UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENVIRONMENTAL MEASUREMENT & EVALUATION
11 Technology Drive
North Chelmsford, MA 01863-2431

MEMORANDUM

DATE: July 7, 2010

SUBJ: Data Validation Report – Chlor-Alkali Site
Case: CB002, SDG: C0115

FROM: Steve Stodola, QA Chemist, OEME SS

TO: Darryl Luce, RPM, OSRR

Attached please find the Data Validation Report (DV memo, worksheets and support documents) and the laboratory data package for the Case and SDG mentioned above. After signing the Receipt/Transfer Forms attached to the top of the data packages, please forward the hardcopies of the DV Report and data package to Records Center. By now you and Nobis should have received electronic versions of the Data Validation Memo (pdf) and the Data Summary Tables (xls). We will keep a copy of the DV Report in our central files at OEME.

If you have any questions, please give me a call at 617-918-8634.

cc: G. Sotolongo, OEME
G. DeRuzzo, Nobis (DV Memo & DST via email)

Steve Stodola
US EPA Approval Signature

7/7/10
Date

Ms. Christine Clark
Regional Sample Control Custodian
Office of Environmental Measurement and Evaluation
U.S. EPA Region I
11 Technology Drive
North Chelmsford, MA 01863

June 22, 2010

Re: Task Order No.: 45, Task No.: 1, TDF No.: 1740
Case No. CB002, SDG No. C0115
Columbia Analytical Services (CAS) – Houston, TX
Chlor-Alkali Facility Site, Berlin, NH

Toxic PCB Congeners
and Homologues: 6/Soil/ C0115, C0116, C0117, C0118, C0120, C0121
(Field duplicate pair: C0117/C0118)

1/Aqueous Equipment Blank/ C0119

Dear Ms. Clark:

A Tier III data validation was performed on the Toxic PCB Congeners and Homologues analytical data for six soil samples and one equipment blank collected by Nobis Engineering, Inc. for U.S. EPA at the Chlor-Alkali Facility Site in Berlin, NH. The samples were analyzed according to USEPA SOW CBC01.0, May 2005. The samples were validated using the criteria in the Quality Assurance Project Plan (QAPP), Chlor-Alkali Facility Superfund Site, Berlin, NH, Remedial Investigation/Feasibility Study, October 2009, which includes criteria in CBC01.0; defaulting next to Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 procedures; and finally to EPA Region I's Environmental Services Assistance Team Toxic PCB Congeners and Total Homologue Data Validation SOP ESAT-01-0008 (03/30/07). The data were evaluated based on the following parameters:

	• Overall Evaluation of Data and Potential Usability Issues
	• Data Completeness (Tier I)
*	• Preservation and Technical Holding Times
NP	• PE Samples/Accuracy Check
*	• Window Defining Mix
*	• Initial and Continuing Calibrations
*	• Chromatographic Resolution
	• Blanks
	• Field Duplicates
NP	• Matrix Spike/Matrix Spike Duplicate
*	• Labeled Toxics/LOC Congeners and Clean-up Standard Recovery
	• Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Results
	• Target Compound Identification
	• Compound Quantitation and Reported Quantitation Limits
	• 2378-TCDD Toxicity Equivalents (TE)
	• System Performance

* - All criteria were met for this parameter.
NP - Not provided by the sampler for this SDG.

The following information was used to generate the Data Validation Memorandum attachments:

Table I: Recommendation Summary Table - summarizes validation recommendations

Table II: Overall Evaluation of Data - summarizes Site DQOs and potential usability issues

Data Summary Tables - summarize accepted, qualified, and rejected data

Overall Evaluation of Data and Potential Usability Issues

The following is a summary of the site investigation/assessment objectives:

- The nature and extent of the Site contamination is sufficiently characterized.
- The mechanism of contaminant transport to the environment becomes clear.
- A well-founded human health and ecological risk characterization can be completed.
- A well-documented Record of Decision (ROD) may be developed.

Data validation indicated minor data quality problems which do not impact the usability of the data. See the discussion below for details. The reported results are useable for the site objectives.

Data Completeness (CSF Audit - Tier I)

The following data or information was missing from the data package and/or had discrepancies.

1. The recoveries for the clean-up standards were not summarized on the Form 1s for any of the samples.
2. The Estimated Detection Limits (EDL) were not entered on the Form I CB-1 for any of the non-detected (U) results.
3. Decachlorobiphenyl results and EDLs were not reported in the EDD spreadsheet for all samples.

The above items were requested via the TOPO on May 28, 2010. The response to the above items was received via the TOPO on June 15, 2010. All items were adequately addressed.

Blanks

All of the blanks associated with this SDG are evaluated for contamination. The following table summarizes the highest concentration of contamination detected in the blanks, the action levels, and the samples affected:

Congener/Homologue	Type of Blank	Blank Conc.	Action Level	Affected Samples
PCB 77	Equipment	22.2 pg/L	Qualify EB	All Soil Samples
PCB 123	Equipment	84.2* pg/L	Qualify EB	All Soil Samples
PCB 118	Equipment	1540 pg/L	Qualify EB	All Soil Samples
PCB 105	Equipment	649 pg/L	Qualify EB	All Soil Samples
PCB 167	Equipment	55.1* pg/L	Qualify EB	All Soil Samples
PCB 156+157	Equipment	186 pg/L	Qualify EB	All Soil Samples
Total Dichlorobiphenyls	Method	186 ng/Kg	1860 ng/Kg	C0120, C0121
Total Tetrachlorobiphenyls	Equipment	2930 pg/L	Qualify EB	All Soil Samples
Total Pentachlorobiphenyls	Equipment	7750 pg/L	Qualify EB	All Soil Samples
Total Hexachlorobiphenyls	Equipment	3330 pg/L	Qualify EB	All Soil Samples
Decachlorobiphenyl	Equipment	24.9 pg/L	Qualify EB	All Soil Samples
*EMPC Value				

Blank actions are based on Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 and EPA Region I's Environmental Services Assistance Team Toxic PCB Congeners and Total Homologues Data Validation SOP ESAT-01-0008 (3/30/07) criteria. Blank action levels are calculated as ten times the highest concentration of the contaminant determined in any blank for the Total Homologues and five times the highest concentration for the toxic congeners. The positive sample results that are less than the blank action level are reported as non-detects (U) at the reported concentration on the Data Summary Table.

The aqueous equipment blank results are used to determine the contamination resulting from field sampling procedures and equipment. Contamination that is present in both the non-aqueous field samples and the associated aqueous equipment blank are qualified EB (Equipment Blank) on the Data Summary Tables.

Field Duplicates

The following table summarizes the field duplicate results that did not meet the relative percent difference criteria (RPD) of ≤ 50%RPD for solid samples as specified in the QAPP:

Congener	C0117 %Solids: 90.8 (ng/Kg)	C0118 %Solids: 93.4 (ng/Kg)	RPD	Action
				Positive Detects
PCB 81	172	65.4	90	J
PCB 77	411	245	51	J
PCB 114	1630	764	72	J

The positive results for PCB 81, PCB 77, and PCB 114 are estimated (J) in samples C0117 and C0118 due to poor field duplicate precision.

Laboratory Control Sample/Laboratory Control Sample Duplicate

The following table summarizes the soil LCS/LCSD results that did not meet the recovery criteria as specified in the EPA SOW CBC01.0:

LCS01/DLCS01 (EQ0900323-02/-03)							
Congener	LCS % Rec.	LCSD % Rec.	RPD	QC limits		Action	
				% Rec.	RPD	Positive Detects	NDs
PCB 118	164	211	-	50-150	50	J	A

- Criteria met

The positive results for PCB 118 are estimated (J) in all soil samples due to high LCS recovery.

Target Compound Identification

The laboratory assigned an "X" data qualifier on the Form Is to indicate that ion abundance criteria were not met. The affected positive results were reported as estimated maximum possible concentrations (EMPCs) on the Data Summary Table.

Compound Quantitation and Reported Quantitation Limits

The positive results which are less than the CRQL specified in the USEPA SOW CBC01.0 are reported as estimated (J) on the Data Summary Table.

2378-TCDD Toxicity Equivalents (TE)

All TE values are calculated by the ESAT data validator using the validated data discussed above in this report. The TE calculations include the reported EMPC values, any estimated values, and account for blank contamination. The TEF values used are published in "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds", Society of Toxicology, July 7, 2006.

System Performance

No trends are noted.

Very truly yours,

for Jim Chen
Chemist

Louis Macri
Program Manager

cc: Darryl Luce, Remedial Project Manager (DV Memorandum, Attachments, Laboratory Data Package)

Attachments: Table I: Recommendation Summary Table
Table II: Overall Evaluation of Data
Data Summary Tables
Data Validation Worksheets
Support Documentation
Analytical Method
Communications
Field Notes
CSF Audit

TABLE I
Recommendation Summary Table for Toxic PCB Congeners
Chlor-Alkali Facility, Berlin, NH
CASE No. CB002, SDG No. C0115

Sample Number	Matrix	Qualifier
C0115	Soil	$J^{1,4}$
C0116	Soil	$J^{1,4}$
C0117	Soil	$J^{1,3,4}$
C0118	Soil	$J^{1,3,4}$
C0119	Water	A
C0120	Soil	$J^{1,2,4}$
C0121	Soil	$J^{1,2,4}$

A – Accept results

J^1 – Equipment blank contamination; Contamination that is present in both the non-aqueous field samples and the associated aqueous equipment blank are qualified EB (Equipment Blank) on the Data Summary Tables (see DV memo).

J^2 – Method blank contamination; Raise the detection limit to the reported sample concentration and report as non-detect (U) the positive results that are less than the blank action level for Total Dichlorobiphenyls in samples C0120 and C0121.

J^3 – Field duplicate precision criteria exceeded; Estimate (J) positive results for PCB 81, PCB 77, and PCB 114 in field duplicate samples.

J^4 – Soil LCS/LCSD recovery criteria exceeded; Estimate (J) positive results for PCB 118 for all soil samples.

EPA-NE - Data Validation Worksheet

Overall Evaluation of Data - Data Validation Memorandum - Table II

CASE No. CB002, SDG No. C0115

Toxic PCB Congener and Homologues					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability	Potential Usability Issues
		Analytical Error	Sampling Error*		
The nature and extent of the Site contamination is sufficiently characterized. The mechanism of contaminant transport to the environment becomes clear. A well-founded human health and ecological risk characterization can be completed. A well-documented Record of Decision (ROD) may be developed.	Yes, Field Sampling Method appropriate for all samples. Yes, Analytical Method appropriate for all samples.	Refer to qualification in R/S Key on Table I: $J^{2,4}$	Refer to qualification in R/S Key on Table I: $J^{1,3}$	**	Data validation identified minor data quality problems which do not impact the usability of the data. The reported results are usable for the site objectives. See discussion in the data validation memorandum for details.

* The evaluation of "sampling error" cannot be completely assessed in the data validation.

** Sampling variability is not assessed in data validation.

Validator: FD for JC

Date: 6/16/00

Data Summary Table
PCB Congener Analysis - Soil Samples
(ng/Kg)

SITE: Chlor Alkali, Berlin, NH
CASE NO. CB002, SDG C0115
LABORATORY: Columbia Analytical Services, Houston, TX

LOC	SAMPLE NUMBER: / STATION LOCATION: / MATRIX:	Toxicity Equivalency Factors (1)	C0115 MW-25O1-0810-1140 Soil		C0116 MW-25O1-0810-1220 Soil		C0117 MW-29O1-0811-0915 Soil		C0118 MW-DUP02-0811-0920a Soil		C0120 SB-06O1-0810-1520 Soil		C0121 MW-31O1-0811-1535 Soil	
	PCB Congener CONC.:		ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
4	PCB 81	0.0003	369		148		172 J		65.4 J		U	7.52	U	9.33
4	PCB 77	0.0001	470 EB		327 EB		411 JEB		245 JEB		530 EB		777 EB	
5	PCB 123	0.00003	807 EB		149 EB		455 EB		349 EB		1220 EB		1960 EB	
5	PCB 118	0.00003	26500 JEB#		2870 JEB		20200 JEB$		15000 JEB^		85300 JEB&		123000 JEB!	
5	PCB 114	0.00003	3470		1320		1630 J		764 J		1820		2540	
5	PCB 105	0.00003	12500 EB#		713 EB		8210 EB$		6240 EB		38900 EB&		58800 EB!	
5	PCB 126	0.1	185		U	28.0	167		165		108		170	
6	PCB 167	0.00003	2220 EB		397 EB		2160 EB		1830 EB		3760 EB		6670 EB	
6	PCBs 156 + 157	0.00003	6080 EB		844 EB		4820 EB		3880 EB		17300 EB&		38400 EB!	
6	PCB 169	0.03	136		U	53.1	105		88.3 J		19.2 J		139	
7	PCB 189	0.00003	539		238		739		682		411		1240	
	Total MonoCB		1280 J		6390 J		691 J		542 J		73.3 J		142 J	
	Total DiCB		11800 J		11500 J		7040 J		3310 J		UJ	273	UJ	500
	Total TriCB		17500 J		10400 J		7490 J		3270 J		1580 J		2840 J	
	Total TetraCB		58000 JEB		13300 JEB		32900 JEB		22900 JEB		108000 JEB		176000 JEB	
	Total PentaCB		179000 JEB		17700 JEB		150000 JEB		112000 JEB		433000 JEB		648000 JEB	
	Total HexaCB		138000 JEB		14200 JEB		237000 JEB		203000 JEB		317000 JEB		738000 JEB	
	Total HeptaCB		29600 J		6430 J		29500 J		139000 J		43300 J		238000 J	
	Total OctaCB		10000 J		3260 J		34100 J		26800 J		5510 J		33100 J	
	Total NonaCB		5800 J		3640 J		4260 J		3230 J		840 J		5780 J	
	Decachlorobiphenyl		5760 JEB		2010 JEB		2530 JEB		1320 JEB		151 JEB		2700 JEB	
	Total PCBs		457000 JEB		88900 JEB		506000 JEB		515000 JEB		909000 JEB		1840000 JEB	
	TOXIC EQUIVALENT (1):		24.3 J		0.273 J		21.1 J		20.1 J		15.9 J		28.2 J	
	% SOLIDS:		85.0		59.0		90.8		93.4		73.5		89.1	
	DILUTION FACTOR:		1.0		1.0		1.0		1.0		1.0		1.0	
	COLLECTION DATE:		08/10/2009		08/10/2009		08/11/2009		08/11/2009		08/10/2009		08/11/2009	
	EXTRACTION DATE:		08/20/2009		08/20/2009		08/20/2009		08/20/2009		08/20/2009		08/20/2009	
	ANALYSIS DATE:		10/16/2009		10/07/2009		10/21/2009		10/06/2009		10/08/2009		10/06/2009	
	LAB SAMPLE ID:		E0900638-001		E0900638-002		E0900638-003		E0900638-004		E0900638-006		E0900638-007	

* = The values in this column are either the Detection Limits (DL) or the Estimated Maximum Possible Concentration (EMPC). The EMPC results are marked with a " * ". The DL values are unmarked.
The EMPC values are not qualified with a "J", since they are already estimated.
(1) The Toxic Equivalent concentration is calculated with the Toxicity Equivalency Factors (TEFs) found in "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors (TEFs) for Dioxins and Dioxin-like Compounds", ToxSci Advance Access, July 7, 2006, Table 1, page 52.
Concentrations reported by the laboratory below the Contract Required Quantitation Limit (CRQL) are flagged (J) on the Data Summary Table as estimated values. All other necessary qualifications are defined in Table I.
LOC= Level of Chlorination
# - 10X Dilution Factor
$ - 5X Dilution Factor
^ - 125X Dilution Factor
& - 20X Dilution Factor
! - 25X Dilution Factor

Data Summary Table
PCB Congener Analysis - Water Sample
(pg/L)

SITE: Chlor Alkali, Berlin, NH
CASE NO. CB002, SDG C0115
LABORATORY: Columbia Analytical Services, Houston, TX

LOC	SAMPLE NUMBER:	Toxicity	C0119 EB	
	STATION LOCATION:	Equivalency	EB-01-0811-1030	
	MATRIX:	Factors (1)	Water	
	PCB Congener CONC.:		pg/L	DL/EMPC*
4	PCB 81	0.0003	U	14.8
4	PCB 77	0.0001	22.2 J	
5	PCB 123	0.00003		84.2 *
5	PCB 118	0.00003	1540	
5	PCB 114	0.00003	U	29.1
5	PCB 105	0.00003	649	
5	PCB 126	0.1	U	28.8
6	PCB 167	0.00003		55.1 *
6	PCBs 156 + 157	0.00003	186 J	
6	PCB 169	0.03	U	19.9
7	PCB 189	0.00003	U	12.3
	Total MonoCB		U	11.1
	Total DiCB		U	60.2
	Total TriCB		U	17.7
	Total TetraCB		2930 J	
	Total PentaCB		7750 J	
	Total HexaCB		3330 J	
	Total HeptaCB		U	10.8
	Total OctaCB		U	10.8
	Total NonaCB		U	15.3
	Decachlorobiphenyl		24.9 J	
	Total PCBs		14035 EB	
	TOXIC EQUIVALENT (1):		0.0776 J	
	DILUTION FACTOR:		1.0	
	COLLECTION DATE:		08/04/2009	
	EXTRACTION DATE:		08/25/2009	
	ANALYSIS DATE:		09/06/2009	
	LAB SAMPLE ID:		E0900638-005	

* = The values in this column are either the Detection Limits (DL) or the Estimated Maximum Possible Concentration (EMPC). The EMPC results are marked with a " * ". The DL values are unmarked. The EMPC values are not qualified with a "J", since they are already estimated.

(1) The Toxic Equivalent concentration is calculated with the Toxicity Equivalency Factors (TEFs) found in "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors (TEFs) for Dioxins and Dioxin-like Compounds", ToxSci Advance Access, July 7, 2006, Table 1, page 52.

Concentrations reported by the laboratory below the Contract Required Quantitation Limit (CRQL are flagged (J) on the Data Summary Table as estimated values. All other necessary qualifications are defined in Table I.

LOC= Level of Chlorination

REGION I, EPA-NE ORGANIC REGIONAL DATA ASSESSMENT (ORDA)*

CASE #: CB002 SITE NAME: Chlor-Alkali Facility

LAB NAME: Columbia Analytical TX # OF SAMPLES/MATRIX: 6/Soil, 1/Water

SDG #: C0115 VALIDATION CONTRACTOR: Tech Law ESAT

SOW #/CONTRACT #: CBC01.0 VALIDATOR'S NAME: J. Chen

EPA-NE DV TIER LEVEL: III DATE DP REC'D BY EPA-NE: 12/24/09

TPO/PO: **ACTION ____ FYI ✓ DV COMPLETION DATE: 6/15/10

ANALYTICAL DATA QUALITY SUMMARY

		VOA	SV	~~Pest~~/PCB Congeners
1.	Preservation and Contractual Holding Times	N/A	N/A	o
2.	GC/MS / GC/ECD Instrument Performance Check			o
3.	Initial Calibration			o
4.	Continuing Calibration			o
5.	Blanks			o
6.	Surrogate Compounds			N/A
7.	Internal Standards			o
8.	Matrix Spike/Matrix Spike Duplicate			N/A
9.	Sensitivity Check			N/A
10.	PE Samples-Accuracy Check			N/A
11.	Target Compound Identification			o
12.	Compound Quantitation and Reported QLs			o
13.	Tentatively Identified Compounds			N/A
14.	Semivolatile Cleanup/Pesticide/PCB Cleanup			o
15.	Data Completeness			o
16.	Overall Evaluation of Data			o

o = Data had no problems or were qualified due to minor contractual problems.
m = Data were qualified due to major contractual problems.
z = Data were rejected as unusable due major contractual problems.

ACTION ITEMS: (z items)_____

AREAS OF CONCERN: (m items)_____

COMMENTS: _____

*This form assesses the analytical data quality in terms of contractual compliance only. It does not assess sampling errors and/or non-contractual analytical issues that affect data quality.

**Check "ACTION" only if contractual defects resulted in reduced payment/data rejection recommendations.

Validator: JC Date: 6/16/10

INSTRUCTIONS ON REVERSE SIDE

Region I, EPA-NE
Data Validation Worksheet Cover Page

Site Name CHLOR-ALKALI FACILITY
Reference No. 01BQ

PCB CONGENERS DATA REVIEW WORKSHEET - Toxic PCBs & Total Homologues

The following data package has been validated:

Lab Name Columbia Analytical Services
~~b~~ DAS/Project No. Case CB002
SDG No. C0115
No. Of Samples/Matrix 6 Soil samples + 1 EB Sample

Tech. Spec./Method No. CBC01.0
Sampling Date(s) 8/10/2009, 8/11/2009 Field QC 8/4/2009
Shipping Date(s) 8/12/09
Date(s) Rec'd by lab 8/13/09

Traffic Report Sample Nos. C0115, C0116, C0117, C0118, C0120, C0121

Equipment Blank No. C0119
Field Duplicate Nos. C0117/C0118
PES Nos. N/A

The Region I, EPA-NE Data Validation Functional Guidelines For Evaluating Environmental Analyses, December 1996 and the EPA Region I's Environmental Services Assistance Team PCB Congener Data Validation SOP ESAT-01-0008 were used to evaluate the data; and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPP or amendment to QAPP).

The data were evaluated based upon the following parameters:

- ● Overall Evaluation of Data & Potential Usability Issues
- ● Data Completeness
- ● Preservation/Technical Holding Times
- ● PE Samples/Accuracy Check
- ● Initial and Continuing Calibrations
- ● Window Defining Solution
- ● Chromatographic Resolution
- ● Instrument Sensitivity Check
- ● Initial Precision & Recovery (IPR)
- ● Ongoing Precision & Recovery (OPR)
- ● Blanks
- ● Internal & Clean-up Standards Recovery
- ● Recovery Standard Areas
- ● Matrix Spike Analysis
- ● Laboratory & Field Duplicate Analysis
- ● Sample Quantitation & Total Homologues
- ● Estimated Detection Limit (EDL) & Estimated Maximum Possible Concentration (EMPC)
- ● Toxicity Equivalence (TE) & Isomer Specificity
- ● System Performance

Region I Qualifiers and Definitions:

A - Acceptable Data
J - Numerical value associated with compound is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Compound not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
EB - Compound detected in aqueous equipment blank associated with solid samples.

