B/6010B – Metals
- EPA Method 7471A – Mercury
- EPA Method 9012A – Cyanide
- EPA Methods 3060A/7196A – Hexavalent Chromium
- ASTM Method D2974- 07 - Percent Moisture/Solids

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The organic data were reviewed based on the Quality Assurance Project Plan for Former Sperry Remington Facility Industrial Outfall Site, Elmira, New York, NYSDEC SITE I.D. # 808043, (hereafter referred to as the QAPP), NY09- 2480- 04, July 7, 2010, Revised November 11, 2010, USEPA Region II, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA- 540- R- 08- 01), as well as by the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on the QAPP, USEPA Region II, Evaluation of Metals Data for the CLP Program, SOP HW- 2 Rev.13, ILM05.3, September 2006, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, OSWER 9240.1- 51, EPA 540- R- 10- 011, January 2010, as well as by the pertinent methods referenced by the data package and professional judgment.

The following sample was analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
180- 13011- 1	CBC- UO550- SED- A

Lab ID	Client ID
180- 13011- 2	CBC- UO550- SED- A

The sample was received at the laboratory at 3.0^{o}C, within the QAPP criteria of 4 $\pm$ 2^{o}C. No sample preservation issues were noted by the laboratory.

It was noted that the sample IDs in the electronic data deliverable (EDD) included the date of collection in the suffix; this suffix was not listed on the COC.

The laboratory report was revised twice, to include the initial calibration verification standards and to explain the PCB reporting rationale.

1.0 SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

One sediment sample was analyzed for SVOCs per EPA Methods 3550B/8270C.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Instrument Performance Check
- ✓ Initial Calibration
- ✓ Continuing Calibration Verification
- ✓ Blanks
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Field Duplicate
- ✓ Internal Standards
- ✓ Target Compound Identifications
- ✓ Target Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The SVOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Times

The holding time for SVOC analysis of solids is 14 days from sample collection to extraction and 40 days from extraction to analysis. The holding times were met for the sample analyses.

1.3 Instrument Performance Check

An instrument performance check sample (tune standard) was analyzed at the beginning of each 12- hour period during sample analysis. The samples were analyzed within the 12- hour period. All ion abundance criteria were met for decafluorotriphenylphosphine (DFTPP).

Method 8270C describes the analysis of a standard to assess the gas chromatography (GC) column performance and injection port inertness; analysis of this standard was not documented in the data package. Based on professional judgment, no qualifications were applied to the data.

1.4 Initial Calibration

Appropriate initial calibrations were performed for each analyte. Based on the method of calibration, the laboratory calculated the percent relative standard deviation (%RSD) of the relative response factors (RRFs). The %RSDs of the calibration check compounds (CCCs) met the method criteria of less than or equal to 30% and the minimum average RRFs for the system performance check compounds (SPCCs) were above the method criteria.

For the target analytes, the average RRFs were within the method (15% RSD), and/or validation (20% RSD for compounds not considered poor responders, 40% for poor responders) criteria for the compounds or the coefficient of determination (r2) was greater than or equal to 0.990 for the curve fit calibrations.

1.5 Continuing Calibration Verification (CCV)

For the target analytes, the CCV was performed at the required frequency. The CCV RRFs met the method and validation criteria.

The percent differences (%Ds) between the RRFs in the initial and continuing calibration standards for the target analytes were within the method acceptance criteria of less than or equal to 20% for CCCs and the validation criteria of 40% difference for poor performing compounds and 25% difference for the non- CCC compounds.

1.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 76444). SVOCs were not detected in the method blank above the method detection limits (MDLs).

1.7 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were not reported.

1.8 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

It was noted that a subset of compounds was reported for the LCS in the laboratory report. The full analyte spike recovery forms were sent by email.

1.9 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria.

1.10 Field Duplicate

A field duplicate sample was not collected with the sample set.

1.11 Internal Standards

The internal standard areas and retention times were within the method acceptance limits.

1.12 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.13 Compound Quantitation

The compound quantitations were within the validation criteria.

1.14 Sensitivity

The samples were reported to the MDLs.

1.15 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

2.0 POLYCHLORINATED BIPHENYLS

One sediment sample was analyzed for PCBs per EPA Methods 3550B/8082.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
✓ Initial Calibration
✓ Continuing Calibration Verification
✓ Method Blanks
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Surrogates
✓ Equipment Blank
✓ Field Duplicate
✓ Target Compound Identification
✓ Compound Quantitation
⊗ Sensitivity
✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The PCB data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

2.2 Holding Times

The holding times were met for the sample analyses. The holding time for PCB analysis of solids is 14 days from sample collection to extraction and 40 days from extraction to analysis.