Validator: J. C.

Date: 5-13-10 ✓

EPA-NE
Data Validation Worksheet

I. DATA COMPLETENESS

MISSING INFORMATION	DATE LAB CONTACTED	DATE RECEIVED
~~(data package Complete)~~ J. C 5-28-10		
1 Recoveries for clean-up stds on Form 1s	5/28/2010	Lab response rec'd 6/15/10
2. EDL Info for any of ~~(X)~~ ~~non-detected~~ results		
3. ~~EDLs~~ info in EDD spreadsheet		

6/16/10

Validator: J. C.

Date: 5-13-2010

TechLaw
Quality & Integrity

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May 28, 2010

TO: Dr. Steve Stodola, U.S. EPA, Region I

FROM: Jim Chen - TechLaw ESAT Region I

VIA: Louis Macri - ESAT Program Team Manager Region I

SUBJECT: Task Order No.: 45, Task No.: 1, TDF No.: 1740
PCB Congener Tier III Data Validation
Chlor-Alkali Facility
Request for Additional Information
Case No.: CB002, SDG No.: C0115, Service Request No.: E0900638
Columbia Analytical Services, Inc., Houston, TX
Contact: Darren Biles, Project Chemist
Phone: (713)266-1599 ext.2954; E-mail: DBiles@caslab.com

Dear Dr. Stodola:

The data validation revealed missing information and discrepancies in the data package submitted by the laboratory. The following missing information and/or discrepancies are noted.

1. The recoveries for the clean-up standards were not summarized on the Form 1s for any of the samples. Please ask the laboratory to provide the recoveries for all clean-up standards in all samples.
2. The Estimated Detection Limits (EDL) were not entered on the Form I CB-1 for any of the non-detected (U) results. Please ask the Laboratory to provide corrected forms as necessary.
3. Decachlorobiphenyl results and EDLs were not reported in the EDD spreadsheet for all samples. Please ask the Laboratory to provide a corrected EDD spreadsheet.

Please contact Jim Chen at (978)275-9730 x207 or Robert Peary at (978)275-9730 x202 should you require any additional information.

Very truly yours,
TechLaw

Jim Chen
Chemist

Peary, Rob

From: stodola.steve@epamail.epa.gov
Sent: Tuesday, June 01, 2010 11:15 AM
To: DBiles@caslab.com
Subject: Request for information for Case CB002, C0115; E0900638

Darren:

Data validation uncovered missing information and discrepancies in the data package submitted by the laboratory. The following missing information and/or discrepancies are noted.

1. The recoveries for the clean-up standards were not summarized on the Form 1s for any of the samples. Please provide the recoveries for clean-up standards in all samples.

2. The Estimated Detection Limits (EDL) were not entered on the Form I CB-1 for any of the non-detected (U) results. Please provide corrected forms as necessary.

3. Decachlorobiphenyl results and EDLs were not reported in the EDD spreadsheet for all samples. Please provide a corrected EDD spreadsheet.

Thanks for your help in resolving these items.

Steve Stodola, QA Chemist, Region I

rec'd 6/15/10 gd

19408 Park Row Suite 320 Houston, TX 77084 (713) 266-1599 (713) 266-0130 fax

Columbia Analytical Services IN
An Employee - Owned Company

June 14th, 2010 Service Request No: E0900638

Steve Stodola
US Environmental Protection Agency
11 Technology Drive
N. Chelmsford, MA 01863

Amended/Additional Data for:CB002, C0115

Dear Steve:

Enclosed are the amended results/missing data for SDG C0115 that you requested. On the next page you will find a hard copy of the email sent to you in response to your questions/notes; please refer to this for explanation. On the following pages you will find:

1-9	Corrected Forms II CB-1
10-23	CAS Houston forms with EDLs
24-35	CAS Houston forms with clean-up recoveries

Please contact me if you have any questions. My extension is 2954. You may also contact me via email at DBiles@caslab.com.

Columbia Analytical Services, Inc.

Darren Biles
Project Chemist

Hi Steve,
The following are responses to your inquiries:

1. The Form I CB-1 in the SOW version referenced in Work Order EP09W001490 (CBC01.0) does not include a section for reporting the clean-up standard recoveries, which is why they are not included in report E1000638. Included in the amended report is a form in our standard report format that reports the clean-up standard recoveries.

2. The Form I CB-1 in the SOW version referenced in Work Order EP09W001490 (CBC01.0) does not include a section for reporting the EDLs, which is why they are not included in report E1000638. Included in the amended report is a form in our standard report format that reports the EDLs.

1. Upon investigation of #3, it was discovered that that result for Decachlorobiphenyl for all samples was reported incorrectly. See the amended report for the corrected Form II CB-1 and amended EDD. Note that the Total PCBs changed for some samples.

Please let me know if you need anything else.

Darren Biles
HRGC/HRMS/Project Chemist

Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
713-266-1599 (office)
281-994-2954 (direct)
www.caslab.com

-----Original Message-----
From: stodola.steve@epamail.epa.gov [mailto:stodola.steve@epamail.epa.gov]
Sent: Tuesday, June 01, 2010 10:15 AM
To: Darren Biles
Subject: Request for information for Case CB002, C0115; E0900638

Darren:

Data validation uncovered missing information and discrepancies in the data package submitted by the laboratory. The following missing information and/or discrepancies are noted.

1. The recoveries for the clean-up standards were not summarized on the Form 1s for any of the samples. Please provide the recoveries for clean-up standards in all samples.

2. The Estimated Detection Limits (EDL) were not entered on the

Form I CB-1 for any of the non-detected (U) results. Please provide corrected forms as necessary.

3. Decachlorobipheny1 results and EDLs were not reported in the EDD spreadsheet for all samples. Please provide a corrected EDD spreadsheet.

Thanks for your help in resolving these items.

Steve Stodola, QA Chemist, Region I

EPA-NE
Data Validation Worksheet

II. PRESERVATION AND HOLDING TIMES

Sampler:_____ Company:_____ Contacted Yes No Date:_____

1. Circle sample numbers with exceeded contract holding times or omitted preservation.

Sample Number	Matrix	Preserved Y/N	Date Sampled	Date Extracted	Date Analyzed	Action
C0115	Soil	4°C	8/10/2009	8/20/09	10/16/09	none
C0116	↓	↓	8/10/2009	↓	10/7/09	↓
C0117	↓	↓	8/11/2009	↓	10/21/09	↓
C0118	↓	↓	8/11/2009	↓	10/06/09	↓
C0119	Water	↓	8/4/2009	8/25/09	9/06/09	↓
C0120	Soil	↓	8/10/2009	8/20/09	10/08/09	↓
C0121	↓	↓	8/11/2009	8/20/09	10/06/09	↓ ✓ 10

List Technical Holding Times: Extraction: 365 days, Analytical: 365 days

List Contractual Holding Times: Extraction: ~~14 days~~ 1 year Analytical: ~~40 days~~ 1 year 4/8/10 (CBC01.0)

Validator: _____ Date: 5-13-10 ✓

NA

EPA-NE
Data Validation Worksheet

PE not provided

III. ACCURACY CHECK (Performance Evaluation Results) - List all analytes that are outside criteria.

SDG No:_____ CASE/PROJECT No:_____

Are more than one-half of the PES analytes within criteria for each parameter. Y N

PE Sample Number	Ampule Number	Type of PES	Matrix	Analyte	Conc.	Region I EPA PES Scores*	Non-EPA PES Scores**	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Results: Action Low; Action High; TCL MISS; TCL CONTAMINANT

** For Non-EPA PESs indicate the Non-EPA PES Score: PES COMPOUND MISS; PES COMPOUND CONTAMINANT; PES COMPOUND HIT (% Recovery Limits)

Validator: J C Date: 6-1-10

EPA-NE
Data Validation Worksheet

IV. PCB Window Defining Mix Summary

1. Were all PCB isomers within the defined windows? (Y) or N

2. Was the WDM run at the required frequency? (Y) or N

List any of the PCB isomers which were outside the retention time (RT) windows.

WDM Date Run / ID	RT First Isomer	RT Last Isomer	RT of Homologue Outside Window	Sample No.

ccal: U133528 CS3 10/20/2009 17:08
U220290 CS3 9-2-2009 10:22
U220295 CS3 9-2-2009 17:13
U220342 CS3 9-6-2009 7:43
U220341 CS3 9-8-2009 17:19
U220374 CS3 9-9-2009 9:53
U220849 10-6-2009 7:54
U220856 10-6-2009 16:55
U220877 10-7-2009 19:19

Validator: Jim Chen Date: 5-13-2010

10/05

U220966 CS3 10-14-2009 17:13
U221005 10-16-2009 17:08
U221060 10-22-2009 10:41
U221157 10-30-2009 18:49

Ultima 1 ICAL 9-14-2009 ✓
2 ICAL 8-19-2009 ✓
2 ICAL 10-19-2009 ✓✓

EPA-NE
Data Validation Worksheet

V. INITIAL AND CONTINUING CALIBRATIONS

Va. INITIAL CALIBRATION

All %RSD criteria met ✓

All Ion Abundance Ratios Criteria met

	Date of ICAL	Instrument File Name	Compound	%RSD	Ion Ratio	S/N Primary / Secondary	RT	Resolution	Samples Affected	Action
Ultima 1	9/14/09	CS1/U133066	PCB 4			ok / 8.0				
	↓	↓	↓ 15			ok / 8.1				
	↓	↓	↓ 206			ok / 7.7	All nontoxics.		Only TOXICS } total homologues are reported. All total homologues already J, UJ. bd	6/8/10
	↓	CS5/U133068	PCB 1L			ok / 6.5				
	↓	↓	↓ 3L			ok / 6.0				
Ultima 2	8/19/09	CS1/U220170	PCB 4			ok / 1.9				
	↓	↓	↓ 15			ok / 3.7				
	↓	↓	↓ 37			9.0 / ok				
Ultima 2	10/19/09	CS1/U221016	PCB 4			ok / 4.8				
↓	↓	↓	↓ 15			ok / 4.6				

Other Method/Technical Specification criteria: ≤ 20% RSD (CAC01.0) ≥ 10 S/N

Comments: Nontoxics Quant. Using initial cal. RRFs. - Average RRFs from all labeled congeners from same homologue series. bd (therefore) Lab did not report cont. form 7 (6.0) for 09 PCBs

Validator: Jim Chen

Date: 5-14-2010 ✓

Ultima 1
Ultima 2

ICAL 10-20-2009 17:08 ✓, 18:35
CCAL 9-2-09 10:22 ✓, #9:19 (209 PCB)
CCAL 9-2-09 17:13 ✓, 18:41
CCAL 9-6-09 7:34 ✓, 8:52
CCAL 9-8-09 17:19 ✓, 18:38
CCAL 9-9-09 9:53 ✓, 8:50
CCAL 10-6-09 7:54 ✓, 6:41
CCAL 10-6-09 16:55 ✓, 18:18
CCAL 10-7-09 19:19 ✓, 18:15
CCAL 10-14-09 17:13 ✓, 18:29
CCAL 10-16-09 17:08 ✓, 18:23
CCAL 10-22-09 10:41 ✓, 9:36
CCAL 10-30-09 18:49 ✓, 17:45

EPA-NE
Data Validation Worksheet

V. INITIAL AND CONTINUING CALIBRATIONS Continued

Vb. CONTINUING CALIBRATION

All D% Criteria met. All Ion Ratios met. All S/N Criteria met. Area ✓

Date of CCAL	Instrument File Name	Compound	%D	Ion Ratio	S/N	RT	Resolution	Samples Affected	Action

Other Method/Technical Specification criteria: (OPC01.0) 70-130%, 50-150% labeled, 60-130% cleanup

Comments:

Validator: [signature]

Date: 5-14-2010 J.C ✓

EPA-NE
Data Validation Worksheet

VI. PCB Chromatographic Resolution and Sensitivity Check

Part A - Resolution Check

Date Analyzed:_____ Resolution ID:_____

Was the chromatographic resolution calculated for each 12 hour period? Y or N

Percent valley determination for SPB-Octyl (or equivalent) column - For the window defining solution beginning the 12-hour period:
PCB-~~126/PCB-169~~:__ PCB 34/23 All OK
Percent valley between the PCB congeners must be less than or equal to ~~25%~~ 40%

Percent valley determination for ~~DB-1~~ (or equivalent) column - For the window defining solution beginning the 12-hour period:
~~PCB-156/PCB-157~~:__ PCB 187/182 All met J 40%
Percent valley between the PCB congeners must be less than or equal to ~~25%~~

Actions:

A. If the GC resolution criteria do not meet specifications, the positive hits will be qualified as "J". No action is taken for non-detects.

B. The criteria for chromatographic resolution must be met for all standards and the validator must use professional judgement on the severity of the problem and its effect on the final results.

Part B - Sensitivity Check

N/A

Was the CS1 analyzed at the end of each 12 hour period? Y or N

Did the CS1 meet all calibration criteria? Y or N

Actions:

A. If the CS1 criteria do not meet specifications, the detection limits will be qualified as "UJ".

B. The criteria for the CS1 must be met for all standards and the validator must use professional judgement on the severity of the problem and its effect on the final results.

See 3 pages attached

Validator: _____ Date: 6-17-2010 J

5/17/2010
Jun Chen

ICal: 9-14-2009 U133063

PCB 209 RT > 55 (57.43 min) OK

PCB 34/PCB23 OK (< 40%)

PCB 187/PCB182 OK (< 40%)

ICal: 8-19-2009 U220169

PCB 209 RT > 55 min (59.24 min) Ok

PCB 34/23 OK (< 40%)

PCB 187/182 ok (< 40%)

ICal: 10-19-2009 U221015

PCB 209 RT > 55 (59.31 min) OK

PCB 34/23 OK

PCB 187/182 OK (< 40%)

CCal: 10-20-2009 U133529

PCB 209 RT > 55 (57.04 min) OK

PCB 34/23 < 40% OK

PCB 187/182 < 40% OK

CCal 9-2-09 (I) U220289

PCB 209 RT > 55 (60.12) OK

% Valley PCB 34/23: OK

PCB 187/182: OK (< 40%)

gc

CCal 9-2-2009 (II) U220296

PCB 209 RT > 55 (60:10m) OK

% Valley PCB 34/23 OK
PCB 187/182 gc. OK (< 40%)

Cal 9-6-09 U220343

PCB 209 RT > 55 (60:01 min) OK

% Valley PCB 34/23 OK
PCB 187/182 gc. OK (< 40%)

CCal 9-8-09 U220362

PCB 209 RT > 55 min (60:00 min) OK

% Valley PCB 34/23 OK
PCB 187/182 gc. OK (< 40%)

CCal 9-9-2009 U220373

PCB 209 RT > 55 (59:58 min) OK

% Valley PCB 34/23 OK
PCB 187/182 gc. OK (< 40%)

CCal 10-6-09 (I) U220848

PCB 209 RT > 55 (59:32 min) OK

% Valley PCB 34/23 OK
PCB 187/182 OK (< 40%)

Jing Chen 5-17-10

CCal 10-6-09 (II) U220857

PCB 209 RT > 55 (59.30 min) OK

% Valley PCB 34/23 OK
PCB 187/182 OK (< 40%)

CCal 10-7-09 U220876

PCB 209 RT > 55 (59:31 min) OK

% Valley PCB 34/23 OK
PCB 187/182 OK (< 40%)

CCal 10-14-09 U220967

PCB 209 RT > 55 (59:25 min) OK

% Valley PCB 34/23 OK
PCB 187/182 OK (< 40%)

CCal 10-16-09 U22~~0~~006
gc.

PCB 209 RT > 55 (59:23 min) OK

% Valley PCB 34/23 OK
PCB 187/182 OK (< 40%)

CCal 10-22-09 U221059

PCB 209 RT > 55 (59:29 min) OK

% Valley PCB 34/23 OK
PCB 187/182 OK (< 40%)

CCal 10-30-09 U221156

PCB 209 RT > 55 (59:21 min) OK

% Valley PCB 34/23 OK
PCB 187/182 OK (< 40%)

5-17-10

EPA-NE
Data Validation Worksheet

VIIb. BLANK ANALYSIS

See attached spreadsheets

Sampler:_____ Company:_____ Contacted: Y or N Date:_____

List concentrations (with the units) detected in any blank below

Contaminant	Method Blanks				Instrument Blanks		Rinsate/Equipment Blanks			Max. Conc. (Units)	Action Level (Units)	Samples Affected	Action
Matrix													
Date Sampled													
Date Extracted													
Date Analyzed													

Validator: JMC Date: 5-21-10

10/05

Blank Evaluation
PCB Congener Analysis - soil Samples
(ng/Kg)/(pg/L)

SITE: Chlor Alkali, Berlin, NH
CASE NO. CB002, SDG C0115
LABORATORY: Columbia Analytical Services, Houston, TX

LOC	SAMPLE NUMBER:	C0119 EB			CBLK02 Water Blank			CBLK01 SOIL Blank		C0119 EB	Qualification
	MATRIX:	pg/L Water			pg/L Water			Soil		ng	
	SAMPLE WEIGHT:	(930ml)			(1000ml)			(0.005kg)			
	CB Congener CONC.:	pg/L		DL/EMPC	pg/L		DL/EMPC	ng/Kg	ng	ng	
4	PCB 81		U	14.8		U	5.81				
4	PCB 77	**22.2**						2.29 *	0.011	**0.0206**	EB
5	PCB 123	**84.2**	JX	*		U	16.1			**0.0783**	EB
5	PCB 118	**1540**			227	J		125	0.625	**1.43**	EB
5	PCB 114		U	29.1		U	15.3				
5	PCB 105	**649**			95.7	J		55.8	0.279	**0.604**	EB
5	PCB 126		U	28.8		U	13.8				
6	PCB 167	**55.1**	BJX	*	8.11	JX	*	5.42	0.0271	**0.0512**	EB
6	PCBs 156 + 157	**186**	J		30.1	JX	*	20.5	0.103	**0.173**	EB
6	PCB 169		U	19.9		U	6.31				
7	PCB 189		U	12.3		U	6.38				
	Total MonoCB		U			U					
	Total DiCB		U		938	J		**186**	0.930		U
	Total TriCB		U		758	J		**72.2**	0.361		U
	Total TetraCB	**2930**	J		774	J		262	1.31	**2.72**	EB
	Total PentaCB	**7750**	J		1980	J		868	4.34	**7.21**	EB
	Total HexaCB	**3330**	J		850	J		403	2.02	**3.10**	EB
	Total HeptaCB		U		60.7	J		**65**	0.325		U
	Total OctaCB		U			U		**24.1**	0.121		U
	Total NonaCB		U		30.4	J		**35.8**	0.179		U
	Decachlorobiphenyl	**24.9**	J		11.5	J		0	0	**0.023**	EB
	Total PCBs	14035	J		5403	J		1916	9.58	13.1	EB
	SAMPLING DATE:	08/04/2009									
	EXTRACTION DATE:	08/25/2009			08/25/2009			08/20/2009			
	ANALYSIS DATE:	09/06/2009			09/09/2009			09/02/2009			
	LAB SAMPLE ID:	E0900638-005			EQ0900337-01			EQ0900323-01			

See next page for summary of blank actions

JC/PS 6/16/10

EPA-NE
Data Validation Worksheet

VII. Blank Analysis

3. **Blank Actions** - List the maximum concentrations of blank compounds.

Compound	Type of Blank	Max. Conc. (units)	Action Level (units)	Sample EDL (units)	Samples Affected	Action
PCB 77	Equip.	22.2 pg/L	Flag EB		all soil samples	Flag EB
123		84.2*				
118		1540				
105		649				
167		55.1*				
156/157		186				
Total DiCB	MB	186 ng/kg	1860 ng/kg		C0120, C0121	U sample conc
TriCB		72.2	722		none	none
TetraCB	Equip	2930 pg/L	Flag EB		all soil samples	Flag EB
PentaCB		7750				
HexaCB		3330				
HeptaCB	MB	650 ng/kg	650 ng/kg		none	none
OctaCB		24.1	241			
NonaCB		35.8	358			
~~DecaCB~~	Equip	~~926~~ 24.9 pg/L	Flag EB		all soil samples	Flag EB

Comments:

Validator: [signature]

Date: 6/9/10

*EMPC

EPA-NE
Data Validation Worksheet

VIII. PCB Duplicate Precision - List all duplicate analytes that are outside QC acceptance criteria.

QAPP criteria 50% RPD

Sample No. C0117 Duplicate No. C0118 Matrix Soil
90.8% solid 93.4% solid

Target Compound	Sample Conc. ug/kg	Sample QL		Duplicate Conc. ug/kg	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
		SQL	2xSQL		SQL	2xSQL			
PCB 81	172	81.3	163	65.4 J	77.5	155	90	RPD	J
77	411	"	"	245	"	"	51	"	"
114	1630	"	"	764	"	"	72	"	"
Total DiCB	7040			3310			72		already J no further action.
TriCB	7490			3270			78		
HptaCB	29500			139000			130		
DecaCB	2530			1320			63		
								ND C1161	

* For instances where one duplicate is ND (or reported less than the sample QL)

Note: Qualify ~~all sample of similar matrix~~

C0117 & C0118 only.