2.3 Initial Calibration

Initial calibration of the target compounds was performed for the primary (quantitation) column and confirmation column as required by this method. The %RSDs were less than or equal to 20% or the coefficient of determination (r^2) was greater than or equal to 0.990 for the curve fit calibrations.

Initial calibration verification (ICV) was performed at the required frequency. The ICV met the laboratory acceptance criteria.

2.4 Continuing Calibration Verification (CCV)

Continuing calibration was performed at required frequency. The percent differences of calibration factors in continuing standard mixtures were within the 15% D limits.

2.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 76639). PCBs were not detected in the method blank above the method detection limits (MDLs).

2.6 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD pairs were not reported.

2.7 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

2.8 Surrogate

The surrogate recoveries were within the laboratory specified acceptance criteria, with the following exception. The tetrachloroxylene recovery in sample CBC- UO550- SED- A was high and outside the laboratory specified acceptance criteria. Since the other surrogate (decachlorobiphenyl) recovery was acceptable, no qualifications were applied to the data.

2.9 Equipment Blank

An equipment blank was not collected with the samples.

2.10 Field Duplicate

A field duplicate sample was not collected with the sample set.

2.11 Target Compound Identifications

The target compound identifications were within the validation criteria.

2.12 Compound Quantitation

The compound quantitations were within the validation criteria. It was noted that the PCB concentrations were determined from the primary calibrated column (column ZB- 5). Although EPA method 8000 recommends that quantitative values be compared between the two columns, the second column (column ZB- 35) data was used for pattern recognition only. The data from the second column was removed from the data package (revision 2).

2.13 Sensitivity

The samples were reported to the MDLs. The MDLs were greater than the Human Health Bioaccumulation Sediment Criteria listed in Table 2 of the work plan.

Parameters	HH Sediment Criteria (µg/kg)	Lab MDL (µg/kg)
Total PCBs	0.008	89

HH - Human Health Bioaccumulation

2.14 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

3.0 METALS

One sediment sample was analyzed for metals per EPA Methods 3050B/6010B (Mercury evaluated separately in Section 4.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues

were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Duplicate
- ✓ Laboratory Control Sample
- ✓ Serial Dilution
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The metals data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

3.2 Holding Times

The holding time for metals analysis of solids is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

3.3 Initial Calibration

The initial calibration requirements were met for the inductively coupled plasma- atomic emission spectrometer (ICP- AES).

The reporting limit standards were within the laboratory control limits.

The interference check standards (ICSA and ICSAB) met the method acceptance criteria.

3.4 Initial and Continuing Calibration Verifications (ICV and CCV)

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

3.5 Initial and Continuing Calibration Blanks (ICB and CCB)

The ICBs and CCBs met the method acceptance criteria.

3.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 76635). Metals were not detected in the method blank above the MDLs, with the following exceptions.

Calcium, iron and manganese were detected at estimated concentrations greater than the MDLs and less than the reporting limits (RLs). Since calcium, iron and manganese were detected in the associated sample at concentrations greater than the RLs, no qualifications were applied to the data.

3.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported.

3.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The results for the LCS were within the laboratory specified acceptance criteria for recovery.

3.9 Serial Dilution

A serial dilution was not reported.

3.10 Field Duplicate

A field duplicate sample was not collected with the sample set.

3.11 Compound Quantitations

The compound quantitations were within the validation criteria.

3.12 Sensitivity

The samples were reported to the MDLs.

3.13 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process and the automated data review process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

4.0 MERCURY

One sediment sample was analyzed for mercury per EPA Method 7471A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Initial and Continuing Calibration Blanks
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The mercury data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

4.2 Holding Times

The holding time for mercury analysis of solids is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Initial Calibration

The initial calibration requirements were met. The coefficient of determination (r^2) was greater than or equal to 0.990 for the linear calibration.

The reporting limit standard was within the method control limits.

4.4 Initial and Continuing Calibration Verifications

The percent recoveries in the associated ICVs and CCVs were within the method acceptance limits.

4.5 Initial and Continuing Calibration Blanks

The ICBs and CCBs met the method acceptance criteria.

4.6 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data (batch 76816). Mercury was not detected in the method blank above the MDL.

4.7 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported.

4.8 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was analyzed. The result for the was within the laboratory specified acceptance criteria for recovery.

4.9 Field Duplicate

A field duplicate sample was not collected with the sample set.

4.10 Compound Quantitations

The compound quantitations were within the validation criteria.

4.11 Sensitivity

The samples were reported to the MDL.

4.12 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level IV report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD..

5.0 CYANIDE AND HEXAVALENT CHROMIUM

One sediment sample was analyzed for cyanide by EPA Method 9012A and hexavalent chromium by EPA Methods 3060A/7196A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Initial Calibration
- ✓ Initial and Continuing Calibration Verification
- ✓ Method Blank

- ✓ Matrix Spike
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Compound Quantitations
- ✓ Electronic Data Deliverables Review

5.1 Overall Assessment

The cyanide and hexavalent data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

5.2 Holding Times

The holding time for cyanide analysis of soils is 14 days from sample collection to analysis. The holding times for the hexavalent analysis of soils are 30 days from collection to extraction and 168 hours from extraction to analysis. The holding times were met for the sample analyses.

5.3 Initial Calibration

The initial calibration data met the method requirements.

5.4 Initial and Continuing Calibration Verification

The percent recoveries in the associated ICVs and CCVs were within the QC acceptance limits.

5.5 Method Blanks

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the hexavalent chromium data (batch 44936). One method blank was reported with the cyanide data (batch 76562). Hexavalent chromium and cyanide were not detected in the method blanks above the MDLs.

5.6 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported.

5.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported with the hexavalent chromium data; one LCS was reported with the cyanide data. The results for the LCSs were within the laboratory specified acceptance criteria for recovery.

5.8 Laboratory Duplicate

A laboratory duplicate, using sample CBC-UO550-SED-A, was reported for the cyanide analyses. The results for the laboratory duplicate were within the laboratory specified acceptance criteria for RPD.

5.9 Field Duplicate

A field duplicate sample was not collected with the sample set.

5.10 Compound Quantitation

The compound quantitations were within the validation criteria.

5.11 Electronic Data Deliverables Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated Level II report at a minimum of 20% as part of the data validation process. It was noted that the sample IDs in the EDDs included the date of collection in the suffix; this suffix was not listed on the COC. No other discrepancies were identified between the Level IV report and the EDD.

6.0 PERCENT MOISTURE/SOLIDS

The percent moisture/solid content of the sediment sample was reported by each laboratory; TestAmerica Pittsburgh reported a solids content of 42% (58% moisture) in sample CBC-UO550- SED- A; TestAmerica Buffalo reported a solids content of 34%. The USEPA Region II data validation guidance describes the qualification of solid samples based on percent moisture results greater than or equal to 50% and less than 90%. Therefore, based on the percent moisture content determined by TestAmerica Pittsburgh, the sample results in sample CBC- UO550-

SED- A were J qualified as estimated; the non- detect values were UJ qualified as estimated less than the MDLs.

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-UO550-SED- A	57.9	ALUMINUM	7300	NA	7300	J	13
CBC-UO550-SED- A	57.9	ANTIMONY	1.2	U	1.2	UJ	13
CBC-UO550-SED- A	57.9	ARSENIC	5.3	NA	5.3	J	13
CBC-UO550-SED- A	57.9	BARIUM	130	NA	130	J	13
CBC-UO550-SED- A	57.9	BERYLLIUM	0.40	NA	0.40	J	13
CBC-UO550-SED- A	57.9	CADMIUM	0.71	NA	0.71	J	13
CBC-UO550-SED- A	57.9	CALCIUM	63000	NA	63000	J	13
CBC-UO550-SED- A	57.9	CHROMIUM, TOTAL	15	NA	15	J	13
CBC-UO550-SED- A	57.9	COBALT	6.6	NA	6.6	J	13
CBC-UO550-SED- A	57.9	COPPER	110	NA	110	J	13
CBC-UO550-SED- A	57.9	IRON	15000	B	15000	J	13
CBC-UO550-SED- A	57.9	LEAD	91	NA	91	J	13
CBC-UO550-SED- A	57.9	MAGNESIUM	2800	NA	2800	J	13
CBC-UO550-SED- A	57.9	MANGANESE	350	B	350	J	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (mg/kg)	Laboratory Flag	Validation Concentration (mg/kg)	Validation Qualifier	Reason Code
CBC-UO550-SED- A	57.9	NICKEL	27	NA	27	J	13
CBC-UO550-SED- A	57.9	POTASSIUM	850	NA	850	J	13
CBC-UO550-SED- A	57.9	SELENIUM	1.3	U	1.3	UJ	13
CBC-UO550-SED- A	57.9	SILVER	0.44	U	0.44	UJ	13
CBC-UO550-SED- A	57.9	SODIUM	210	J	210	J	13
CBC-UO550-SED- A	57.9	THALLIUM	0.67	U	0.67	UJ	13
CBC-UO550-SED- A	57.9	VANADIUM	12	NA	12	J	13
CBC-UO550-SED- A	57.9	ZINC	370	NA	370	J	13
CBC-UO550-SED- A	66.2	CHROMIUM, HEXAVALENT	0.29	U	0.29	UJ	13
CBC-UO550-SED- A	57.9	MERCURY	0.069	NA	0.069	J	13
CBC-UO550-SED- A	57.9	CYANIDE	0.98	U	0.98	UJ	