Validator: [signature]

Date: 6/15/10

RPD Calculation (Sample/Sample Duplicate)

SITE: Chlor Alkali, Berlin, NH
CASE NO. CB002, SDG C0115
LABORATORY: Columbia Analytical Services (CAS), Houston, TX

Sample No.:	C0117	C0118	RPD	QC
Lab ID:	MW-29O1-0811-0915	MW-DUP02-0811-0920a		Acceptance
Matrix:	Soil	Soil		Limits
Chemical Name	Conc. ng/kg	Conc. ng/kg	%	(% RPD)
PCB 81*	172	65.4	**90**	50%
PCB 77*	411	245	**51**	50%
PCB 123	455	349	**26**	50%
PCB 118	20200	15000	**30**	50%
PCB 114*	1630	764	**72**	50%
PCB 105	8210	6240	**27**	50%
PCB 126	167	165	**1**	50%
PCB 167	2160	1830	**17**	50%
PCBs 156 + 157	4820	3880	**22**	50%
PCB 169	105	88.3	**17**	50%
PCB 189	739	682	**8**	50%
Total MonoCB	691	542	**24**	50%
Total DiCB*	7040	3310	**72**	50%
Total TriCB*	7490	3270	**78**	50%
Total TetraCB	32900	22900	**36**	50%
Total PentaCB	150000	112000	**29**	50%
Total HexaCB	237000	203000	**15**	50%
Total HeptaCB*	29500	139000	**-130**	50%
Total OctaCB	34100	26800	**24**	50%
Total NonaCB	4260	3230	**28**	50%
Decachlorobiphenyl	~~264~~ 2530	~~268~~ 1320	~~-2~~ 63	50%

*--Out of QC Limits

6/16/10

6-1-2010

EPA-NE
Data Validation Worksheet

IX. PCB MATRIX SPIKE/MATRX SPIKE DUPLICATE ANALYSIS

N/A
not required

Method/Technical Specification Reference: _____

Recovery Limits: _____ RPD Criteria: _____

List all matrix spike compounds with recoveries and/or RPDs outside QC acceptance criteria.

Sample No._____ Matrix_____

Target Compound	Spiking Compounds			Unspiked Compound Concentractions				Action
	MS % Rec.	MSD % Rec.	% RPD	Sample	MS	MSD	%RSD	

Validator: _____ Date: 6/15/10

EPA-NE
Data Validation Worksheet

X. ~~PCB INTERNAL~~ Labeled Toxics AND CLEAN-UP STANDARD RECOVERIES (Toxics only)

Method/Technical Specification Reference: CSCO1.0 Recovery Limits: 25-150% -labeled Toxics

List all samples with internal/clean-up standard recoveries outside acceptance criteria. cleanup Stds 30-135%

~~Internal~~ Standards for Labeled Toxics	Sample No.	Sample No.	Sample No.	Sample No.	Sample No.	Sample No.	Recovery Limits
ACM							
Clean-up Standards							
ACM							
Other Applicable Standards							
N/A							

Validator: JD Date: 6/16/10

EPA-NE
Data Validation Worksheet

XII. PCB LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE (LCS/LCSD) ANALYSIS

Method/Technical Specification Reference: CBC01.0 QC limits: 50-150% rec (labeled: 1L & 3L: 15-140%; all other: 30-140%) cleanup 40-125% JD

Recovery Limits: ~~70-130%~~ CBC01.0 ~~%~~ RPD Criteria: 50 (ESAT SOP & lab limits)

List all laboratory control sample spike compounds with recoveries and/or RPDs outside QC acceptance criteria.

Sample No. LCS01 / DLCS01 acceptance limit (50%) ~~CBC01.0~~ ~~and~~ ESAT SOP PAS. Matrix Soil ✓

LCS Spiking Compounds	LCS % Rec.	LCSD % Rec.	% RPD	Affected Samples	Action
PCB 118 ✓	164	211		C0115, C0116 C0117 C0118 C0120 C0122	J, A
~~PCB 105~~		~~148~~	JD 6/15/10		

~~70-130%~~
~~70-130%~~ JD 6/15/10

All RPDs are ok met criteria Soil LCS/LCSD EQ0900323-02/-03

Lab also analyzed an aqueous LCS - EQ0900337-02 (ACM) for tox. 2s

No action for labeled cmpd noncompliance JD 6/15/10 (& cleanup std)

Validator: Jim Kien Date: 5-14-10 ✓

EPA-NE
Data Validation Worksheet

XI. SAMPLE CALCULATION

1. Do all soil/sediment samples have % solids greater than 30%? (Y) or No

2. Did the laboratory increase sample weight to compensate for % solids? (Y) or No

If no, list sample numbers: _____

See next pages for calc. JP

Note: Results < RQLs were flagged (J) on Forms.

Total Homologues were quantitated using the average RF from all labeled congeners in the same homologue series. (from ICAL)
Also note for Total Homologues - Lab procedure only reports Total Homologues from dilutions if peak saturation occurs. All Total Homologues are already estimated J, UJ.

JP 6/16/10

PCB209 (DeCB) Sample C0115

$$\frac{(3.272e4 + 2.736e4)(2000\,pg)}{(2.347e3 + 1.950e3)(5.778g)(0.85)(0.99)} = 5751\ pg/g$$ ✓

reported: 5.76e3 ng/kg JP 6/16/10 ✓

PCB209 (DeCB) Sample C0118

$$\frac{(6.728e3 + 5.511e3)(2000\,pg)}{(2.006e3 + 1.639e3)(5.524g)(0.934)(0.99)} = 1315\ pg/g$$ ✓ JP 6/16/10

reported: 1.32e3 ng/kg

Validator: Jim Chen

Date: 6-1-2010

Calculation Verification

INITIAL CALIBRATION CURVES:

ICALs:		RF	CS1	CS2	CS3	CS4	CS5	RSD	RSD%	AVERAGE	Expected Values
ICAL I	9/14/2009	PCB 77	0.90	0.92	1.00	1.01	1.06	0.066	6.65	0.98	*6.72/0.98*
		PCB 77L	1.07	0.93	1.11	1.08	1.22	0.104	10.4	1.08	*9.57/1.08*
ICAL II	8/19/2009	PCB 81	1.14	1.07	1.09	1.05	1.03	0.042	4.22	1.08	*4.01/1.08*
		PCB 81L	1.08	1.05	1.15	1.14	1.20	0.059	5.94	1.12	*5.18/1.12*
ICAL III	10/19/2009	PCB 105	1.02	1.02	1.07	1.07	1.08	0.029	2.95	1.05	*3.01/1.05*
	PCB 105L	PCB 105L	1.22	1.13	1.23	1.17	1.25	0.049	4.90	1.20	*4.21/1.20*
Comments:								OK	*OK*	*OK*	

ICALs:		CS 1	A1s	A2s	A1is	A2is	Cis	Cs	RF	Ion Ratio	Expected Values
ICAL I	9/14/2009	PCB 77	296.5	395.4	33440	43210	100	1	0.90	0.75	*0.90/0.75*
		PCB 77L	33440	43210	31010	40310	100	100	1.07	0.77	*1.07/0.77*
ICAL II	8/19/2009	PCB 81	358.5	488.3	32470	41740	100	1	1.14	0.73	*1.14/0.73*
		PCB 81L	32470	41740	30190	38820	100	100	1.08	0.78	*1.08/0.78*
ICAL III	10/19/2009	PCB 105	328.4	216.8	32870	20770	100	1	1.02	1.51	*1.02/1.51*
		PCB 105L	32870	20770	26930	17080	100	100	1.22	1.58	*1.22/1.58*
Comments:									*OK*	*OK*	

CONTINUING CALIBRATION:

CCALs:			A1s	A2s	A1is	A2is	Cis	Cs	RF	Ion Ratio	Expected Values
CCAL I	10/20/2009	PCB 77	13900	17860	25410	34440	100	50	1.06	0.78	*1.06/0.78*
		PCB 77L	25410	34440	25830	33360	100	100	1.01	0.74	*1.01/0.74*
CCAL II	9/2/2009	PCB 77	5841	7642	11540	14710	100	50	1.03	0.76	*1.03/0.76*
	10:22:34	PCB 77L	11540	14710	9585	11920	100	100	1.22	0.78	*1.22/0.78*
CCAL III	9/2/2009	PCB 77	9684	13430	20020	25650	100	50	1.01	0.72	*1.01/0.72*
	17:13:24	PCB 77L	20020	25650	15030	19560	100	100	1.32	0.78	*1.32/0.78*
CCAL IV	9/6/2009	PCB 77	7514	9795	14290	18510	100	50	1.06	0.77	*1.06/0.77*
		PCB 77L	14290	18510	11580	14560	100	100	1.25	0.77	*1.25/0.77*
CCAL V	9/8/2009	PCB 77	8011	11160	15980	21070	100	50	1.03	0.72	*1.04/0.72*
		PCB 77L	15980	21070	11360	14990	100	100	1.41	0.76	*1.41/0.76*
CCAL VI	9/9/2009	PCB 77	5660	7560	10740	14120	100	50	1.06	0.75	*1.06/0.75*

		PCB 77L	10740	14120	8423	11060	100	100	1.28	0.76	***1.28/0.76***
CCAL VII	10/6/2009	PCB 77	5788	7170	10680	13610	100	50	1.07	0.81	***1.07/0.81***
	7:54:04	PCB 77L	10680	13610	8313	10920	100	100	1.26	0.78	***1.26/0.78***
CCAL VIII	10/6/2009	PCB 77	17050	22770	33830	42920	100	50	1.04	0.75	***1.04/0.75***
	16:55:23	PCB 77L	33830	42920	25260	33050	100	100	1.32	0.79	***1.32/0.79***
CCAL IX	10/7/2009	PCB 77	14180	18620	27380	35240	100	50	1.05	0.76	***1.05/0.76***
		PCB 77L	27380	35240	21370	27370	100	100	1.28	0.78	***1.28/0.78***
CCAL X	10/14/2009	PCB 77	21240	26580	38940	47940	100	50	1.10	0.80	***1.10/0.80***
		PCB 77L	38940	47940	31370	40440	100	100	1.21	0.81	***1.21/0.81***
CCAL XI	10/16/2009	PCB 77	15480	20180	28550	36240	100	50	1.10	0.77	***1.10/0.77***
		PCB 77L	28550	36240	22690	29030	100	100	1.25	0.79	***1.25/0.79***
CCAL XII	10/22/2009	PCB 77	18690	23990	34570	43770	100	50	1.09	0.78	***1.09/0.78***
		PCB 77L	34570	43770	25770	33630	100	100	1.32	0.79	***1.32/0.79***
CCAL XIII	10/30/2009	PCB 77	20070	25320	36010	44720	100	50	1.12	0.79	***1.12/0.79***
		PCB 77L	36010	44720	28360	36370	100	100	1.25	0.81	1.25/0.81
Comments:									***OK***	***OK***	

SAMPLE CALCULATION VERIFICATION:

Sample NO		A1s	A2s	A1is	A2is	Cis (pg)	RF (Average)	Sample weight (g)	% Solids	Csample (ng/kg)	EDLs (CsX2.5)	Expected values
C0115	PCB 81	3801	4633	3854	4799	2000	1.08	5.78	85.0	367		***369***
C0115 EDL	PCB 81	68700	19400	707000	860000	2000	1.08	5.78	85.0	21.2	***53.0***	***53.0***
C0116 EDL	PCB 126	28100	21800	1460000	923000	2000	1.03	***6.17***	59.0	11.2	***27.9***	***28.0***
C0118	PCB 189	2954	3032	1969	1943	2000	0.87	5.52	93.4	682		***682***
C0121	PCB 167	73550	59910	4429	3543	2000	1.03	***5.47***	89.1	6670		***6670***
Comments:										***OK***	***OK***	

Validator: Jim Chen

Date: 6-1-10

Sample C0115 Total PeCB $\frac{(\text{area sum 29 peaks: } 3811987)(2000\,pg)}{(\text{Cavg PeCB labeled std area: } 8450)(5.7785)(0.85)\,\text{Cavg + Avg RRFs PeCBs: } 1.052)} = 1.75e5$

lab reported 1.79e5

- difference likely due to area rounding - OK ✓ JL 6/14/10

ICal 9-14-09

Working copy

Calculation Verification

Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS1

Run #1 Filename U133066 Samp: 1 Inj: 1 Acquired: 14-SEP-09 16:05:42
Processed: 15-SEP-09 12:40:12 LAB. ID: ICAL CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	1	2-MoCB	13:16	8.154e+02	2.444e+02	3.34	yes	no	1.001
2	3	4-MoCB	15:33	8.667e+02	2.726e+02	3.18	yes	no	1.001
3	4	22'-DiCB	15:49	4.506e+02	2.590e+02	1.74	yes	no	1.002
4	15	44'-DiCB	21:53	5.064e+02	3.093e+02	1.64	yes	no	1.001
5	19	22'6'-TrCB	19:03	2.945e+02	2.862e+02	1.03	yes	no	1.003
6	37	344'-TrCB	29:02	4.757e+02	4.657e+02	1.02	yes	no	1.001
7	54	22'66'-TeCB	22:12	2.981e+02	4.145e+02	0.72	yes	no	1.001
8	81	344'5-TeCB	35:51	3.250e+02	4.389e+02	0.74	yes	no	1.001
9	77	33'44'-TeCB	36:25	2.965e+02	3.954e+02	0.75	yes	no	1.001
10	104	22'466'-PeCB	27:48	4.548e+02	2.821e+02	1.61	yes	yes	1.001
11	123	2'344'5-PeCB	38:26	3.539e+02	2.400e+02	1.47	yes	yes	1.001
12	118	23'44'5-PeCB	38:45	4.322e+02	2.585e+02	1.67	yes	yes	1.000
13	114	2344'5-PeCB	39:16	3.777e+02	2.372e+02	1.59	yes	yes	1.000
14	105	233'44'-PeCB	39:56	4.078e+02	2.489e+02	1.64	yes	yes	1.000
15	126	33'44'5-PeCB	43:01	3.901e+02	2.539e+02	1.54	yes	no	1.000
16	155	22'44'66'-HxCB	33:33	3.691e+02	3.206e+02	1.15	yes	no	1.001
17	167	23'44'55'-HxCB	44:55	3.088e+02	2.415e+02	1.28	yes	no	1.001
18	56/7	233'44'5-HxCB	46:04	5.551e+02	4.450e+02	1.25	yes	no	1.001
19	169	33'44'55'-HxCB	49:18	2.577e+02	2.432e+02	1.06	yes	yes	1.001
20	188	22'34'566'-HpCB	39:17	2.943e+02	3.179e+02	0.93	yes	no	1.001
21	189	233'44'55'-HpCB	51:49	2.202e+02	2.182e+02	1.01	yes	no	1.001
22	202	22'33'55'66'-OcCB	44:40	2.059e+02	2.136e+02	0.96	yes	no	1.000
23	205	233'44'55'6-OcCB	54:23	2.077e+02	2.353e+02	0.88	yes	no	1.000
24	208	22'33'4'55'66'-NoCB	51:20	1.679e+02	2.208e+02	0.76	yes	no	1.000
25	206	22'33'44'55'6-NoCB	56:08	1.382e+02	1.895e+02	0.73	yes	no	1.001
26	209	DeCB	57:43	2.409e+02	2.030e+02	1.19	yes	no	1.000
27	1L	13C-2-MoCB	13:15	7.972e+04	2.615e+04	3.05	yes	no	0.742
28	3L	13C-4-MoCB	15:32	8.382e+04	2.695e+04	3.11	yes	no	0.870
29	4L	13C-22'-DiCB	15:47	4.133e+04	2.652e+04	1.56	yes	no	0.884
30	15L	13C-44'-DiCB	21:52	5.667e+04	3.703e+04	1.53	yes	no	1.225
31	19L	13C-22'6'-TrCB	19:00	2.948e+04	2.812e+04	1.05	yes	no	1.064
32	37L	13C-344'-TrCB	29:00	4.652e+04	4.450e+04	1.05	yes	no	1.081
33	54L	13C-22'66'-TeCB	22:11	3.093e+04	3.968e+04	0.78	yes	no	0.827
34	81L	13C-344'5-TeCB	35:49	3.229e+04	4.063e+04	0.79	yes	no	1.336
35	77L	13C-33'44'-TeCB	36:23	3.344e+04	4.321e+04	0.77	yes	no	1.357
36	104L	13C-22'466'-PeCB	27:47	4.375e+04	2.781e+04	1.57	yes	no	0.824
37	123L	13C-2'344'5-PeCB	38:24	3.862e+04	2.452e+04	1.58	yes	no	1.138
38	118L	13C-23'44'5-PeCB	38:44	3.995e+04	2.503e+04	1.60	yes	no	1.148
39	114L	13C-2344'5-PeCB	39:15	4.024e+04	2.534e+04	1.59	yes	no	1.164
40	105L	13C-233'44'-PeCB	39:55	4.024e+04	2.486e+04	1.62	yes	no	1.183
41	126L	13C-33'44'5-PeCB	43:00	4.320e+04	2.764e+04	1.56	yes	no	1.275
42	155L	13C-22'44'66'-HxCB	33:31	3.829e+04	3.078e+04	1.24	yes	no	0.801
43	167L	13C-23'44'55'-HxCB	44:53	2.890e+04	2.292e+04	1.26	yes	no	1.072
44	56/7	13C-233'44'5'-HxCB	46:02	5.609e+04	4.443e+04	1.26	yes	no	1.100
45	169L	13C-33'44'55'-HxCB	49:16	2.968e+04	2.365e+04	1.26	yes	no	1.177
46	188L	13C-22'34'566'-HpCB	39:15	3.261e+04	3.029e+04	1.08	yes	no	0.728
47	189La	13C-233'44'55'-HpCB	51:47	2.866e+04	2.810e+04	1.02	yes	no	0.961
48	202La	13C-22'33'55'66'-OcCB	44:39	2.420e+04	2.651e+04	0.91	yes	no	0.829
49	205L,	13C-233'44'55'6-OcCB	54:22	2.362e+04	2.679e+04	0.88	yes	no	1.009
50	208L7	13C-22'33'4'55'66'-NoCB	51:19	1.976e+04	2.532e+04	0.78	yes	no	0.952
51	206L	13C-22'33'44'55'6-NoCB	56:06	1.542e+04	2.015e+04	0.77	yes	no	1.041
52	209L	13C-DeCB	57:42	2.636e+04	2.182e+04	1.21	yes	no	1.071

See Cal. Info. next page

53 28L	13C-244'-TrCB	24:57	5.204e+04	4.963e+04	1.05	yes	no	0.930
54111L	13C-233'55'-PeCB	36:26	4.335e+04	2.771e+04	1.56	yes	no	1.080
55178L	13C-22'33'55'6-HpCB	42:19	2.473e+04	2.339e+04	1.06	yes	no	1.011
56 9L	13C-2,5-DiCB	17:51	5.437e+04	3.463e+04	1.57	yes	no	*
57 52L	13C-22'55'-TeCB	26:49	3.101e+04	4.031e+04	0.77	yes	no	*
58101L	13C-22'4'55'-PeCB	33:44	3.394e+04	2.149e+04	1.58	yes	no	*
59138L	13C-22'3'44'5'-HxCB	41:51	2.982e+04	2.360e+04	1.26	yes	no	*
60194L	13C-22'33'44'55'-OcCB	53:53	1.838e+04	2.090e+04	0.88	yes	no	*

( ) / ( ) x100÷1 =

PCB77 : (296.5+395.4) / (33440+43210) x100÷1 = 0.90 ✓

PCB 77L : ( ) / ( ) x100÷100 = 1.07 ✓

(33440+43210) / (31010+40310) x100÷100 = 1.07

5-28-2010

See attached calculation verification ~~sheets~~ spreadsheets.

working Copy

ICal 8-19-09

Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS1

Run #1 Filename U220170 #1 Samp: 1 Inj: 1 Acquired: 19-AUG-09 14:55:24
Processed: 21-AUG-09 07:13:16 LAB. ID: ICAL CS1