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
B-compound found in the blank and sample
NA-not applicable

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-UO550-SED- A	57.9	PCB- 1016	100	U	100	UJ	13
CBC-	57.9	PCB- 1221	100	U	100	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
UO550-SED- A							
CBC-UO550-SED- A	57.9	PCB- 1232	100	U	100	UJ	13
CBC-UO550-SED- A	57.9	PCB- 1242	100	U	100	UJ	13
CBC-UO550-SED- A	57.9	PCB- 1248	100	U	100	UJ	13
CBC-UO550-SED- A	57.9	PCB- 1254	240	U	240	UJ	13
CBC-UO550-SED- A	57.9	PCB- 1260	240	U	240	UJ	13
CBC-UO550-SED- A	57.9	PCB- 1262	240	U	240	UJ	13
CBC-UO550-SED- A	57.9	PCB- 1268	240	U	240	UJ	13
CBC-UO550-SED- A	57.9	2,4,5- TRICHLOROPHENOL	86	U	86	UJ	13
CBC-UO550-SED- A	57.9	2,4,6- TRICHLOROPHENOL	26	U	26	UJ	13
CBC-UO550-SED- A	57.9	2,4- DICHLOROPHENOL	21	U	21	UJ	13
CBC-UO550-SED- A	57.9	2,4- DIMETHYLPHENOL	110	U	110	UJ	13
CBC-UO550-SED- A	57.9	2,4- DINITROPHENOL	140	U	140	UJ	13
CBC-UO550-SED- A	57.9	2,4- DINITROTOLUENE	61	U	61	UJ	13
CBC-UO550-SED- A	57.9	2,6- DINITROTOLUENE	97	U	97	UJ	13
CBC-UO550-	57.9	2- CHLORONAPHTHALENE	27	U	27	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
SED- A							
CBC-UO550-SED- A	57.9	2- CHLOROPHENOL	20	U	20	UJ	13
CBC-UO550-SED- A	57.9	2- METHYLNAPHTHALENE	4.8	U	4.8	UJ	13
CBC-UO550-SED- A	57.9	2- METHYLPHENOL (O-CRESOL)	12	U	12	UJ	13
CBC-UO550-SED- A	57.9	2- NITROANILINE	130	U	130	UJ	13
CBC-UO550-SED- A	57.9	2- NITROPHENOL	18	U	18	UJ	13
CBC-UO550-SED- A	57.9	3,3'- DICHLOROBENZIDINE	350	U	350	UJ	13
CBC-UO550-SED- A	57.9	3- NITROANILINE	91	U	91	UJ	13
CBC-UO550-SED- A	57.9	4,6- DINITRO- 2-METHYLPHENOL	140	U	140	UJ	13
CBC-UO550-SED- A	57.9	4- BROMOPHENYL PHENYL ETHER	130	U	130	UJ	13
CBC-UO550-SED- A	57.9	4- CHLORO- 3-METHYLPHENOL	16	U	16	UJ	13
CBC-UO550-SED- A	57.9	4- CHLOROANILINE	120	U	120	UJ	13
CBC-UO550-SED- A	57.9	4- CHLOROPHENYL PHENYL ETHER	8.4	U	8.4	UJ	13
CBC-UO550-SED- A	57.9	4- METHYLPHENOL (P-CRESOL)	22	U	22	UJ	13
CBC-UO550-SED- A	57.9	4- NITROANILINE	44	U	44	UJ	13
CBC-UO550-SED- A	57.9	4- NITROPHENOL	96	U	96	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
CBC-UO550-SED- A	57.9	ACENAPHTHENE	13	J	13	J	13
CBC-UO550-SED- A	57.9	ACENAPHTHYLENE	42	J	42	J	13
CBC-UO550-SED- A	57.9	ACETOPHENONE	20	U	20	UJ	13
CBC-UO550-SED- A	57.9	ANTHRACENE	55	J	55	J	13
CBC-UO550-SED- A	57.9	ATRAZINE	18	U	18	UJ	13
CBC-UO550-SED- A	57.9	BENZALDEHYDE	43	U	43	UJ	13
CBC-UO550-SED- A	57.9	BENZO(A) ANTHRACENE	260	J	260	J	13
CBC-UO550-SED- A	57.9	BENZO(A) PYRENE	300	J	300	J	13
CBC-UO550-SED- A	57.9	BENZO(B) FLUORANTHENE	470	NA	470	J	13
CBC-UO550-SED- A	57.9	BENZO(G,H,I) PERYLENE	110	J	110	J	13
CBC-UO550-SED- A	57.9	BENZO(K) FLUORANTHENE	160	J	160	J	13
CBC-UO550-SED- A	57.9	BENZYL BUTYL PHTHALATE	110	U	110	UJ	13
CBC-UO550-SED- A	57.9	BIPHENYL (DIPHENYL)	25	U	25	UJ	13
CBC-UO550-SED- A	57.9	BIS(2- CHLOROETHOXY) METHANE	22	U	22	UJ	13
CBC-UO550-SED- A	57.9	BIS(2- CHLOROETHYL) ETHER (2- CHLOROETHYL ETHER)	34	U	34	UJ	13
CBC-	57.9	BIS (2-	41	U	41	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
UO550-SED- A		CHLOROISOPROPYL) ETHER					
CBC-UO550-SED- A	57.9	BIS(2- ETHYLHEXYL) PHTHALATE	130	U	130	UJ	13
CBC-UO550-SED- A	57.9	CAPROLACTAM	170	U	170	UJ	13
CBC-UO550-SED- A	57.9	CARBAZOLE	4.6	U	4.6	UJ	13
CBC-UO550-SED- A	57.9	CHRYSENE	290	J	290	J	13
CBC-UO550-SED- A	57.9	DIBENZ(A,H) ANTHRACENE	4.7	U	4.7	UJ	13
CBC-UO550-SED- A	57.9	DIBENZOFURAN	4.1	U	4.1	UJ	13
CBC-UO550-SED- A	57.9	DIETHYL PHTHALATE	12	U	12	UJ	13
CBC-UO550-SED- A	57.9	DIMETHYL PHTHALATE	10	U	10	UJ	13
CBC-UO550-SED- A	57.9	DI- N- BUTYL PHTHALATE	140	U	140	UJ	13
CBC-UO550-SED- A	57.9	DI- N- OCTYLPHTHALATE	9.3	U	9.3	UJ	13
CBC-UO550-SED- A	57.9	FLUORANTHENE	470	NA	470	J	13
CBC-UO550-SED- A	57.9	FLUORENE	9.1	U	9.1	UJ	13
CBC-UO550-SED- A	57.9	HEXACHLORO-BENZENE	20	U	20	UJ	13
CBC-UO550-SED- A	57.9	HEXACHLORO-BUTADIENE	20	U	20	UJ	13
CBC-UO550-	57.9	HEXACHLORO-CYCLOPENTADIENE	120	U	120	UJ	13