	Typ		Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	1		2-MoCB	14:08	8.298e+02	2.501e+02	3.32	yes	no	1.001
2	3		4-MoCB	16:35	8.366e+02	2.732e+02	3.06	yes	no	1.001
3	4		22'-DiCB	16:51	4.043e+02	2.382e+02	1.70	yes	yes	1.002
4	15		44'-DiCB	23:15	5.521e+02	3.899e+02	1.42	yes	no	1.001
5	19		22'6'-TrCB	20:15	2.867e+02	2.710e+02	1.06	yes	no	1.001
6	37		344'-TrCB	30:35	4.994e+02	4.785e+02	1.04	yes	yes	1.001
7	54		22'66'-TeCB	23:33	2.901e+02	4.153e+02	0.70	yes	no	1.001
8	81	PCB 81	344'5-TeCB	37:28	3.585e+02	4.883e+02	0.73	yes	no	1.000
9	77	PCB 77	33'44'-TeCB	38:02	3.211e+02	3.988e+02	0.80	yes	no	1.000
10	104		22'466'-PeCB	29:17	4.596e+02	2.918e+02	1.58	yes	no	1.001
11	123		2'344'5-PeCB	40:03	4.580e+02	2.616e+02	1.75	yes	yes	1.001
12	118		23'44'5-PeCB	40:23	4.778e+02	3.055e+02	1.56	yes	yes	1.000
13	114		2344'5-PeCB	40:55	4.689e+02	2.887e+02	1.62	yes	no	1.000
14	105	PCB 105	233'44'-PeCB	41:34	4.382e+02	2.893e+02	1.51	yes	no	1.000
15	126		33'44'5-PeCB	44:41	3.932e+02	2.237e+02	1.76	yes	no	1.000
16	155		22'44'66'-HxCB	35:06	3.967e+02	3.275e+02	1.21	yes	no	1.000
17	167		23'44'55'-HxCB	46:34	2.879e+02	2.620e+02	1.10	yes	no	1.001
18	56/7		233'44'5-HxCB	47:43	5.014e+02	4.272e+02	1.17	yes	no	1.000
19	169		33'44'55'-HxCB	50:58	2.514e+02	1.763e+02	1.43	yes	no	1.000
20	188		22'34'566'-HpCB	40:53	3.231e+02	3.066e+02	1.05	yes	no	1.000
21	189		233'44'55'-HpCB	53:30	1.670e+02	1.677e+02	1.00	yes	no	1.001
22	202		22'33'55'66'-OcCB	46:18	1.856e+02	2.166e+02	0.86	yes	no	1.001
23	205		233'44'55'6-OcCB	56:02	1.461e+02	1.685e+02	0.87	yes	no	1.000
24	208		22'33'4'55'66'-NoCB	52:59	1.708e+02	2.154e+02	0.79	yes	no	1.000
25	206		22'33'44'55'6-NoCB	57:48	1.195e+02	1.355e+02	0.88	yes	no	1.001
26	209		DeCB	59:23	2.506e+02	1.898e+02	1.32	yes	no	1.001
27	1L		13C-2-MoCB	14:07	7.610e+04	2.510e+04	3.03	yes	no	0.743
28	3L		13C-4-MoCB	16:34	7.987e+04	2.572e+04	3.11	yes	no	0.872
29	4L		13C-22'-DiCB	16:49	4.483e+04	2.921e+04	1.53	yes	no	0.885
30	15L		13C-44'-DiCB	23:14	5.478e+04	3.624e+04	1.51	yes	no	1.223
31	19L		13C-22'6'-TrCB	20:14	2.617e+04	2.544e+04	1.03	yes	no	1.065
32	37L		13C-344'-TrCB	30:34	4.618e+04	4.398e+04	1.05	yes	no	1.081
33	54L		13C-22'66'-TeCB	23:31	3.240e+04	4.177e+04	0.78	yes	no	0.831
34	81L		13C-344'5-TeCB	37:27	3.247e+04	4.174e+04	0.78	yes	no	1.324
35	77L		13C-33'44'-TeCB	38:01	3.245e+04	4.196e+04	0.77	yes	no	1.344
36	104L		13C-22'466'-PeCB	29:16	4.764e+04	3.095e+04	1.54	yes	no	0.829
37	123L		13C-2'344'5-PeCB	40:01	4.130e+04	2.632e+04	1.57	yes	no	1.133
38	118L		13C-23'44'5-PeCB	40:22	4.198e+04	2.660e+04	1.58	yes	no	1.143
39	114L		13C-2344'5-PeCB	40:54	4.257e+04	2.765e+04	1.54	yes	no	1.158
40	105L		13C-233'44'-PeCB	41:33	4.025e+04	2.604e+04	1.55	yes	no	1.176
41	126L		13C-33'44'5-PeCB	44:40	3.597e+04	2.311e+04	1.56	yes	no	1.265
42	155L		13C-22'44'66'-HxCB	35:05	4.498e+04	3.710e+04	1.21	yes	no	0.807
43	167L		13C-23'44'55'-HxCB	46:31	2.825e+04	2.221e+04	1.27	yes	no	1.069
44	56/7		13C-233'44'5'-HxCB	47:42	5.161e+04	4.109e+04	1.26	yes	no	1.097
45	169L		13C-33'44'55'-HxCB	50:57	2.350e+04	1.844e+04	1.27	yes	no	1.171
46	188L		13C-22'34'566'-HpCB	40:52	3.590e+04	3.452e+04	1.04	yes	no	0.736
47	189La		13C-233'44'55'-HpCB	53:27	2.129e+04	2.020e+04	1.05	yes	no	0.962
48	202La		13C-22'33'55'66'-OcCB	46:16	2.285e+04	2.561e+04	0.89	yes	no	0.833
49	205L,		13C-233'44'55'6-OcCB	56:01	1.720e+04	1.927e+04	0.89	yes	no	1.008
50	208L	713	C-22'33'4'55'66'-NoCB	52:58	1.846e+04	2.395e+04	0.77	yes	no	0.953
51	206L		13C-22'33'44'55'6-NoCB	57:46	1.250e+04	1.617e+04	0.77	yes	no	1.040
52	209L		13C-DeCB	59:21	2.042e+04	1.698e+04	1.20	yes	no	1.068

See the next page

53 28L	13C-244'-TrCB	26:25	5.569e+04	5.196e+04	1.07	yes	no	0.934
54111L	13C-233'55'-PeCB	38:02	4.297e+04	2.772e+04	1.55	yes	no	1.077
55178L	13C-22'33'55'6-HpCB	43:56	2.596e+04	2.473e+04	1.05	yes	no	1.010
56 9L	13C-2,5-DiCB	19:00	5.435e+04	3.492e+04	1.56	yes	no	*
57 52L	13C-22'55'-TeCB	28:17	3.019e+04	3.882e+04	0.78	yes	no	*
58101L	13C-22'4'55'-PeCB	35:19	3.546e+04	2.226e+04	1.59	yes	no	*
59138L	13C-22'3'44'5'-HxCB	43:30	2.895e+04	2.339e+04	1.24	yes	no	*
60194L	13C-22'33'44'55'-OcCB	55:33	1.378e+04	1.543e+04	0.89	yes	no	*

Ical 8-19-09

PCB 81 ( ) x100 ÷ 1 = $\frac{(358.5+488.3)}{(32470+41740)}$ x100 ÷ 1 = 1.14 ✓

PCB 81L ( ) x100 ÷ 100 = $\frac{(32470+41740)}{(30190+38870)}$ x100 ÷ 100 = 1.08 ✓

Ical 10-19-09

PCB 105: $\frac{(328.4+216.8)}{(32870+20770)}$ x100 ÷ 1 = 1.02 ✓

PCB 105L: $\frac{(32870+20770)}{(26930+17080)}$ x100 ÷ 100 = 1.22 ✓

Jim Chen 5-28-09

Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
CCAL CS3

Cals:

Run #6 Filename U133528 #1 Samp: 1 Inj: 1 Acquired: 20-OCT-09 17:08:52
Processed: 21-OCT-09 14:23:54 LAB. ID: CCAL CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	1	2-MoCB	12:58	3.353e+04	1.059e+04	3.17	yes	no	1.001
2	3	4-MoCB	15:11	3.478e+04	1.091e+04	3.19	yes	no	1.001
3	4	22'-DiCB	15:26	2.056e+04	1.315e+04	1.56	yes	no	1.001
4	15	44'-DiCB	21:24	2.425e+04	1.531e+04	1.58	yes	no	1.001
5	19	22'6'-TrCB	18:35	1.197e+04	1.283e+04	0.93	yes	no	1.001
6	37	344'-TrCB	28:27	2.118e+04	2.013e+04	1.05	yes	no	1.001
7	54	22'66'-TeCB	21:41	1.399e+04	2.002e+04	0.70	yes	no	1.001
8	81	344'5-TeCB	35:14	1.407e+04	1.838e+04	0.77	yes	no	1.001
9	77	33'44'-TeCB	35:48	1.390e+04	1.786e+04	0.78	yes	no	1.001
10	104	22'466'-PeCB	27:14	2.155e+04	1.360e+04	1.58	yes	no	1.001
11	123	2'344'5-PeCB	37:48	1.710e+04	1.062e+04	1.61	yes	no	1.001
12	118	23'44'5-PeCB	38:08	1.854e+04	1.156e+04	1.60	yes	no	1.001
13	114	2344'5-PeCB	38:40	1.755e+04	1.114e+04	1.58	yes	no	1.001
14	105	233'44'-PeCB	39:18	1.807e+04	1.135e+04	1.59	yes	no	1.001
15	126	33'44'5-PeCB	42:23	1.896e+04	1.166e+04	1.63	yes	no	1.001
16	155	22'44'66'-HxCB	32:56	1.666e+04	1.509e+04	1.10	yes	no	1.001
17	167	23'44'55'-HxCB	44:16	1.224e+04	9.999e+03	1.22	yes	no	1.001
18	156/7	233'44'5-HxCB	45:25	2.441e+04	1.984e+04	1.23	yes	no	1.001
19	169	33'44'55'-HxCB	48:38	1.236e+04	9.887e+03	1.25	yes	no	1.000
20	188	22'34'566'-HpCB	38:39	1.363e+04	1.485e+04	0.92	yes	no	1.000
21	189	233'44'55'-HpCB	51:10	1.001e+04	1.120e+04	0.89	yes	no	1.001
22	202	22'33'55'66'-OcCB	44:02	9.424e+03	1.175e+04	0.80	yes	no	1.001
23	205	233'44'55'6-OcCB	53:44	9.827e+03	1.241e+04	0.79	yes	no	1.001
24	208	22'33'4'55'66'-NoCB	50:42	9.106e+03	1.175e+04	0.77	yes	no	1.001
25	206	22'33'44'55'6-NoCB	55:28	6.652e+03	9.732e+03	0.68	yes	no	1.000
26	209	DeCB	57:04	1.356e+04	1.163e+04	1.17	yes	no	1.000
27	1L	13C-2-MoCB	12:57	6.047e+04	2.149e+04	2.81	yes	no	0.743
28	3L	13C-4-MoCB	15:10	6.289e+04	2.193e+04	2.87	yes	no	0.870
29	4L	13C-22'-DiCB	15:25	3.686e+04	2.467e+04	1.49	yes	no	0.884
30	15L	13C-44'-DiCB	21:23	4.492e+04	3.132e+04	1.43	yes	no	1.227
31	19L	13C-22'6'-TrCB	18:34	2.471e+04	2.466e+04	1.00	yes	no	1.065
32	37L	13C-344'-TrCB	28:26	3.568e+04	3.708e+04	0.96	yes	no	1.083
33	54L	13C-22'66'-TeCB	21:40	2.914e+04	3.732e+04	0.78	yes	no	0.825
34	81L	13C-344'5-TeCB	35:12	2.565e+04	3.487e+04	0.74	yes	no	1.341
35	77L	13C-33'44'-TeCB	35:46	2.541e+04	3.444e+04	0.74	yes	no	1.363
36	104L	13C-22'466'-PeCB	27:12	4.308e+04	2.790e+04	1.54	yes	no	0.821
37	123L	13C-2'344'5-PeCB	37:46	3.063e+04	2.087e+04	1.47	yes	no	1.140
38	118L	13C-23'44'5-PeCB	38:06	3.200e+04	2.195e+04	1.46	yes	no	1.150
39	114L	13C-2344'5-PeCB	38:38	3.108e+04	2.144e+04	1.45	yes	no	1.166
40	105L	13C-233'44'-PeCB	39:16	3.112e+04	2.156e+04	1.44	yes	no	1.185
41	126L	13C-33'44'5-PeCB	42:21	3.382e+04	2.381e+04	1.42	yes	no	1.278
42	155L	13C-22'44'66'-HxCB	32:54	3.815e+04	3.065e+04	1.24	yes	no	0.798
43	167L	13C-23'44'55'-HxCB	44:14	2.344e+04	1.961e+04	1.19	yes	no	1.073
44	156/7	13C-233'44'5'-HxCB	45:23	4.617e+04	3.816e+04	1.21	yes	no	1.101
45	169L	13C-33'44'55'-HxCB	48:37	2.349e+04	1.939e+04	1.21	yes	no	1.180
46	188L	13C-22'34'566'-HpCB	38:38	3.098e+04	2.913e+04	1.06	yes	no	0.726
47	189La	13C-233'44'55'-HpCB	51:08	2.477e+04	2.476e+04	1.00	yes	no	0.961
48	202La	13C-22'33'55'66'-OcCB	44:00	2.332e+04	2.605e+04	0.90	yes	no	0.827
49	205L,	13C-233'44'55'6-OcCB	53:42	2.373e+04	2.633e+04	0.90	yes	no	1.009
50	208L7	13C-22'33'4'55'66'-NoCB	50:40	1.977e+04	2.478e+04	0.80	yes	no	0.952
51	206L	13C-22'33'44'55'6-NoCB	55:27	1.571e+04	2.101e+04	0.75	yes	no	1.042
52	209L	13C-DeCB	57:03	2.924e+04	2.420e+04	1.21	yes	no	1.072

53 28L	13C-244'-TrCB	24:25	3.756e+04	3.954e+04	0.95	yes	no	0.930
54111L	13C-233'55'-PeCB	35:49	3.715e+04	2.422e+04	1.53	yes	no	1.081
55178L	13C-22'33'55'6-HpCB	41:41	2.163e+04	2.034e+04	1.06	yes	no	1.011
56 9L	13C-2,5-DiCB	17:26	4.173e+04	2.869e+04	1.45	yes	no	*
57 52L	13C-22'55'-TeCB	26:15	2.583e+04	3.336e+04	0.77	yes	no	*
58101L	13C-22'4'55'-PeCB	33:08	3.082e+04	1.994e+04	1.55	yes	no	*
59138L	13C-22'3'44'5'-HxCB	41:13	2.723e+04	2.181e+04	1.25	yes	no	*
60194L	13C-22'33'44'55'-OcCB	53:14	1.697e+04	1.934e+04	0.88	yes	no	*

CCal I

PCB 77 ( ) X100÷50=

PCB 77L ( ) X100÷100=

RF = (13900+17860)/(25240+34440) X100÷50=1.06 ✓

(25410+34440)/(25830+33360) X100÷100=1.01 ✓

Ratio = 5841/7642 = 0.76 ✓

11540/14710 = 0.78 ✓

CCal II

PCB 77 RF = (5841+7642)/(11540+14710) X100÷50=1.03 ✓

PCB 77L (11540+14710)/(9585+11920) X100÷100=1.22 ✓

Ratio

CCal XII

PCB77 RF = (15480+20180)/(28550+36240) X100÷50=1.10 ✓

Ratio: 15480/20180 = 0.77 ✓

PCB 77L RF = (28550+36240)/(22690+29033) X100÷100=1.25 ✓

Ratio: 28550/36240 = 0.79 ✓

CCal XIII PCB77 RF = (20070+25320)/(36010+44720) X100÷50=1.12 ✓

Ratio 20070/25320 = 0.79 ✓

PCB 77L RF = (36010+44720)/(28360+36370) X100÷100=1.25 ✓

Ratio 36010/44720 = 0.81 ✓

see attached Calculation Verification spreadsheet

5-28-10

EDL = (68700+19400)/(707000+860000) x 200 ÷ 1.08 ÷ 5.78 ÷ 85 x 100 = 21 x 2.5 = 52.9 ✓ Sample/Client

Columbia Analytical Services, Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
C0115

Run #11 Filename U221009 #1 Samp: 1 Inj: 1 Acquired: 16-OCT-09 21:44:06

Processed: 19-OCT-09 12:32:32 LAB. ID: E0900638-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2-MoCB	1.61e+06	4.32e+03	3.7e+02	5.12e+05	3.78e+03	1.4e+02
2	4-MoCB	2.87e+06	4.32e+03	6.7e+02	8.94e+05	3.78e+03	2.4e+02
3	22'-DiCB	1.10e+06	9.96e+03	1.1e+02	7.14e+05	7.04e+04	1.0e+01
4	44'-DiCB	2.43e+07	8.14e+04	3.0e+02	1.57e+07	5.38e+04	2.9e+02
5	22'6'-TrCB	3.60e+04	1.58e+03	2.3e+01	3.15e+04	3.75e+03	8.4e+00
6	344'-TrCB	4.89e+06	2.19e+05	2.2e+01	4.65e+06	2.32e+05	2.0e+01
7	22'66'-TeCB	*	1.88e+03	*	*	1.86e+03	*
8	PCB81 344'5-TeCB	6.66e+05	6.87e+04	9.7e+00	8.42e+05	1.94e+04	4.3e+01
9	33'44'-TeCB	7.05e+05	6.87e+04	1.0e+01	8.94e+05	1.94e+04	4.6e+01
10	22'466'-PeCB	*	2.22e+03	*	*	2.94e+03	*
11	2'344'5-PeCB	1.92e+06	7.93e+04	2.4e+01	1.18e+06	3.58e+04	3.3e+01
12	23'44'5-PeCB	7.62e+07	7.93e+04	9.6e+02	4.77e+07	3.58e+04	1.3e+03
13	2344'5-PeCB	7.54e+06	7.93e+04	9.5e+01	5.06e+06	3.58e+04	1.4e+02
14	233'44'-PeCB	2.90e+07	7.93e+04	3.7e+02	1.87e+07	3.58e+04	5.2e+02
15	33'44'5-PeCB	3.39e+05	7.93e+04	4.3e+00	2.38e+05	3.58e+04	6.7e+00
16	22'44'66'-HxCB	*	2.16e+03	*	*	2.55e+03	*
17	23'44'55'-HxCB	3.36e+06	1.40e+04	2.4e+02	2.80e+06	1.50e+04	1.9e+02
18	233'44'5-HxCB	8.73e+06	1.40e+04	6.2e+02	6.75e+06	1.50e+04	4.5e+02
19	33'44'55'-HxCB	1.26e+05	1.40e+04	9.0e+00	1.00e+05	1.50e+04	6.7e+00
20	22'34'566'-HpCB	1.55e+04	1.70e+03	9.2e+00	1.27e+04	2.06e+03	6.1e+00
21	233'44'55'-HpCB	5.62e+05	9.85e+03	5.7e+01	5.63e+05	8.90e+03	6.3e+01
22	22'33'55'66'-OcCB	1.98e+05	1.83e+03	1.1e+02	2.32e+05	3.50e+03	6.6e+01
23	233'44'55'6-OcCB	8.51e+05	1.83e+03	4.7e+02	9.93e+05	3.50e+03	2.8e+02
24	22'33'4'55'66'-NoCB	6.60e+05	1.97e+03	3.4e+02	8.63e+05	3.38e+03	2.6e+02
25	22'33'44'55'6-NoCB	2.41e+06	9.54e+03	2.5e+02	3.24e+06	1.61e+04	2.0e+02
26	DeCB	6.25e+06	2.24e+04	2.8e+02	5.25e+06	1.44e+04	3.6e+02
27	13C-2-MoCB	1.43e+06	5.19e+03	2.8e+02	4.68e+05	2.27e+04	2.1e+01
28	13C-4-MoCB	1.45e+06	5.19e+03	2.8e+02	4.56e+05	2.27e+04	2.0e+01
29	13C-22'-DiCB	9.45e+05	4.50e+03	2.1e+02	6.34e+05	4.00e+03	1.6e+02
30	13C-44'-DiCB	1.08e+06	3.92e+03	2.7e+02	6.99e+05	3.05e+03	2.3e+02
31	13C-22'6'-TrCB	5.25e+05	3.72e+04	1.4e+01	5.35e+05	1.98e+04	2.7e+01
32	13C-344'-TrCB	8.87e+05	2.12e+04	4.2e+01	8.83e+05	9.48e+03	9.3e+01
33	13C-22'66'-TeCB	7.49e+05	2.82e+03	2.7e+02	9.60e+05	2.03e+03	4.7e+02
34	13C-344'5-TeCB	7.07e+05	3.02e+03	2.3e+02	8.60e+05	1.91e+03	4.5e+02
35	13C-33'44'-TeCB	6.58e+05	3.02e+03	2.2e+02	8.28e+05	1.91e+03	4.3e+02
36	13C-22'466'-PeCB	9.87e+05	1.86e+03	5.3e+02	6.60e+05	2.06e+03	3.2e+02
37	13C-2'344'5-PeCB	8.44e+05	2.62e+03	3.2e+02	5.40e+05	4.42e+03	1.2e+02
38	13C-23'44'5-PeCB	9.01e+05	2.62e+03	3.4e+02	5.91e+05	4.42e+03	1.3e+02
39	13C-2344'5-PeCB	8.26e+05	2.62e+03	3.1e+02	5.27e+05	4.42e+03	1.2e+02
40	13C-233'44'-PeCB	8.36e+05	2.62e+03	3.2e+02	8.63e+05	4.42e+03	1.9e+02
41	13C-33'44'5-PeCB	8.33e+05	2.62e+03	3.2e+02	5.35e+05	4.42e+03	1.2e+02
42	13C-22'44'66'-HxCB	8.74e+05	1.95e+03	4.5e+02	7.29e+05	1.29e+03	5.7e+02
43	13C-23'44'55'-HxCB	6.92e+05	1.70e+03	4.1e+02	5.23e+05	1.40e+03	3.7e+02
44	13C-233'44'5'-HxCB	1.00e+06	1.70e+03	5.9e+02	7.89e+05	1.40e+03	5.7e+02
45	13C-33'44'55'-HxCB	6.13e+05	1.70e+03	3.6e+02	4.62e+05	1.40e+03	3.3e+02
46	13C-22'34'566'-HpCB	6.44e+05	1.31e+03	4.9e+02	6.47e+05	1.12e+03	5.8e+02
47	13C-233'44'55'-HpCB	5.12e+05	1.80e+03	2.9e+02	4.81e+05	1.51e+03	3.2e+02
48	13C-22'33'55'66'-OcCB	4.68e+05	1.36e+03	3.4e+02	5.30e+05	1.44e+03	3.7e+02
49	13C-233'44'55'6-OcCB	4.24e+05	1.36e+03	3.1e+02	4.73e+05	1.44e+03	3.3e+02
50	13C-22'33'4'55'66'-NoCB	3.83e+05	1.50e+03	2.6e+02	5.00e+05	1.21e+03	4.1e+02

6-1-10

Sample C0116

Columbia Analytical Services, Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
C0116