Client Sample ID	Percent Moisture (%)	Compound	Laboratory Concentration (µg/kg)	Laboratory Flag	Validation Concentration (µg/kg)	Validation Qualifier	Reason Code
SED- A							
CBC-UO550-SED- A	57.9	HEXACHLORO-ETHANE	31	U	31	UJ	13
CBC-UO550-SED- A	57.9	INDENO(1,2,3- C,D)PYRENE	100	J	100	J	13
CBC-UO550-SED- A	57.9	ISOPHORONE	20	U	20	UJ	13
CBC-UO550-SED- A	57.9	NAPHTHALENE	6.6	U	6.6	UJ	13
CBC-UO550-SED- A	57.9	NITROBENZENE	18	U	18	UJ	13
CBC-UO550-SED- A	57.9	N- NITROSODI- N-PROPYLAMINE	31	U	31	UJ	13
CBC-UO550-SED- A	57.9	N-NITROSODIPHENYLAMINE	22	U	22	UJ	13
CBC-UO550-SED- A	57.9	PENTACHLORO-PHENOL	140	U	140	UJ	13
CBC-UO550-SED- A	57.9	PHENANTHRENE	200	J	200	J	13
CBC-UO550-SED- A	57.9	PHENOL	42	U	42	UJ	13
CBC-UO550-SED- A	57.9	PYRENE	410	NA	410	J	13

U-not detected at the reported MDL
J-estimated concentration less than the RL and greater than the MDL
NA-not applicable

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD- relative percent difference