EDL PCB126

Run #11 Filename U220863 #1 Samp: 1 Inj: 1 Acquired: 7-OCT-09 01:02:01

Processed: 13-OCT-09 07:49:25 LAB. ID: E0900638-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2-MoCB	1.03e+07	2.35e+03	4.4e+03	3.22e+06	2.36e+03	1.4e+03
2	4-MoCB	1.47e+07	2.35e+03	6.2e+03	4.97e+06	2.36e+03	2.1e+03
3	22'-DiCB	1.24e+06	3.72e+03	3.3e+02	8.14e+05	2.68e+04	3.0e+01
4	44'-DiCB	2.44e+07	2.92e+05	8.4e+01	1.60e+07	1.81e+05	8.9e+01
5	22'6'-TrCB	3.09e+04	1.49e+03	2.1e+01	2.86e+04	2.35e+03	1.2e+01
6	344'-TrCB	3.49e+06	6.09e+05	5.7e+00	3.36e+06	5.70e+05	5.9e+00
7	22'66'-TeCB	*	3.11e+03	*	*	4.51e+03	*
8	344'5-TeCB	3.35e+05	2.36e+04	1.4e+01	4.45e+05	5.91e+04	7.5e+00
9	33'44'-TeCB	3.14e+05	2.36e+04	1.3e+01	4.12e+05	5.91e+04	7.0e+00
10	22'466'-PeCB	*	1.72e+03	*	*	1.95e+03	*
11	2'344'5-PeCB	4.64e+05	2.81e+04	1.7e+01	2.77e+05	2.18e+04	1.3e+01
12	23'44'5-PeCB	1.05e+07	2.81e+04	3.7e+02	6.74e+06	2.18e+04	3.1e+02
13	2344'5-PeCB	4.11e+06	2.81e+04	1.5e+02	2.52e+06	2.18e+04	1.2e+02
14	233'44'-PeCB	1.60e+06	2.81e+04	5.7e+01	1.03e+06	2.18e+04	4.7e+01
15	PCB 126 33'44'5-PeCB	*	2.81e+04	*	*	2.18e+04	*
16	22'44'66'-HxCB	*	2.30e+03	*	*	5.49e+03	*
17	23'44'55'-HxCB	7.73e+05	4.12e+04	1.9e+01	6.16e+05	3.19e+04	1.9e+01
18	233'44'5-HxCB	1.62e+06	4.12e+04	3.9e+01	1.27e+06	3.19e+04	4.0e+01
19	33'44'55'-HxCB	*	4.12e+04	*	*	3.19e+04	*
20	22'34'566'-HpCB	2.91e+04	1.84e+03	1.6e+01	3.20e+04	3.59e+03	8.9e+00
21	233'44'55'-HpCB	3.07e+05	2.51e+04	1.2e+01	3.04e+05	2.67e+04	1.1e+01
22	22'33'55'66'-OcCB	5.65e+04	1.25e+04	4.5e+00	8.19e+04	8.61e+03	9.5e+00
23	233'44'55'6-OcCB	6.98e+05	1.25e+04	5.6e+01	7.98e+05	8.61e+03	9.3e+01
24	22'33'4'55'66'-NoCB	5.36e+05	3.70e+03	1.4e+02	7.15e+05	6.94e+03	1.0e+02
25	22'33'44'55'6-NoCB	1.47e+06	4.20e+04	3.5e+01	1.96e+06	6.47e+04	3.0e+01
26	DeCB	2.54e+06	9.02e+04	2.8e+01	2.12e+06	6.22e+04	3.4e+01
27	13C-2-MoCB	2.14e+06	2.45e+03	8.7e+02	7.24e+05	9.58e+04	7.6e+00
28	13C-4-MoCB	2.35e+06	2.45e+03	9.6e+02	7.36e+05	9.58e+04	7.7e+00
29	13C-22'-DiCB	1.02e+06	3.51e+03	2.9e+02	6.73e+05	2.08e+03	3.2e+02
30	13C-44'-DiCB	2.15e+06	4.20e+03	5.1e+02	1.35e+06	2.63e+03	5.1e+02
31	13C-22'6'-TrCB	1.16e+06	4.17e+04	2.8e+01	1.15e+06	2.75e+04	4.2e+01
32	13C-344'-TrCB	1.80e+06	1.30e+04	1.4e+02	1.72e+06	9.09e+03	1.9e+02
33	13C-22'66'-TeCB	1.07e+06	3.65e+03	2.9e+02	1.41e+06	2.58e+03	5.5e+02
34	13C-344'5-TeCB	1.31e+06	2.66e+03	4.9e+02	1.70e+06	2.43e+03	7.0e+02
35	13C-33'44'-TeCB	7.68e+05	2.66e+03	2.9e+02	9.91e+05	2.43e+03	4.1e+02
36	13C-22'466'-PeCB	1.75e+06	1.14e+03	1.5e+03	1.20e+06	1.36e+03	8.8e+02
37	13C-2'344'5-PeCB	1.57e+06	3.30e+03	4.8e+02	9.67e+05	3.18e+04	3.0e+01
38	13C-23'44'5-PeCB	1.69e+06	3.30e+03	5.1e+02	1.05e+06	3.18e+04	3.3e+01
39	13C-2344'5-PeCB	1.57e+06	3.30e+03	4.7e+02	9.93e+05	3.18e+04	3.1e+01
40	PCB 126L 13C-233'44'-PeCB	6.22e+05	3.30e+03	1.9e+02	1.38e+06	3.18e+04	4.3e+01
41	13C-33'44'5-PeCB	1.46e+06	3.30e+03	4.4e+02	9.23e+05	3.18e+04	2.9e+01
42	13C-22'44'66'-HxCB	1.62e+06	1.67e+03	9.7e+02	1.26e+06	1.86e+03	6.8e+02
43	13C-23'44'55'-HxCB	1.29e+06	2.17e+03	6.0e+02	1.04e+06	2.82e+03	3.7e+02
44	13C-233'44'5'-HxCB	1.78e+06	2.17e+03	8.2e+02	1.43e+06	2.82e+03	5.1e+02
45	13C-33'44'55'-HxCB	1.05e+06	2.17e+03	4.9e+02	8.09e+05	2.82e+03	2.9e+02
46	13C-22'34'566'-HpCB	1.22e+06	3.08e+03	4.0e+02	1.17e+06	1.11e+04	1.1e+02
47	13C-233'44'55'-HpCB	8.51e+05	1.86e+03	4.6e+02	8.35e+05	3.10e+03	2.7e+02
48	13C-22'33'55'66'-OcCB	8.86e+05	1.74e+03	5.1e+02	9.91e+05	1.19e+03	8.3e+02
49	13C-233'44'55'6-OcCB	6.43e+05	1.74e+03	3.7e+02	7.47e+05	1.19e+03	6.3e+02
50	13C-22'33'4'55'66'-NoCB	6.66e+05	1.94e+03	3.4e+02	8.60e+05	1.39e+03	6.2e+02

RF 1.3

51	13C-22'33'44'55'6-NoCB	4.31e+05	2.35e+03	1.8e+02	5.72e+05	1.72e+03	3.3e+02
52	13C-DeCB	6.89e+05	1.65e+03	4.2e+02	6.10e+05	1.47e+03	4.1e+02
53	13C-244'-TrCB	1.90e+06	1.30e+04	1.5e+02	1.85e+06	9.09e+03	2.0e+02
54	13C-233'55'-PeCB	9.29e+05	2.47e+03	3.8e+02	5.92e+05	3.92e+03	1.5e+02
55	13C-22'33'55'6-HpCB	8.46e+05	3.08e+03	2.7e+02	8.14e+05	1.11e+04	7.3e+01
56	13C-2,5-DiCB	3.77e+06	4.20e+03	9.0e+02	2.41e+06	2.63e+03	9.1e+02
57	13C-22'55'-TeCB	1.64e+06	1.82e+03	9.1e+02	2.16e+06	1.59e+03	1.4e+03
58	13C-22'4'55'-PeCB	2.01e+06	2.47e+03	8.1e+02	1.28e+06	3.92e+03	3.3e+02
59	13C-22'3'44'5'-HxCB	1.59e+06	2.88e+03	5.5e+02	1.26e+06	4.04e+03	3.1e+02
60	13C-22'33'44'55'-OcCB	7.58e+05	1.74e+03	4.4e+02	8.72e+05	1.19e+03	7.3e+02

$$(EDL) = \frac{(28100 + 21800)}{(1460000 + 923000)} \times 20000 \div 1.03 \div 6.17 \div 59 \times 100$$

$$= 11$$

EDL $\times 2.5 = 27.9$ ✓

6-1-2010

Region I

Data Review Worksheet

XIV. Sample Analysis and Identification

List any sample and analytes which did not meet identification criteria:

SAMPLE Nos.															
NATIVE ANALYTES	RT	S/N	Ion Ratio	QC Limits	RT	S/N	Ion Ratio	QC Limits	RT	S/N	Ion Ratio	QC Limits	RT	S/N	Ion Ratio	QC Limits

1) Lab reported EMPCs flagged with an "X" on the forms. EMPCs are flagged * on DST.

2) Lab noted in SDG narrative the presence of matrix interference despite multiple cleanups. However no results were flagged. Since only Toxics & Total Homologues were required & labeled Toxics met recovery criteria no DV action was taken.

Validator: [signature]

Date: 6/15/10

Total Toxic Equivalency Worksheet

SITE: Chlor Alkali, Berlin, NH
CASE NO. CB002, SDG C0115
LABORATORY: Columbia Analytical Services (CAS), Houston, TX

Sample No.:		C0115	C0116	C0117	C0118	C0120	C0121	C0119
Lab ID:		E0900638-001	E0900638-002	E0900638-003	E0900638-004	E0900638-006	E0900638-007	E0900638-005
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Water
Chemical Name	2378-TCDD Equiv. Factr. (1)	Conc. ng/kg	Conc. ng/kg	Conc. ng/kg	Conc. ng/kg	Conc. ng/kg	Conc. ng/kg	Conc. pg/L
PCB 81	0.0003	369	148	172	65.4	0	0	0
PCB 77	0.0001	470	327	411	245	530	777	22.2
PCB 123	0.00003	807	149	455	349	1220	1960	84.2
PCB 118	0.00003	26500	2870	20200	15000	85300	123000	1540
PCB 114	0.00003	3470	1320	1630	764	1820	2540	0
PCB 105	0.00003	12500	713	8210	6240	38900	58800	649
PCB 126	0.1	185	0	167	165	108	170	0
PCB 167	0.00003	2220	397	2160	1830	3760	6670	55.1
PCBs 156 + 157	0.00003	6080	844	4820	3880	17300	38400	186
PCB 169	0.03	136	0	105	88.3	19.2	139	0
PCB 189	0.00003	539	238	739	682	411	1240	0
Total Toxic Equivalent to 2378-TCDD (1)		24.3	0.273	21.1	20.1	15.9	28.2	0.0776

*The laboratory reports PCB 156 as a coeluting pair with PCB 157.

(1) The Toxic Equivalent concentrations are calculated with the Toxicity Equivalency Factors (TEFs) found in "The 2005 World Health Organization Re-evaluation of Human and a Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds, Society of Toxicology, July 7, 2006.

SUPPORT DOCUMENTATION

ANALYTICAL METHOD

Nobis Engineering, Inc's Quality Assurance Project Plan,
Soil and Groundwater Investigation, Chlor-Alkali Facility Superfund Site,
Berlin, New Hampshire, October 2009
can be found in the supporting document attachments to TDF 1725
(Case CB002, SDG C0100)

COMMUNICATIONS

TechLaw
Quality & Integrity

175 Cabot Street, Suite 415
Lowell. MA 01854-3650
978-275-9730
978-275-9489 FAX
www.techlawinc.com

May 28, 2010

TO: Dr. Steve Stodola, U.S. EPA, Region I

FROM: Jim Chen - TechLaw ESAT Region I

VIA: Louis Macri - ESAT Program Team Manager Region I

SUBJECT: Task Order No.: 45, Task No.: 1, TDF No.: 1740
PCB Congener Tier III Data Validation
Chlor-Alkali Facility
Request for Additional Information
Case No.: CB002, SDG No.: C0115, Service Request No.: E0900638
Columbia Analytical Services, Inc., Houston, TX
Contact: Darren Biles, Project Chemist
Phone: (713)266-1599 ext.2954; E-mail: DBiles@caslab.com

Dear Dr. Stodola:

The data validation revealed missing information and discrepancies in the data package submitted by the laboratory. The following missing information and/or discrepancies are noted.

1. The recoveries for the clean-up standards were not summarized on the Form 1s for any of the samples. Please ask the laboratory to provide the recoveries for all clean-up standards in all samples.
2. The Estimated Detection Limits (EDL) were not entered on the Form I CB-1 for any of the non-detected (U) results. Please ask the Laboratory to provide corrected forms as necessary.
3. Decachlorobiphenyl results and EDLs were not reported in the EDD spreadsheet for all samples. Please ask the Laboratory to provide a corrected EDD spreadsheet.

Please contact Jim Chen at (978)275-9730 x207 or Robert Peary at (978)275-9730 x202 should you require any additional information.

Very truly yours,
TechLaw

Jim Chen
Chemist

Peary, Rob

From: stodola.steve@epamail.epa.gov
Sent: Tuesday, June 01, 2010 11:15 AM
To: DBiles@caslab.com
Subject: Request for information for Case CB002, C0115; E0900638

Darren:

Data validation uncovered missing information and discrepancies in the data package submitted by the laboratory. The following missing information and/or discrepancies are noted.

1. The recoveries for the clean-up standards were not summarized on the Form 1s for any of the samples. Please provide the recoveries for clean-up standards in all samples.

2. The Estimated Detection Limits (EDL) were not entered on the Form I CB-1 for any of the non-detected (U) results. Please provide corrected forms as necessary.

3. Decachlorobiphenyl results and EDLs were not reported in the EDD spreadsheet for all samples. Please provide a corrected EDD spreadsheet.

Thanks for your help in resolving these items.

Steve Stodola, QA Chemist, Region I

rec'd 6/15/10 SA

19408 Park Row Suite 320 Houston, TX 77084 (713) 266-1599 (713) 266-0130 fax

Columbia Analytical Services™
An Employee - Owned Company

June 14th, 2010 Service Request No: E0900638

Steve Stodola
US Environmental Protection Agency
11 Technology Drive
N. Chelmsford, MA 01863

Amended/Additional Data for:CB002, C0115

Dear Steve:

Enclosed are the amended results/missing data for SDG C0115 that you requested. On the next page you will find a hard copy of the email sent to you in response to your questions/notes; please refer to this for explanation. On the following pages you will find:

1-9	Corrected Forms II CB-1
10-23	CAS Houston forms with EDLs
24-35	CAS Houston forms with clean-up recoveries

Please contact me if you have any questions. My extension is 2954. You may also contact me via email at DBiles@caslab.com.

Columbia Analytical Services, Inc.

Darren Biles
Project Chemist

Hi Steve,
The following are responses to your inquiries:

1. The Form I CB-1 in the SOW version referenced in Work Order EP09W001490 (CBC01.0) does not include a section for reporting the clean-up standard recoveries, which is why they are not included in report E1000638. Included in the amended report is a form in our standard report format that reports the clean-up standard recoveries.

2. The Form I CB-1 in the SOW version referenced in Work Order EP09W001490 (CBC01.0) does not include a section for reporting the EDLs, which is why they are not included in report E1000638. Included in the amended report is a form in our standard report format that reports the EDLs.

1. Upon investigation of #3, it was discovered that that result for Decachlorobiphenyl for all samples was reported incorrectly. See the amended report for the corrected Form II CB-1 and amended EDD. Note that the Total PCBs changed for some samples.

Please let me know if you need anything else.

Darren Biles
HRGC/HRMS/Project Chemist

Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
713-266-1599 (office)
281-994-2954 (direct)
www.caslab.com

-----Original Message-----
From: stodola.steve@epamail.epa.gov [mailto:stodola.steve@epamail.epa.gov]
Sent: Tuesday, June 01, 2010 10:15 AM
To: Darren Biles
Subject: Request for information for Case CB002, C0115; E0900638

Darren:

Data validation uncovered missing information and discrepancies in the data package submitted by the laboratory. The following missing information and/or discrepancies are noted.

1. The recoveries for the clean-up standards were not summarized on the Form 1s for any of the samples. Please provide the recoveries for clean-up standards in all samples.

2. The Estimated Detection Limits (EDL) were not entered on the

Form I CB-1 for any of the non-detected (U) results. Please provide corrected forms as necessary.

3. Decachlorobiphenyl results and EDLs were not reported in the EDD spreadsheet for all samples. Please provide a corrected EDD spreadsheet.

Thanks for your help in resolving these items.

Steve Stodola, QA Chemist, Region I

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0115

Lab Name: Columbia Analytical Services | Contract: EP09W001490

Lab Code: TX01411 | Case No.: CB002 | TO No. | SDG No.: C0115

Matrix: SOIL (Soil/Water/Ash/Tissue/Oil) | Lab Sample ID: E0900638-001

Sample wt/vol: 5.778 (g/ml) g | Lab File ID: U221009

Decanted (Y/N): N | Ext. (Type): SOXH | Date Received: 08/13/2009

Concentrated Extract Volume: 20.0 (ul) | Date Extracted: 08/20/2009

Inj. Vol: 1.0 (ul) | Cleanup (type): SILICA | Date Analyzed: 10/16/2009

GC Col.: SPB-Octyl | ID: 0.25 (mm) | Dilution Factor: 1.0

Concentration Units: (pg/L or ng/Kg) ng/Kg | % Solids/Lipids: 85.0

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	1.28E+03	
Total DiCB	7	1.18E+04	
Total TriCB	19	1.75E+04	
Total TetraCB	35	5.80E+04	
Total PentaCB	29	1.79E+05	
Total HexaCB	37	1.38E+05	
Total HeptaCB	23	2.96E+04	
Total OctaCB	12	1.00E+04	
Total NonaCB	3	5.80E+03	
Decachlorobiphenyl	1	5.76E+03	
Total PCBs	169	4.57E+05	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0116

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411 Case No.: CB002	TO No.	SDG No.: C0115
Matrix:	SOIL (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-002
Sample wt/vol:	6.165 (g/ml) g	Lab File ID:	U220863
Decanted (Y/N):	N Ext. (Type): SOXH	Date Received:	08/13/2009
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/20/2009
Inj. Vol:	1.0 (ul) Cleanup (type): SILICA	Date Analyzed:	10/07/2009
GC Col.:	SPB-Octyl ID: 0.25 (mm)	Dilution Factor:	1.0

Concentration Units: (pg/L or ng/Kg) ng/Kg % Solids/Lipids: 59.0

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	6.39E+03	
Total DiCB	12	1.15E+04	
Total TriCB	17	1.04E+04	
Total TetraCB	31	1.33E+04	
Total PentaCB	23	1.77E+04	
Total HexaCB	27	1.42E+04	
Total HeptaCB	16	6.43E+03	
Total OctaCB	9	3.26E+03	
Total NonaCB	3	3.64E+03	
Decachlorobiphenyl	1	2.01E+03	
Total PCBs	142	8.89E+04	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0117

Lab Name: Columbia Analytical Services | Contract: EP09W001490

Lab Code: TX01411 | Case No.: CB002 | TO No. | SDG No.: C0115

Matrix: SOIL (Soil/Water/Ash/Tissue/Oil) | Lab Sample ID: E0900638-003

Sample wt/vol: 5.417 (g/ml) g | Lab File ID: U133538

Decanted (Y/N): N | Ext. (Type): SOXH | Date Received: 08/13/2009

Concentrated Extract Volume: 20.0 (ul) | Date Extracted: 08/20/2009

Inj. Vol: 1.0 (ul) | Cleanup (type): SILICA | Date Analyzed: 10/21/2009

GC Col.: SPB-Octyl | ID: 0.25 (mm) | Dilution Factor: 1.0

Concentration Units: (pg/L or ng/Kg) ng/Kg | % Solids/Lipids: 90.8

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	6.91E+02	
Total DiCB	11	7.04E+03	
Total TriCB	23	7.49E+03	
Total TetraCB	35	3.29E+04	
Total PentaCB	32	1.50E+05	
Total HexaCB	34	2.37E+05	
Total HeptaCB	10	2.95E+04	
Total OctaCB	11	3.41E+04	
Total NonaCB	3	4.26E+03	
Decachlorobiphenyl	1	2.53E+03	
Total PCBs	163	5.06E+05	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0118

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411 Case No.: CB002	TO No.	SDG No.: C0115
Matrix:	SOIL (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-004
Sample wt/vol:	5.524 (g/ml) g	Lab File ID:	U220853
Decanted (Y/N):	N Ext. (Type): SOXH	Date Received:	08/13/2009
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/20/2009
Inj. Vol:	1.0 (ul) Cleanup (type): SILICA	Date Analyzed:	10/06/2009
GC Col.:	SPB-Octyl ID: 0.25 (mm)	Dilution Factor:	1.0

Concentration Units: (pg/L or ng/Kg) ng/Kg % Solids/Lipids: 93.4

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	5.42E+02	
Total DiCB	3	3.31E+03	
Total TriCB	15	3.27E+03	
Total TetraCB	22	2.29E+04	
Total PentaCB	26	1.12E+05	
Total HexaCB	27	2.03E+05	
Total HeptaCB	19	1.39E+05	
Total OctaCB	10	2.68E+04	
Total NonaCB	6	3.23E+03	
Decachlorobiphenyl	1	1.32E+03	
Total PCBs	132	5.15E+05	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0119

Lab Name: Columbia Analytical Services | Contract: EP09W001490

Lab Code: TX01411 | Case No.: CB002 | TO No. | SDG No.: C0122

Matrix: WATER (Soil/Water/Ash/Tissue/Oil) | Lab Sample ID: E0900638-005

Sample wt/vol: 930 (g/ml) mL | Lab File ID: U220346

Decanted (Y/N): Y | Ext. (Type): SOXH | Date Received: 08/13/2009

Concentrated Extract Volume: 20.0 (ul) | Date Extracted: 08/25/2009

Inj. Vol: 1.0 (ul) | Cleanup (type): SILICA | Date Analyzed: 09/06/2009

GC Col.: SPB-Octyl | ID: 0.25 (mm) | Dilution Factor: 1.0

Concentration Units: (pg/L or ng/Kg) pg/L | % Solids/Lipids:

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB			
Total DiCB			
Total TriCB			
Total TetraCB	12	2.93E+03	
Total PentaCB	14	7.75E+03	
Total HexaCB	9	3.33E+03	
Total HeptaCB			
Total OctaCB			
Total NonaCB			
Decachlorobiphenyl	1	2.49E+01	
Total PCBs	36	1.40E+04	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0120

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411 Case No.: CB002 TO No.	SDG No.:	C0115
Matrix:	SOIL (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-006
Sample wt/vol:	6.390 (g/ml) g	Lab File ID:	U220882
Decanted (Y/N):	N Ext. (Type): SOXH	Date Received:	08/13/2009
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/20/2009
Inj. Vol:	1.0 (ul) Cleanup (type): SILICA	Date Analyzed:	10/08/2009
GC Col.:	SPB-Octyl ID: 0.25 (mm)	Dilution Factor:	1.0
Concentration Units: (pg/L or ng/Kg)	ng/Kg	% Solids/Lipids:	73.5

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	7.33E+01	
Total DiCB	4	2.73E+02	
Total TriCB	12	1.58E+03	
Total TetraCB	21	1.08E+05	
Total PentaCB	27	4.33E+05	
Total HexaCB	26	3.17E+05	
Total HeptaCB	23	4.33E+04	
Total OctaCB	10	5.51E+03	
Total NonaCB	3	8.40E+02	
Decachlorobiphenyl	1	1.51E+02	
Total PCBs	130	9.10E+05	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0121

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411 Case No.: CB002	TO No.	SDG No.: C0115
Matrix:	SOIL (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-007
Sample wt/vol:	5.467 (g/ml) g	Lab File ID:	U220854
Decanted (Y/N):	N Ext. (Type): SOXH	Date Received:	08/13/2009
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/20/2009
Inj. Vol:	1.0 (ul) Cleanup (type): SILICA	Date Analyzed:	10/06/2009
GC Col.:	SPB-Octyl ID: 0.25 (mm)	Dilution Factor:	1.0
Concentration Units: (pg/L or ng/Kg)	ng/Kg	% Solids/Lipids:	89.1

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	1.42E+02	
Total DiCB	3	5.00E+02	
Total TriCB	14	2.84E+03	
Total TetraCB	26	1.76E+05	
Total PentaCB	25	6.48E+05	
Total HexaCB	27	7.38E+05	
Total HeptaCB	24	2.38E+05	
Total OctaCB	10	3.31E+04	
Total NonaCB	5	5.78E+03	
Decachlorobiphenyl	1	2.70E+03	
Total PCBs	138	1.85E+06	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

CBLK01

Lab Name: Columbia Analytical Services | Contract: EP09W001490

Lab Code: TX01411 | Case No.: CB002 | TO No. | SDG No.: C0115

Matrix: SOIL (Soil/Water/Ash/Tissue/Oil) | Lab Sample ID: EQ0900323-01

Sample wt/vol: 5.000 (g/ml) g | Lab File ID: U220297

Decanted (Y/N): N | Ext. (Type): SOXH | Date Received:

Concentrated Extract Volume: 20.0 (ul) | Date Extracted: 08/20/2009

Inj. Vol: 1.0 (ul) | Cleanup (type): SILICA | Date Analyzed: 09/02/2009

GC Col.: SPB-Octyl | ID: 0.25 (mm) | Dilution Factor: 1.0

Concentration Units: (pg/L or ng/Kg) ng/Kg | % Solids/Lipids: 100.0

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB		0.00E+00	
Total DiCB	1	1.86E+02	
Total TriCB	7	7.22E+01	
Total TetraCB	11	2.62E+02	
Total PentaCB	12	8.68E+02	
Total HexaCB	12	4.03E+02	
Total HeptaCB	8	6.50E+01	
Total OctaCB	5	2.41E+01	
Total NonaCB	3	3.58E+01	
Decachlorobiphenyl		0.00E+00	
Total PCBs	59	1.92E+03	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

CBLK02

Lab Name: Columbia Analytical Services | Contract: EP09W001490

Lab Code: TX01411 | Case No.: CB002 | TO No. | SDG No.: C0115

Matrix: WATER (Soil/Water/Ash/Tissue/Oil) | Lab Sample ID: EQ0900337-01

Sample wt/vol: 1000 (g/ml) mL | Lab File ID: U220375

Decanted (Y/N): Y | Ext. (Type): SEPF | Date Received:

Concentrated Extract Volume: 20.0 (ul) | Date Extracted: 08/25/2009

Inj. Vol: 1.0 (ul) | Cleanup (type): SILICA | Date Analyzed: 09/09/2009

GC Col.: SPB-Octyl | ID: 0.25 (mm) | Dilution Factor: 1.0

Concentration Units: (pg/L or ng/Kg) pg/L | % Solids/Lipids: 0.0

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB		0.00E+00	
Total DiCB	1	9.38E+02	
Total TriCB	9	7.58E+02	
Total TetraCB	8	7.74E+02	
Total PentaCB	11	1.98E+03	
Total HexaCB	12	8.50E+02	
Total HeptaCB	2	6.07E+01	
Total OctaCB		0.00E+00	
Total NonaCB	1	3.04E+01	
Decachlorobiphenyl	1	1.15E+01	
Total PCBs	45	5.40E+03	

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1140
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0115	**Units:**	ng/Kg
Lab Code:	E0900638-001	**Basis:**	Dry
		Percent Solids:	85.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/16/09 2144
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.778g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U221009	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U221005

Analyte Name	EDL
PCB 81	53.0
PCB 77	58.7
PCB 123	80.0
PCB 118	71.4
PCB 114	81.2
PCB 105	86.1
PCB 126	82.7
PCB 167	23.5
PCBs 156 + 157	31.9
PCB 169	26.9
PCB 189	22.1
PCB 209	46.0

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1140
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0115	**Units:**	ng/Kg
Lab Code:	E0900638-001	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	85.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/14/09 2148
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.778g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220970	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220966

Analyte Name	EDL
PCB 81	99.1
PCB 77	112
PCB 123	53.1
PCB 118	41.9
PCB 114	56.5
PCB 105	50.1
PCB 126	48.8
PCB 167	41.5
PCBs 156 + 157	57.6
PCB 169	45.6
PCB 189	31.4
PCB 209	45.5

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1220
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0116	**Units:**	ng/Kg
Lab Code:	E0900638-002	**Basis:**	Dry
		Percent Solids:	59.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/7/09 0102
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.165g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220863	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220856

Analyte Name	EDL
PCB 81	35.0
PCB 77	62.8
PCB 123	25.6
PCB 118	23.0
PCB 114	25.1
PCB 105	31.5
PCB 126	28.0
PCB 167	41.8
PCBs 156 + 157	60.8
PCB 169	53.1
PCB 189	48.4
PCB 209	163

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0915
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0117	**Units:**	ng/Kg
Lab Code:	E0900638-003	**Basis:**	Dry
		Percent Solids:	90.8

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/21/09 0443
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.417g	**Instrument Name:**	E-HRMS-01
		GC Column:	SPB-OCTYL
Data File Name:	U133538	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U133528

Analyte Name	EDL
PCB 81	18.9
PCB 77	20.5
PCB 123	45.2
PCB 118	41.4
PCB 114	48.1
PCB 105	43.5
PCB 126	46.8
PCB 167	30.9
PCBs 156 + 157	43.2
PCB 169	36.3
PCB 189	17.7
PCB 209	13.1

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0915
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0117	**Units:**	ng/Kg
Lab Code:	E0900638-003	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	90.8

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/14/09 2256
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.417g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220971	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220966

Analyte Name	EDL
PCB 81	32.0
PCB 77	36.6
PCB 123	56.6
PCB 118	50.6
PCB 114	61.3
PCB 105	56.9
PCB 126	60.8
PCB 167	48.7
PCBs 156 + 157	72.7
PCB 169	61.6
PCB 189	23.2
PCB 209	15.8

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0920
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0118	**Units:**	ng/Kg
Lab Code:	E0900638-004	**Basis:**	Dry
		Percent Solids:	93.4

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/6/09 1243
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.524g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220853	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220849

Analyte Name	EDL
PCB 81	8.51
PCB 77	9.79
PCB 123	8.48
PCB 118	7.70
PCB 114	8.40
PCB 105	8.39
PCB 126	8.83
PCB 167	8.29
PCBs 156 + 157	12.0
PCB 169	10.1
PCB 189	7.93
PCB 209	9.63

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0920
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0118	**Units:**	ng/Kg
Lab Code:	E0900638-004	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	93.4

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/22/09 1614
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.524g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U221063	**Blank File Name:**	U220297
ICAL Date:	10/19/09	**Cal Ver. File Name:**	U221060

Analyte Name	EDL
PCB 81	126
PCB 77	143
PCB 123	192
PCB 118	170
PCB 114	195
PCB 105	197
PCB 126	180
PCB 167	69.4
PCBs 156 + 157	94.6
PCB 169	79.1
PCB 189	106
PCB 209	145

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/ 4/09 1030
Sample Matrix:	Water	**Date Received:**	8/13/09
Sample Name:	C0119	**Units:**	pg/L
Lab Code:	E0900638-005	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/6/09 1227
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	930mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220346	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220342

Analyte Name	EDL
PCB 81	14.8
PCB 77	15.0
PCB 123	29.7
PCB 118	26.0
PCB 114	29.1
PCB 105	28.3
PCB 126	28.8
PCB 167	18.0
PCBs 156 + 157	24.4
PCB 169	19.9
PCB 189	12.3
PCB 209	8.92

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1520
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0120	**Units:**	ng/Kg
Lab Code:	E0900638-006	**Basis:**	Dry
		Percent Solids:	73.5

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/8/09 0059
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.390g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220882	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220877

Analyte Name	EDL
PCB 81	7.52
PCB 77	8.12
PCB 123	9.51
PCB 118	8.28
PCB 114	9.57
PCB 105	8.95
PCB 126	9.79
PCB 167	3.99
PCBs 156 + 157	5.74
PCB 169	4.67
PCB 189	5.94
PCB 209	0.901

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1520
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0120	**Units:**	ng/Kg
Lab Code:	E0900638-006	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	73.5

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/30/09 2105
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.390g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U221159	**Blank File Name:**	U220297
ICAL Date:	10/19/09	**Cal Ver. File Name:**	U221157

Analyte Name	EDL
PCB 81	32.7
PCB 77	35.3
PCB 123	71.9
PCB 118	59.8
PCB 114	73.0
PCB 105	70.5
PCB 126	63.6
PCB 167	18.3
PCBs 156 + 157	25.6
PCB 169	19.4
PCB 189	27.5
PCB 209	19.9

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 1535
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0121	**Units:**	ng/Kg
Lab Code:	E0900638-007	**Basis:**	Dry
		Percent Solids:	89.1

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/6/09 1352
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.467g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220854	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220849

Analyte Name	EDL
PCB 81	9.33
PCB 77	10.3
PCB 123	3.94
PCB 118	3.52
PCB 114	4.14
PCB 105	4.02
PCB 126	4.52
PCB 167	6.73
PCBs 156 + 157	12.5
PCB 169	9.68
PCB 189	17.9
PCB 209	4.61

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 1535
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0121	**Units:**	ng/Kg
Lab Code:	E0900638-007	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	89.1

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/15/09 0004
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.467g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220972	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220966

Analyte Name	EDL
PCB 81	37.6
PCB 77	45.4
PCB 123	94.8
PCB 118	78.8
PCB 114	103
PCB 105	92.3
PCB 126	98.6
PCB 167	88.3
PCBs 156 + 157	160
PCB 169	122
PCB 189	51.2
PCB 209	39.8

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ0900323-01	**Basis:**	Dry

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/2/09 1946
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.000g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220297	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220295

Analyte Name	EDL
PCB 81	1.81
PCB 77	2.09
PCB 123	3.82
PCB 118	3.16
PCB 114	3.37
PCB 105	3.47
PCB 126	3.17
PCB 167	3.04
PCBs 156 + 157	3.90
PCB 169	3.11
PCB 189	1.24
PCB 209	0.623

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ0900337-01	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/9/09 1131
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220375	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220374

Analyte Name	EDL
PCB 81	5.81
PCB 77	5.93
PCB 123	16.1
PCB 118	14.8
PCB 114	15.3
PCB 105	14.2
PCB 126	13.8
PCB 167	6.95
PCBs 156 + 157	9.14
PCB 169	6.31
PCB 189	6.38
PCB 209	3.95

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1140
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0115	**Units:**	Percent
Lab Code:	E0900638-001	**Basis:**	Dry
		Percent Solids:	85.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/16/09 2144
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.778g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U221009	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U221005

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1392.879	70		25-150	0.80	1.325
PCB 77L	2000	1344.650	67		25-150	0.79	1.345
PCB 123L	2000	1216.935	61		25-150	1.56	1.135
PCB 118L	2000	1387.620	69		25-150	1.34	1.144
PCB 114L	2000	1192.718	60		25-150	1.56	1.159
PCB 105L	2000	1259.936	63		25-150	0.81	1.178
PCB 126L	2000	1405.253	70		25-150	1.61	1.267
PCB 167L	2000	1188.013	59		25-150	1.30	1.071
PCBs 156L + 157L	4000	2421.193	61		25-150	1.32	1.098
PCB 169L	2000	1256.933	63		25-150	1.35	1.173
PCB 189L	2000	1281.100	64		25-150	1.07	0.962
PCB 28L	2000	1046.551	52		30-135	1.04	0.933
PCB 111L	2000	1102.348	55		30-135	1.61	1.078
PCB 178L	2000	988.797	49		30-135	1.01	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1220
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0116	**Units:**	Percent
Lab Code:	E0900638-002	**Basis:**	Dry
		Percent Solids:	59.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/7/09 0102
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.165g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220863	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220856

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1550.354	78		25-150	0.78	1.324
PCB 77L	2000	946.862	47		25-150	0.77	1.344
PCB 123L	2000	1326.827	66		25-150	1.63	1.134
PCB 118L	2000	1515.371	76		25-150	1.35	1.144
PCB 114L	2000	1303.053	65		25-150	1.60	1.159
PCB 105L	2000	1212.729	61		25-150	0.44	1.178
PCB 126L	2000	1401.521	70		25-150	1.55	1.266
PCB 167L	2000	1401.171	70		25-150	1.25	1.070
PCBs 156L + 157L	4000	2814.291	70		25-150	1.24	1.097
PCB 169L	2000	1336.734	67		25-150	1.29	1.172
PCB 189L	2000	1466.763	73		25-150	1.00	0.962
PCB 28L	2000	1240.277	62		30-135	1.02	0.933
PCB 111L	2000	738.616	37		30-135	1.58	1.077
PCB 178L	2000	1240.150	62		30-135	1.05	1.011

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0915
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0117	**Units:**	Percent
Lab Code:	E0900638-003	**Basis:**	Dry
		Percent Solids:	90.8

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/21/09 0443
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.417g	**Instrument Name:**	E-HRMS-01
		GC Column:	SPB-OCTYL
Data File Name:	U133538	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U133528

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1423.439	71		25-150	0.73	1.341
PCB 77L	2000	1375.843	69		25-150	0.75	1.363
PCB 123L	2000	1199.832	60		25-150	1.45	1.140
PCB 118L	2000	1197.192	60		25-150	1.41	1.150
PCB 114L	2000	1108.912	55		25-150	1.45	1.167
PCB 105L	2000	1182.290	59		25-150	1.44	1.186
PCB 126L	2000	1119.844	56		25-150	1.47	1.279
PCB 167L	2000	1028.623	51		25-150	1.24	1.074
PCBs 156L + 157L	4000	1975.920	49		25-150	1.22	1.101
PCB 169L	2000	917.450	46		25-150	1.20	1.180
PCB 189L	2000	1172.527	59		25-150	1.04	0.961
PCB 28L	2000	1267.092	63		30-135	0.98	0.930
PCB 111L	2000	1311.228	66		30-135	1.55	1.082
PCB 178L	2000	1183.527	59		30-135	1.02	1.011

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0920
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0118	**Units:**	Percent
Lab Code:	E0900638-004	**Basis:**	Dry
		Percent Solids:	93.4

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/6/09 1243
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.524g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220853	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220849

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1794.484	90		25-150	0.78	1.324
PCB 77L	2000	1716.964	86		25-150	0.77	1.345
PCB 123L	2000	1550.472	78		25-150	1.61	1.133
PCB 118L	2000	1622.878	81		25-150	1.61	1.143
PCB 114L	2000	1495.249	75		25-150	1.59	1.158
PCB 105L	2000	1562.388	78		25-150	1.51	1.177
PCB 126L	2000	1710.498	86		25-150	1.56	1.265
PCB 167L	2000	1383.815	69		25-150	1.35	1.070
PCBs 156L + 157L	4000	2669.833	67		25-150	1.35	1.097
PCB 169L	2000	1399.722	70		25-150	1.34	1.172
PCB 189L	2000	1396.157	70		25-150	1.01	0.962
PCB 28L	2000	1257.694	63		30-135	1.03	0.933
PCB 111L	2000	1388.561	69		30-135	1.57	1.077
PCB 178L	2000	1263.564	63		30-135	1.00	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/ 4/09 1030
Sample Matrix:	Water	**Date Received:**	8/13/09
Sample Name:	C0119	**Units:**	Percent
Lab Code:	E0900638-005	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/6/09 1227
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	930mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220346	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220342

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	872.657	44		25-150	0.80	1.320
PCB 77L	2000	908.557	45		25-150	0.76	1.339
PCB 123L	2000	812.799	41		25-150	1.52	1.132
PCB 118L	2000	879.009	44		25-150	1.51	1.141
PCB 114L	2000	801.443	40		25-150	1.55	1.156
PCB 105L	2000	864.758	43		25-150	1.52	1.174
PCB 126L	2000	975.122	49		25-150	1.51	1.262
PCB 167L	2000	793.463	40		25-150	1.33	1.069
PCBs 156L + 157L	4000	1666.611	42		25-150	1.25	1.096
PCB 169L	2000	868.416	43		25-150	1.32	1.170
PCB 189L	2000	856.663	43		25-150	1.02	0.962
PCB 28L	2000	746.047	37		30-135	1.00	0.934
PCB 111L	2000	819.732	41		30-135	1.57	1.076
PCB 178L	2000	707.368	35		30-135	1.05	1.011

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1520
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0120	**Units:**	Percent
Lab Code:	E0900638-006	**Basis:**	Dry
		Percent Solids:	73.5

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/8/09 0059
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.390g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220882	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220877

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1303.065	65		25-150	0.80	1.324
PCB 77L	2000	1306.382	65		25-150	0.77	1.345
PCB 123L	2000	1143.859	57		25-150	1.56	1.134
PCB 118L	2000	1267.811	63		25-150	1.56	1.143
PCB 114L	2000	1118.174	56		25-150	1.57	1.159
PCB 105L	2000	1222.606	61		25-150	1.58	1.177
PCB 126L	2000	1304.209	65		25-150	1.62	1.266
PCB 167L	2000	1027.647	51		25-150	1.34	1.070
PCBs 156L + 157L	4000	2063.133	52		25-150	1.35	1.097
PCB 169L	2000	1098.130	55		25-150	1.34	1.172
PCB 189L	2000	1045.141	52		25-150	1.08	0.962
PCB 28L	2000	915.397	46		30-135	1.04	0.933
PCB 111L	2000	1085.647	54		30-135	1.55	1.077
PCB 178L	2000	958.641	48		30-135	1.03	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 1535
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0121	**Units:**	Percent
Lab Code:	E0900638-007	**Basis:**	Dry
		Percent Solids:	89.1

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/6/09 1352
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.467g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220854	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220849

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1189.965	59		25-150	0.81	1.323
PCB 77L	2000	1114.175	56		25-150	0.79	1.344
PCB 123L	2000	1085.068	54		25-150	1.51	1.133
PCB 118L	2000	1197.522	60		25-150	1.60	1.143
PCB 114L	2000	1004.263	50		25-150	1.52	1.158
PCB 105L	2000	1108.827	55		25-150	1.56	1.176
PCB 126L	2000	1120.496	56		25-150	1.53	1.265
PCB 167L	2000	871.170	44		25-150	1.25	1.071
PCBs 156L + 157L	4000	1355.074	34		25-150	1.27	1.098
PCB 169L	2000	709.236	35		25-150	1.29	1.172
PCB 189L	2000	1107.029	55		25-150	1.07	0.962
PCB 28L	2000	881.484	44		30-135	1.02	0.933
PCB 111L	2000	913.457	46		30-135	1.78	1.077
PCB 178L	2000	910.577	46		30-135	1.03	1.011

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ0900323-01	**Basis:**	Dry

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/2/09 1946
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.000g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220297	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220295

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	2025.905	101		25-150	0.77	1.317
PCB 77L	2000	2095.100	105		25-150	0.80	1.339
PCB 123L	2000	1726.900	86		25-150	1.53	1.132
PCB 118L	2000	1880.066	94		25-150	1.53	1.142
PCB 114L	2000	1773.416	89		25-150	1.54	1.157
PCB 105L	2000	1836.321	92		25-150	1.55	1.174
PCB 126L	2000	2134.051	107		25-150	1.54	1.262
PCB 167L	2000	1807.559	90		25-150	1.28	1.069
PCBs 156L + 157L	4000	3831.632	96		25-150	1.28	1.095
PCB 169L	2000	2006.116	100		25-150	1.27	1.168
PCB 189L	2000	1620.729	81		25-150	1.04	0.963
PCB 28L	2000	1325.198	66		30-135	1.01	0.936
PCB 111L	2000	1386.481	69		30-135	1.54	1.079
PCB 178L	2000	1284.430	64		30-135	1.03	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ0900337-01	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/9/09 1131
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220375	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220374

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	996.785	50		25-150	0.75	1.320
PCB 77L	2000	1047.975	52		25-150	0.77	1.340
PCB 123L	2000	781.888	39		25-150	1.48	1.132
PCB 118L	2000	808.478	40		25-150	1.56	1.142
PCB 114L	2000	802.545	40		25-150	1.54	1.156
PCB 105L	2000	905.697	45		25-150	1.54	1.175
PCB 126L	2000	1068.609	53		25-150	1.52	1.263
PCB 167L	2000	872.606	44		25-150	1.25	1.069
PCBs 156L + 157L	4000	1936.219	48		25-150	1.24	1.096
PCB 169L	2000	1142.562	57		25-150	1.28	1.170
PCB 189L	2000	1150.089	58		25-150	1.01	0.963
PCB 28L	2000	1115.426	56		30-135	0.99	0.934
PCB 111L	2000	1305.366	65		30-135	1.54	1.076
PCB 178L	2000	1168.756	58		30-135	0.99	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ0900323-02	**Basis:**	Dry

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/2/09 1549
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.000g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220294	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220290

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1464.969	73		25-150	0.77	1.318
PCB 77L	2000	1459.221	73		25-150	0.79	1.337
PCB 123L	2000	1374.456	69		25-150	1.51	1.132
PCB 118L	2000	1357.895	68		25-150	1.63	1.141
PCB 114L	2000	1266.983	63		25-150	1.52	1.156
PCB 105L	2000	1351.934	68		25-150	1.49	1.174
PCB 126L	2000	1489.193	74		25-150	1.53	1.260
PCB 167L	2000	1186.671	59		25-150	1.30	1.068
PCBs 156L + 157L	4000	2512.952	63		25-150	1.23	1.095
PCB 169L	2000	1302.312	65		25-150	1.23	1.169
PCB 189L	2000	1255.544	63		25-150	1.08	0.963
PCB 28L	2000	1014.765	51		30-135	1.10	0.934
PCB 111L	2000	1256.238	63		30-135	1.52	1.076
PCB 178L	2000	1079.286	54		30-135	1.01	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ0900337-02	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/9/09 0446
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220371	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220361

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	558.746	28		25-150	0.79	1.320
PCB 77L	2000	579.105	29		25-150	0.79	1.340
PCB 123L	2000	498.386	25		25-150	1.51	1.132
PCB 118L	2000	528.082	26		25-150	1.52	1.142
PCB 114L	2000	489.158	24	Y	25-150	1.52	1.157
PCB 105L	2000	540.637	27		25-150	1.50	1.176
PCB 126L	2000	636.154	32		25-150	1.48	1.263
PCB 167L	2000	524.700	26		25-150	1.26	1.069
PCBs 156L + 157L	4000	1128.182	28		25-150	1.21	1.096
PCB 169L	2000	594.858	30		25-150	1.31	1.170
PCB 189L	2000	596.481	30		25-150	1.05	0.962
PCB 28L	2000	580.378	29	Y	30-135	1.00	0.934
PCB 111L	2000	659.099	33		30-135	1.53	1.076
PCB 178L	2000	589.890	29	Y	30-135	1.01	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample Dup	**Units:**	Percent
Lab Code:	EQ0900323-03	**Basis:**	Dry

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/2/09 1130
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.000g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220291	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220290

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1529.066	76		25-150	0.77	1.318
PCB 77L	2000	1577.630	79		25-150	0.80	1.337
PCB 123L	2000	1366.636	68		25-150	1.57	1.131
PCB 118L	2000	1365.069	68		25-150	1.54	1.140
PCB 114L	2000	1305.617	65		25-150	1.53	1.156
PCB 105L	2000	1405.880	70		25-150	1.57	1.174
PCB 126L	2000	1496.946	75		25-150	1.56	1.260
PCB 167L	2000	1264.012	63		25-150	1.27	1.069
PCBs 156L + 157L	4000	2640.381	66		25-150	1.26	1.095
PCB 169L	2000	1357.877	68		25-150	1.20	1.169
PCB 189L	2000	1325.324	66		25-150	1.04	0.963
PCB 28L	2000	1199.891	60		30-135	0.98	0.934
PCB 111L	2000	1314.008	66		30-135	1.57	1.076
PCB 178L	2000	1062.957	53		30-135	1.07	1.010

Comments:

FIELD NOTES

(8) 29 JUL 2009 FCAT-Berlin, NH

the overlay were removed

16:00 TP-02 closure Concrete — Plastic is tucked under upper flap cut and draped over lower flap's cut. ——

16:20 Offsite for Dry Ductless Debrief and Depart Site. ——

1700 I assist with wrapup, and depart site for day.

(9) 5 August 09

0900 Nobs and Weston locate boring and proposed MWell location, marked w/ Pin Flag, excavated MW 2401 and MW2501 to liner.

Instrument Calibration

*QRae - 12854

1205 CO - 0 | 50 - CO
LEL - 0 | 49 - LEL
H_2S - 0 | 24 - H_2S
Oxy - 20.9 | 20.9 - Oxy

*MiniRAE - 10494

1215 Calibrating 100 ppm Isobutylene 101 ppm cal'ed.

*Jerome - 11556

1220 Factory Calibrated Zero Inst. 0.000 mg/m³

1240 Location - MW 2401 9" Chips/wood/mulch, Filter/geo Fabric, Geomembrane and Sand layer. Sand - 8" ~~thick~~ thickness

1 of 3 8/5/09

(10)

5 Aug. 2009

1240 (cont.) MW2401
Sample collected 0-6" @1300.
PID - 0.0 ppm
QRAE - CO-0 LEL-0 H_2S-0 O_2-20.7
Jerome - 0.005 mg/m3

1345 Location - MW2501
- Cover Material - organics, roots, grass, wood chips 0-1.05'
Filter fabric followed by Geo-membrane (Poly)
- Screening:
Jerome - 0.002 mg/m3
PID - 0.0 ppm
1.05-2.95' F-M Sand light brown, trace gravel, Thickness 1.9'.

2.95' below ground surface starting point.

1415 Sample collected 0-0.5' MW2501 plus MS/MSD.

NHB on-site constructing decon pad.

CR 2 2 OF 3 8/6/09

(11)

5 Aug. 2009

Supplies for Site Subsurface investigation:
- DI Water

1630
Inst. Cal. Check end of day
QRAE - 12854
CO-37 LEL-47 H_2S-22 O_2-20.9
MRAE - 10494
PID - 86.6 ppm
Jerome - Cleaned and recharged.

Drillers setup @ MW2401, advanced
(S1) 0.5-2.0 ft
(S2) 2.0-3.6 ft, Refusal

Quit for day after second spoon.
Continue @ MW2401 on Thurs. 8/6/09.

See Logsheets for details.

CR 8/6/09

CR 3 of 3 8/6/09

(12)

6 Aug 09

0700 Nobis, H&S and NH Boring on site.

Inst. Calibration
0715 PID 10494 - Reading 10ppm
2RAE 12854 -
CO- 49 H_2S- 25
LEL- 49 Oxy- 20.9
Jerome - Zero 0.000 mg/m³

0745 NH Boring setup on MW24 to continue boring. Drive casing (4") to 5.5' wash to 6ft through obstruction

0830 Confirmed w/ Dave G (Nobis) Regarding pulling H_2O from River. Use of H_2O from River approved for use in drilling, EPA Tapp approved of use.

EPA mentioned Attorney from ~~from~~ representing surrounding properties may visit.

0930 Ben (NHB) on-site Replace

CR 1 of 3 8/6/09

(13)

6 Aug 09

Dave (NHB).

0950 Breathing Zone
PID- 0.0ppm, Jerome - 0.005mg/m³
CO- 0 LEL- 0 H_2S- 0 Oxy- 21.3

NHB advancing to 10ft w/ 4" Casing

1300 Drilling activities stopped, Use of H_2O from River not approved for use as stated by Denis Nobis. NHB making other arrangement for H_2O source.

Hydrant on-site, unknown who owns hydrant, property owner or Town, may not function.

1230 4" Casing advanced to 10ft, washed to 10ft, using remaining H_2O from Rig. Drive 3" spoons 10-12.

1250 4" Casing driven to 13 ft, waiting for H_2O to wash.

CR 2 of 3 8/6/09

(14)

6 Aug 09

1400 NHB filled water tank in support truck. Continue MW2401 Rock encountered @ 17 ft bgs. approx. 14 ft plus 3 ft of cap material.

Advanced roller bit to 17.5 ft to confirm rock. Referred to surrounding boring/wells, rock seems consistent.

NHB No. 20 S/ot screen to construct well. Pull off MW2401 and setup @ SB0201 location. Complete MW2401 well const. on Mon. 8/10/09.

Inst. Cal Check End Day.
1700 PID - 92.6 ppm
Jerome - Regenerate Cell/change
CO-38, LEL-48, H2S-22 Oxy-20.5

8/6/09

CR 3 of 3 8/6/09

(15)

7 Aug 09

0650 NHB filling H2O tank in support truck

Inst. Calibration
0730 PID - 101 ppm
QRae CO-49 LEL-49 H2S-25 O2-20.9
Jerome - Zero

0800 NHB pulled Rig from MW2401 location, steam clean tools, setup @ SB0201, soil boring, continuous spoon to rock, confirm bedrock w/ 5 ft core run.

0950 Breathing Zone Monitoring
QRae - CO-0 LEL-0 H2S-0 Oxy-20.9
Jerome - 0.003 mg/m3

1020 Drillers break due to weather, thunder, heavy rain.

1100 NHB resume drillers, advance 4" casing to 14 ft wash.

1155 Possible bedrock @ 16 ft bgs.

CR 1 of 2 8/7/09

(16)

7 Aug 09

approx. 9-10 ft below cap.

Casing advanced to 16 ft, 3" spoon refusal @ 15.3 ft, wash to 16 ft, Start 5 ft core run to confirm rock.

1200 Breathing Zone Monitoring:
QRae: CO-0 LEL-0 H_2S-0 Oxy-20.9
Jerome: 0.005 mg/m³

1300 Completed 5 ft core run, NHB off site.

Inst. Cal. Check End of Day
1310 PID: 93.6 ppm
QRae: CO-40 LEL-47 H_2S-23 Oxy-20.9

1330 Nobis secured site, off-site.

CR 8/7/09

CR 2 of 2 8/7/09

(17)

10 Aug 09

Instrument Calibration (PID, QRae & Jerome)
PID - NA
QRae - CO-NA LEL-NA H_2S-NA Oxy-NA
0630 Jerome - Zeroed

0923 NHB on-site, pull casing from SB02-01, backfill with cuttings, sand, and bentonite.
0950 Mob. to MW24-01, complete well construction.

NOTE: Wash tub emptied/tipped over @ SB02-01, H_2O not contained.

1030 Well construction @ MW24-01, (5) bags of #2 Sand up to 10 ft bgs. ± 600 gals water lost N-ring drilling, Stream clean mob. to MW25-01
1100 Setup @ MW25-01, begin overburden drilling.
1230 Possible Rock @ 5.0' below sand layer / 9.0 ft below ground surface.

CR 1 of 2 8/10/09

(18)

10 Aug 09

1330 MW2901, set @ 5.0ft below sand layer (9.0ft bgs).
5ft Screen: 4-9.0ft
#2 Sand: 2-4.0ft
Bentonite Chips: 1-2.0ft

1340 Decon rods, setup @ MW2901

1400 Attempted MW2901, sand & Gravel ±2ft, geofabric, wood chips depth unknown, compacted by Sand & Gravel driveway, unable to excavate w/ hand tools.

1450 Relocate to SB2601, start boring. Refer to field log for details.

1625 Ambient Air (Jerome) - 0.003mg/m3

1700 Secured site, end of day.

CR 8/10/09

CR 2 of 2 8/10/09

(19)

11 Aug 09

0700 Nobis on-site, instrument calibration:
Jerome: Zeroed
PID and QRae expected to arrive mid-morning; delivered by NHB.

0730 NHB fill H2O tank on support truck, continue boring @ SB2601, advancing roller bit through bricks.

0810 SB2601 completed to depth of 12ft, rock confirmed visually by cuttings, no coring @ this location, Pull casing, rods, backfill w/ cuttings

0820 Decon equipment, relocate to MW2901.

0845 Ambient Air screening w/ Jerome: 0.005mg/m3

1015 NHB supplies arrived on-site, pause boring @ MW2901 to unload.
Possible bedrock @ 15ft bgs @ MW2901 (9ft below sand layer)

CR 1 of 1 8/11/09

(20)

11 Aug 09

1040 Start 5Ft Core Run @ MW3901, 15-16, 16-17, 17-18, 18-19, 19-20 to confirm ROCK.

1050 Ambient Air: Jerome 0.003mg/m3.

1100 - 1200 Stop work for weather, thunderstorms, 30/30 H2S rule.

MW3101 setup start boring, encountered slurry wall. Re-located after consulting w/ office.

1630 Secured site, NOBIS & NHB off-site.

CR 8/11/09

CR 2 OF 2 8/11/09

(21)

12 Aug 09

0700 NOBIS and NHB on-site

0710 Instrument Calibration:
PID: 100ppm
QRae: CO-50 LEL-49 H2S-24 Oxy-20.9
Jerome: Zeroed

0800 NHB @ MW3101, continue boring, 4" casing @ 10Ft, wash to 10Ft, resume 3" spoon continuous sampling, next interval 6-8Ft (below sand layer of cap).

0815 Ambient Air Screening:
PID - 0.0ppm
QRae - CO 0 LEL-0 H2S-0 Oxy 20.9
Jerome - 0.005mg/m3

0900 MW3101 confirmed bed-rock, set well @ 15ft bgs, 8ft screen, see boring log.

0930 Pull casing, rods, decon equipment, fill H2O tanks

1030 Support truck fill tank from hydrant, Rig setup @ SB0501

CR 1 OF 3 8/12/09

(22)

17 Aug 09

1155 Start SB0501 boring to to of bedrock.

1155 SB0501, encountered bed. Rock @ 9.0 Ft bgs., See boring log for details, Pull casing, Rods, decon.

Ambient Air Screening:
PID - 0.0 ppm
QRae - CO-0 LEL-0 H_2S-0 Oxy 20.9
Jerome - 0.003 mg/m³

1200 Start SB0101 boring to top of bedrock, core 5ft into bedrock. Refer to field log sheet for details.

1330 Ambient Air Screening:
PID - 0.0 ppm
QRae - CO-0, LEL-0, H_2S-0, Oxy-21.5
Jerome - 0.000 mg/m³

1405 Start 5ft core run @ ~~SB~~ SB0101.

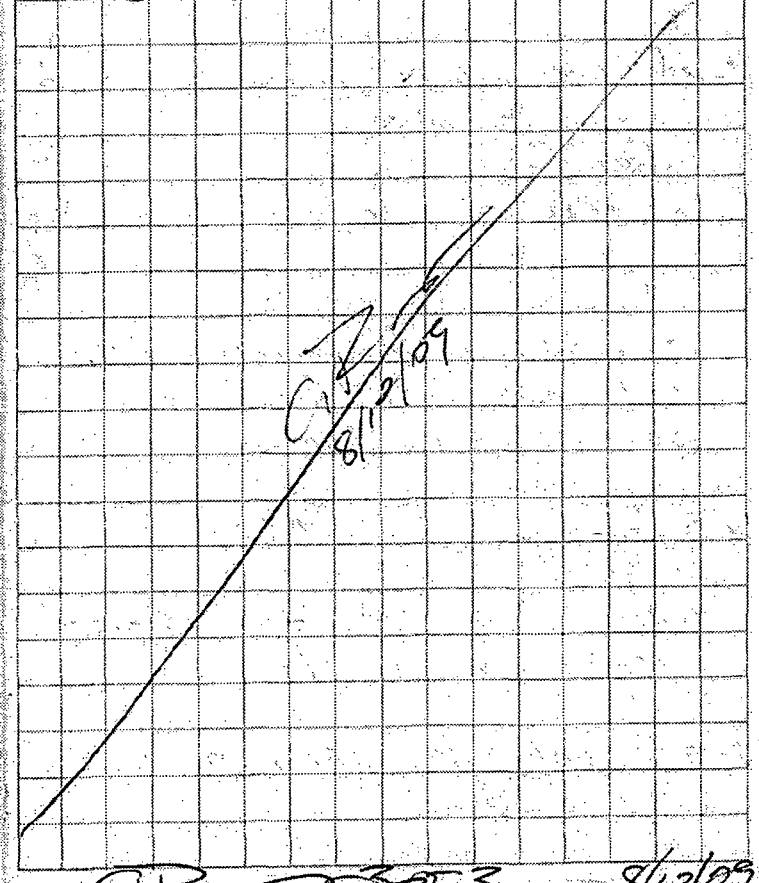
CR — 2 of 3 — 8/12/09

(23)

17 Aug 09

1500 Instrument Evening Cal Check
PID - 101 ppm
QRae - CO-49 LEL-46 H_2S-25, Oxy-21.4
Jerome - Regenerate and Charge.

NHB off-site



CR — 3 of 3 — 8/12/09

(24)

13 Aug 09

0700 Nobis on-site, instrument calibration:
PID - 101
QRae - CO-50 LEL-50 H2S-24 Oxy 20.9
Jerome - Zeroed

0730 NHB setup @ SB03O1 overburden location, advance to top of rock, continuous 3" spoon sampling, Refer to Field Log sheet for details.

0845 NHB water run, fill support truck while Rig advances 4" casing and washing to 7ft.

1020 SB03O1 complete, RxK confirmed @ 10ft bgs, pull casing, rods, decon equip., relocate to SB0401

1110 Proposed SB0401 location on slope, unstable for Rig to setup on. SB0401 relocated East of proposed location, New swing ties.

1200 Ambient Air Screening:
PID - 0.0ppm
QRae - CO 0 LEL-0 H2S 0 Oxy-21.2

CiRon 1 of 2 8/13/09

(25)

13 Aug 09

1200 (cont.)
Jerome - 0.000mg/m3

1400 SB0401 completed, Refer to Field Log Sheet, total depth below ground surface 12ft, bedrock encountered @ 10ft.

1430 NHB off-site

1445 Instrument Cal Check:
PID - 101 ppm
QRae - CO-49 LEL-45 H2S-25 Oxy 21.2
Jerome - Zeroed

Backing samples

1630 Nobis off-site

CiR

CiR 2 of 2 8/13/09

7/31/09 SOO13

1100 cont'd - trap from inside probe.
72.1 liters pumped

1130 - Decide to turn off AR-01A1.
Able to retrieve sample trap -
73.2 liters collected.

1145 - Cleaning up trailer; packing samples, getting ready to demobe for w/e.

1230 - Nobis off-site

J Toppins

7/31/09

(6)

8/4/09 SOO13

9:30 Dave Carlson and Corey Rousseau arrive onsite.
Performed S-te tour with CR to familiarize him w/ site.
Shelr Doderan and Paul Doucette onsite.
Review progress from last week, objectives for this week, health safety, etc.
Unload trucks; coolers, bags, HNU's, computers, etc.
12:00 CR, DG, PD perform synoptic water level round, label all wells. See field sheet.
15:00 Complete, close up site.
15:30 Off site.

8/5/09
715 Arrived onsite
845 Joe Schmidt onsite.
Marked out MW/SB locations using 3 pts supplied by Dennis.
1030 Spoke with Dave Thompson of NHB. Leaving Londonderry now. Went to Wal-Mart to pick up

(7)

8/5/09 80013

a few supplies.
Installed hasp on door of trailer.
1330 Spoke with Jim Saldana, electrician about when he's coming. PSNH to meet him here at 8:00 tomorrow and should have everything done within a week.
1300 Joe and CR are opening holes in the liner to collect shallow samples; sent PD to assist.
Called Liyang Chr with an update.
1400 NHB onsite, Jay Garside and Dave Thompson.
Review SOW, H&S.
Unload equipment near work area and build decon pad on spur road between cap.
1545 Mobilize rig to MW-2401
Place enough plywood and blocks to prevent rig from puncturing cap w/ jacks.
Drive 2 spoons to a depth of ~~6~~ 4 ft.
SD/PD logging, and lying samples.

(8)

8/5/09 80013

1630 NHB shut down, leave site.
Label and prep samples for shipping.
End of day cal checks.
1715 Clean and close up trailer.
1730 Nobis off site.

8/6/09
700 Arrive onsite with NHB and Victor Letlow from H&S Env. Review Health and Safety with Victor and have him sign HASP. Review SOW.
720 NHB, Comey and Victor mob to site to continue boring MW-2401.
800 Jim Saldana and Donna Dupont from PSNH onsite to discuss electric service options. Decide that the easiest thing to do is go from Hutchins to top of building, anchor with an eye bolt then to a tiny post next to trailer, which would be a 20ft 6x6 sunk 4 ft bgs.

(9)

8/6/09 80015

Anything else will require setting a 35 ft utility pole. Called Denis to get hospital permission.

815 ~~Ben~~/Donna/Jim offsite.

900 (26) Ben ~~Dick~~ Cross, NHB onsite. Darryl/Luce onsite. Says an attorney from the property owner will stop by this morning sometime to take a look at things. Jack Crisp, Darryl offsite, will likely stop again today.

1030 NHB out of water, called Berlin Water Dept, awaiting call back.

Dug hole for temp utility pole. 48 inches deep and 6" by 6" and called Jim Sallsand. He will have a pole delivered in the morning.

Water dept hooks a meter to fire hydrant on Hutchins that NHB can get to from inside the fence. Refill and resume

(10)

8/6/09 80013

Encountered bedrock at ~14.5 ft below cap. Consistent with nearby wells. Evacuated casing water with a Whale pump.

No 20-slot onsite so will set well Monday. Will begin SB01 in the morning.

NHB offsite.

Jim and Brian from USGS still in river setting rock baskets. They will lock gate when they leave.

1200 Leave site.

8/7/09

7:00 Arrive onsite

Set equipment. Mob to site work area. NHB onsite getting water.

Decon rods, spoons and bits in decon pad located @ spur road to cap. Set up on SB-0201. Appox 6' of cover material and then building debris.

(11)

8/7/09 80013

930 Laura Bonk and Gail Derucco onsite to perform H+S and QA audits, respectively.

1200 Encountered a void at 8-10 feet bgs - Bedrock encountered. Ran a 5ft core, came back w/ 1-5 feet of nice gravels and gravel below then pegmatite w/ vertical fracture. Decided to stop boring and continue on Monday w/ Joe to confirm core.

1300 NHB offsite.

1330 Leave site. Refer to audit reports for comments. Returning samples collected to Concord office sample fridge for weekend.

(12)

8/10/09 80013

8:15 CR and DG arrive onsite with samples. Joe Schmidl onsite.
CR and JS look at 5B02 rock core again, confirm bedrock.

9:30 NHB onsite. Going to back fill 5B02 and set well in MW-2401, drilling to 11 MW2. Go through 8 bags of sand in well plus 1 in boring. Only 2 left. Call for more.

1020 Paul and Shelo arrive onsite. Unload additional bathleware. Left PID and 4-gas at office. Call Dennis to have him drop it off at NHB. They are sending up sand and standpipes in the am.
Move to MW-2901. 2 ft of packed gravel then compressed chips. Cannot dig by hand. Drillers want vac truck. Call Liyang, he agrees. Joe helps PD and SD pack samples and

(13)

8/10/09 80013

will bring them to FedEx for delivery. Joe talks to Liyang and says they agree on punching through with casing. Cap repair will be done later.

Moved to SB-0601, only about 2-ft of cover material. Perform SB06, lots of debris, wood fills spoons. No sample material (soil) collected below 1 ft, all debris.

1645 Shut down for day.

8/11/09

7:00 Arrive onsite. NHB onsite. Refer to the Subsurface Investigation field book for boring information and cal. data.

Ken Smith onsite from NHB to deliver supplies.

Jim Soldano at the office trailer to set utility poles. Will connect temp service tomorrow.

Encountered the slurry wall.

8/11/09 80013

in MW3101 and relocated across access road.

1630 Locked up and left site.

8/12/09

7:00 Arrived onsite. NHB on site. Refer to the Sub. Inv. book for boring and cal. data.

Jim Soldano on site to connect temp. service. No other visitors to the site.

Only 2 borings left by end of day. will finish up Thursday. Still have to set standpipes for MW-2401, MW-2501.

Confer w. Th. Denis and Liyang about next week. No Nobis personnel onsite. Well development equipment can't be delivered til end of week, so can't do that. Received new computer/printer. Labelled, packed and shipped samples. Other than that, an uneventful day.

1620 Nobis locks up, leaves site.

8/13/09 80013

700 Arrive onsite, NHB onsite. NHB wants to proceed with work and start bedrock holes on Friday, have materials to roll out rock socket but not set perm. casing. Call Liyang to see if ok. Will send Joe Schmidt up for that work. All Nobis will leave tonight.

Labelling, packing and shipping samples.

Collect 2nd equip. blank.

Liyang requests photos of Saw Mill dam, splash pool, Brodie Smith dam, and RR bridge for Austin to gauge river levels.

1305 Photos of Saw Mill dam, water is flowing over the boards across top of dam, which were replaced Tues/Wed. Completed final boring, SB0401. Had to be relocated approx. 20 feet east because slope to steep to get rig level and safe.

(16)

8/13/09 80013

New swing ties:

SB-0401 to: ~~GPS~~ (3)

MW-13B: 65'

MW-4: 70'

MW-23B: 21'

1620 Shell leaves to drop coolers at FedEx Manchester, NH.

1630 Photos from Pedestrian Bridge. 8-10' of clearance.

1645 Photos of Brodie-Smith Dam. Took photos of the fence damage observed upon arrival to the Site. It appears that someone was travelling south on Hutchins St and failed to turn, taking out the panel left of the gate.

1200 CR/DG leave site.

(17)

CSF AUDIT

Evidence Audit Photocopy

CB CONGENER COMPLETE SDG FILE (CSF) INVENTORY SHEET (DC-2)

LABORATORY NAME Columbia Analytical Services

CITY/STATE Houston, TX

CASE NO. CB002 SDG NO. C0115 SDG NOS. TO FOLLOW _____ _____ _____

TASK ORDER NO. _____

CONTRACT NO. EP09W001490

SOW NO. CBC01.0

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

		PAGE NOs.		CHECK	
		FROM	TO	LAB	EPA
1.	**Inventory Sheet** (DC-2) (Do not number)	—	—	✓	—
2.	**SDG Narrative**	1	5	✓	✓
3.	**Traffic Report**	6	6	✓	✓
4.	**CB Congener Data**				
	a. Sample Data				
	Toxic CB Congener Data Summary (FORM I CB-1)	7	18	✓	✓
	Toxic CB Congener Toxicity Equivalence Summary (FORM I CB-2)	19	25	✓	✓
	CB Congener Sample Data Summary (FORM I CB-3)	--	--	✓	✓
	Selected Ion Current Profile (SICP) for each sample	26	--	✓	✓
	Quantitation Reports and Area Summaries	--	565	✓	✓
	Total Homologue Concentration Summary (FORM II CB)	566	572	✓	✓
	b. Quality Control Data				
	Method Blank Summary (FORM IV CB)	573	574	✓	✓
	CB Congner Descriptor Switching Resolution Summary (FORM V CB-1)	575	590	✓	✓
	CB Congener Ion Abundance Ratio Summary (FORM V CB-2)	591	606	✓	✓
	CB Congener (Labeled) Ion Abundance Ratio Summary (FORM V CB-3)	607	622	✓	✓
	Analytical Sequence Summary (FORM VIII CB)	623	646	✓	✓
	c. Calibration Data				
	Toxic CB Congener Initial Calibration Response Factor Summary (FORM VI CB-1)	647	652	✓	✓
	Toxic CB Congener Initial Calibration Ion Abundance Ratio Summary (VI CB-2)	653	658	✓	✓
	CB Congener Initial Calibration Response Factor Summary (FORM VI CB-3)	659	--	✓	✓
	CB Congener Initial Calibration Ion Abundance Ratio Summary (VI CB-4)	--	670	✓	✓
	Toxic CB Congener Continuing Calibration Summary (VII CB-1)	671	683	✓	✓
	Toxic CB Congener Continuing Calibration Retention Time Summary (VII CB-2)	684	696	✓	✓
	CB Congener Continuing Calibration Summary (VII CB-3)	--	--	✓	✓
	CB Congener Continuing Calibration Retention Time Summary (VII CB-4)	697	774	✓	✓

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. CB002 SDG NO. C0115 SDG NOS. TO FOLLOW _____

_____ MOD. REF. NO. _____

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK EPA
d. Raw Quality Control Data				
Blank Data FORM I CB-1, CB-2, CB-3 (if applicable)	775	780	✓	✓
Blank Data including SICPs, Quantitation Reports, and Area Summaries for each blank analyzed	781	865	✓	✓
5. Comments: LCS/DLCS Forms and Data	866	953	✓	✓
Misc.	954	992	✓	✓
CPS01-CPS16 Raw Data	993	1505	✓	✓
ICAL Raw Data	1506	1927	✓	✓
CCAL Raw Data	1928	2427	✓	✓

Completed by:

(CLP Lab) [signature] (Signature) Darren Biles/Project Chemist (Print Name & Title) 12/19/09 (Date)

Audited by:

(USEPA) [signature] (Signature) JIM CHEN Chemist (Print Name & Title) 5/13/2010 (Date)

DQO SUMMARY FORM

Nobis
An Employee-Owned Company

Quality Assurance Project Plan
Soil and Groundwater Investigation

Chlor-Alkali Facility Superfund Site
Berlin, New Hampshire

Remedial Investigation/Feasibility Study
EPA Task Order No. 0013-RI-CO-01BQ

REMEDIAL ACTION CONTRACT
No. EP-S1-06-03

FOR

U.S. Environmental Protection Agency
Region 1

BY

Nobis Engineering, Inc.

Nobis Project No. 80013

October 2009

U.S. Environmental Protection Agency
Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Nobis Engineering, Inc.
Lowell, Massachusetts
Concord, New Hampshire

Phone (800) 394-4182
www.nobisengineering.com

7.0 PROJECT QUALITY OBJECTIVES AND MEASUREMENT PERFORMANCE CRITERIA

This section describes project quality objectives and measurement performance criteria for measurement data in terms of precision, accuracy, representativeness, completeness, and comparability.

7.1 Introduction

QA objectives are qualitative and quantitative statements that specify the quality of data necessary for regulatory and/or project-specific requirements. The process of developing QA objectives for a given study helps to ensure that data generated are of adequate quality for the intended use. QA objectives may be expressed in terms of the precision, accuracy, representativeness, completeness, and comparability of the collected data.

7.2 Project Data Quality Objectives

The project data quality objectives (DQOs) are to generate field and analytical data that are necessary and of sufficient quality such that:

- the nature and extent of the Site contamination is sufficiently characterized,
- the mechanism of contaminant transport to the environment becomes clear,
- a well-founded human health and ecological risk characterization can be completed, and
- a well-documented Record of Decision (ROD) may be developed.

Table 7-1 presents the DQOs for critical measurements in terms of precision and accuracy for all parameters analyzed for these investigations.

7.3 Measurement Performance Criteria

The measurement performance criteria are described in this section. The methods used to assess these criteria are presented in Table 7-1.

COMPLETE SDG FILE
RECEIPT/TRANSFER FORM

Case: CB002 SDG#: C0115 Data Package#: XD

Receipt Date	Received By: Name	Init.	Affiliation	CSF Activity	Custody Seals Present/Intact	Released: To	Date
12/24/09	S.C. Stodola	SS	EPA	Transfer to ESAT	Y (N) Y (N)	ESAT	12/24/09
12/28/09	Doris Guzman	DG	ESAT	RECD FOR TRANSFER	Y (N) Y (N)	OEME STEVE STODOLA	12/28/09
12/28/09	S.C. Stodola	SS	EPA	Data Validation	Y (N) Y (N)	ESAT	12/29/09
12/29/09	[illegible]	[illegible]	ESAT	Data Validation	Y (N) Y (N)	EPA	6/22/10
6/23/10	S.C. Stodola	SS	EPA	Data Validation	Y (N) Y (N)	D. Lucca	7/9/10
					Y N Y N		
					Y N Y N		
					Y N Y N		
					Y N Y N		
					Y N Y N		
					Y N Y N		
					Y N Y N		

19408 Park Row Suite 320 Houston, TX 77084 (713) 266-1599 (713) 266-0130 fax

Columbia Analytical Services INC.
An Employee - Owned Company

June 14th, 2010 Service Request No: E0900638

Steve Stodola
US Environmental Protection Agency
11 Technology Drive
N. Chelmsford, MA 01863

Amended/Additional Data for:CB002, C0115

Dear Steve:

Enclosed are the amended results/missing data for SDG C0115 that you requested. On the next page you will find a hard copy of the email sent to you in response to your questions/notes; please refer to this for explanation. On the following pages you will find:

1-9	Corrected Forms II CB-1
10-23	CAS Houston forms with EDLs
24-35	CAS Houston forms with clean-up recoveries

Please contact me if you have any questions. My extension is 2954. You may also contact me via email at DBiles@caslab.com.

Columbia Analytical Services, Inc.

Darren Biles
Project Chemist

Hi Steve,
The following are responses to your inquiries:

1. The Form I CB-1 in the SOW version referenced in Work Order EP09W001490 (CBC01.0) does not include a section for reporting the clean-up standard recoveries, which is why they are not included in report E1000638. Included in the amended report is a form in our standard report format that reports the clean-up standard recoveries.

2. The Form I CB-1 in the SOW version referenced in Work Order EP09W001490 (CBC01.0) does not include a section for reporting the EDLs, which is why they are not included in report E1000638. Included in the amended report is a form in our standard report format that reports the EDLs.

1. Upon investigation of #3, it was discovered that that result for Decachlorobiphenyl for all samples was reported incorrectly. See the amended report for the corrected Form II CB-1 and amended EDD. Note that the Total PCBs changed for some samples.

Please let me know if you need anything else.

Darren Biles
HRGC/HRMS/Project Chemist

Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
713-266-1599 (office)
281-994-2954 (direct)
www.caslab.com

-----Original Message-----
From: stodola.steve@epamail.epa.gov [mailto:stodola.steve@epamail.epa.gov]
Sent: Tuesday, June 01, 2010 10:15 AM
To: Darren Biles
Subject: Request for information for Case CB002, C0115; E0900638

Darren:

Data validation uncovered missing information and discrepancies in the data package submitted by the laboratory. The following missing information and/or discrepancies are noted.

1. The recoveries for the clean-up standards were not summarized on the Form 1s for any of the samples. Please provide the recoveries for clean-up standards in all samples.

2. The Estimated Detection Limits (EDL) were not entered on the

Form I CB-1 for any of the non-detected (U) results. Please provide corrected forms as necessary.

3. Decachlorobiphenyl results and EDLs were not reported in the EDD spreadsheet for all samples. Please provide a corrected EDD spreadsheet.

Thanks for your help in resolving these items.

Steve Stodola, QA Chemist, Region I

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0115

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411	Case No.: CB002	TO No.: SDG No.: C0115
Matrix:	SOIL (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-001
Sample wt/vol:	5.778 (g/ml) g	Lab File ID:	U221009
Decanted (Y/N):	N Ext. (Type): SOXH	Date Received:	08/13/2009
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/20/2009
Inj. Vol:	1.0 (ul) Cleanup (type): SILICA	Date Analyzed:	10/16/2009
GC Col.:	SPB-Octyl ID: 0.25 (mm)	Dilution Factor:	1.0
Concentration Units: (pg/L or ng/Kg)	ng/Kg	% Solids/Lipids:	85.0

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	1.28E+03	
Total DiCB	7	1.18E+04	
Total TriCB	19	1.75E+04	
Total TetraCB	35	5.80E+04	
Total PentaCB	29	1.79E+05	
Total HexaCB	37	1.38E+05	
Total HeptaCB	23	2.96E+04	
Total OctaCB	12	1.00E+04	
Total NonaCB	3	5.80E+03	
Decachlorobiphenyl	1	5.76E+03	
Total PCBs	169	4.57E+05	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0116

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411	Case No.:	CB002
TO No.		SDG No.:	C0115
Matrix:	SOIL (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-002
Sample wt/vol:	6.165 (g/ml) g	Lab File ID:	U220863
Decanted (Y/N):	N	Ext. (Type):	SOXH
Date Received:	08/13/2009		
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/20/2009
Inj. Vol:	1.0 (ul)	Cleanup (type):	SILICA
Date Analyzed:	10/07/2009		
GC Col.:	SPB-Octyl	ID:	0.25 (mm)
Dilution Factor:	1.0		
Concentration Units: (pg/L or ng/Kg)	ng/Kg	% Solids/Lipids:	59.0

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	6.39E+03	
Total DiCB	12	1.15E+04	
Total TriCB	17	1.04E+04	
Total TetraCB	31	1.33E+04	
Total PentaCB	23	1.77E+04	
Total HexaCB	27	1.42E+04	
Total HeptaCB	16	6.43E+03	
Total OctaCB	9	3.26E+03	
Total NonaCB	3	3.64E+03	
Decachlorobiphenyl	1	2.01E+03	
Total PCBs	142	8.89E+04	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0117

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411	Case No.: CB002	TO No.: SDG No.: C0115
Matrix:	SOIL (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-003
Sample wt/vol:	5.417 (g/ml) g	Lab File ID:	U133538
Decanted (Y/N):	N Ext. (Type): SOXH	Date Received:	08/13/2009
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/20/2009
Inj. Vol:	1.0 (ul) Cleanup (type): SILICA	Date Analyzed:	10/21/2009
GC Col.:	SPB-Octyl ID: 0.25 (mm)	Dilution Factor:	1.0
Concentration Units: (pg/L or ng/Kg)	ng/Kg	% Solids/Lipids:	90.8

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	6.91E+02	
Total DiCB	11	7.04E+03	
Total TriCB	23	7.49E+03	
Total TetraCB	35	3.29E+04	
Total PentaCB	32	1.50E+05	
Total HexaCB	34	2.37E+05	
Total HeptaCB	10	2.95E+04	
Total OctaCB	11	3.41E+04	
Total NonaCB	3	4.26E+03	
Decachlorobiphenyl	1	2.53E+03	
Total PCBs	163	5.06E+05	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0118

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411	Case No.:	CB002
TO No.		SDG No.:	C0115
Matrix:	SOIL (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-004
Sample wt/vol:	5.524 (g/ml) g	Lab File ID:	U220853
Decanted (Y/N):	N	Ext. (Type):	SOXH
Date Received:	08/13/2009		
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/20/2009
Inj. Vol:	1.0 (ul)	Cleanup (type):	SILICA
Date Analyzed:	10/06/2009		
GC Col.:	SPB-Octyl	ID:	0.25 (mm)
Dilution Factor:	1.0		
Concentration Units: (pg/L or ng/Kg)	ng/Kg	% Solids/Lipids:	93.4

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	5.42E+02	
Total DiCB	3	3.31E+03	
Total TriCB	15	3.27E+03	
Total TetraCB	22	2.29E+04	
Total PentaCB	26	1.12E+05	
Total HexaCB	27	2.03E+05	
Total HeptaCB	19	1.39E+05	
Total OctaCB	10	2.68E+04	
Total NonaCB	6	3.23E+03	
Decachlorobiphenyl	1	1.32E+03	
Total PCBs	132	5.15E+05	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0119

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411	Case No.:	CB002
TO No.		SDG No.:	C0122
Matrix:	WATER (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	E0900638-005
Sample wt/vol:	930 (g/ml) mL	Lab File ID:	U220346
Decanted (Y/N):	Y	Ext. (Type):	SOXH
Date Received:	08/13/2009		
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/25/2009
Inj. Vol:	1.0 (ul)	Cleanup (type):	SILICA
Date Analyzed:	09/06/2009		
GC Col.:	SPB-Octyl	ID:	0.25 (mm)
Dilution Factor:	1.0		
Concentration Units: (pg/L or ng/Kg)	pg/L	% Solids/Lipids:	

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB			
Total DiCB			
Total TriCB			
Total TetraCB	12	2.93E+03	
Total PentaCB	14	7.75E+03	
Total HexaCB	9	3.33E+03	
Total HeptaCB			
Total OctaCB			
Total NonaCB			
Decachlorobiphenyl	1	2.49E+01	
Total PCBs	36	1.40E+04	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0120

Lab Name: Columbia Analytical Services | Contract: EP09W001490

Lab Code: TX01411 | Case No.: CB002 | TO No. | SDG No.: C0115

Matrix: SOIL (Soil/Water/Ash/Tissue/Oil) | Lab Sample ID: E0900638-006

Sample wt/vol: 6.390 (g/ml) g | Lab File ID: U220882

Decanted (Y/N): N | Ext. (Type): SOXH | Date Received: 08/13/2009

Concentrated Extract Volume: 20.0 (ul) | Date Extracted: 08/20/2009

Inj. Vol: 1.0 (ul) | Cleanup (type): SILICA | Date Analyzed: 10/08/2009

GC Col.: SPB-Octyl | ID: 0.25 (mm) | Dilution Factor: 1.0

Concentration Units: (pg/L or ng/Kg) ng/Kg | % Solids/Lipids: 73.5

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	7.33E+01	
Total DiCB	4	2.73E+02	
Total TriCB	12	1.58E+03	
Total TetraCB	21	1.08E+05	
Total PentaCB	27	4.33E+05	
Total HexaCB	26	3.17E+05	
Total HeptaCB	23	4.33E+04	
Total OctaCB	10	5.51E+03	
Total NonaCB	3	8.40E+02	
Decachlorobiphenyl	1	1.51E+02	
Total PCBs	130	9.10E+05	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

C0121

Lab Name: Columbia Analytical Services | Contract: EP09W001490

Lab Code: TX01411 | Case No.: CB002 | TO No. | SDG No.: C0115

Matrix: SOIL (Soil/Water/Ash/Tissue/Oil) | Lab Sample ID: E0900638-007

Sample wt/vol: 5.467 (g/ml) g | Lab File ID: U220854

Decanted (Y/N): N | Ext. (Type): SOXH | Date Received: 08/13/2009

Concentrated Extract Volume: 20.0 (ul) | Date Extracted: 08/20/2009

Inj. Vol: 1.0 (ul) | Cleanup (type): SILICA | Date Analyzed: 10/06/2009

GC Col.: SPB-Octyl | ID: 0.25 (mm) | Dilution Factor: 1.0

Concentration Units: (pg/L or ng/Kg) ng/Kg | % Solids/Lipids: 89.1

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB	3	1.42E+02	
Total DiCB	3	5.00E+02	
Total TriCB	14	2.84E+03	
Total TetraCB	26	1.76E+05	
Total PentaCB	25	6.48E+05	
Total HexaCB	27	7.38E+05	
Total HeptaCB	24	2.38E+05	
Total OctaCB	10	3.31E+04	
Total NonaCB	5	5.78E+03	
Decachlorobiphenyl	1	2.70E+03	
Total PCBs	138	1.85E+06	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

CBLK01

Lab Name: Columbia Analytical Services | Contract: EP09W001490

Lab Code: TX01411 | Case No.: CB002 | TO No. | SDG No.: C0115

Matrix: SOIL (Soil/Water/Ash/Tissue/Oil) | Lab Sample ID: EQ0900323-01

Sample wt/vol: 5.000 (g/ml) g | Lab File ID: U220297

Decanted (Y/N): N | Ext. (Type): SOXH | Date Received:

Concentrated Extract Volume: 20.0 (ul) | Date Extracted: 08/20/2009

Inj. Vol: 1.0 (ul) | Cleanup (type): SILICA | Date Analyzed: 09/02/2009

GC Col.: SPB-Octyl | ID: 0.25 (mm) | Dilution Factor: 1.0

Concentration Units: (pg/L or ng/Kg) ng/Kg | % Solids/Lipids: 100.0

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB		0.00E+00	
Total DiCB	1	1.86E+02	
Total TriCB	7	7.22E+01	
Total TetraCB	11	2.62E+02	
Total PentaCB	12	8.68E+02	
Total HexaCB	12	4.03E+02	
Total HeptaCB	8	6.50E+01	
Total OctaCB	5	2.41E+01	
Total NonaCB	3	3.58E+01	
Decachlorobiphenyl		0.00E+00	
Total PCBs	59	1.92E+03	

2A - FORM II CB-1

CB CONGENER TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

CBLK02

Lab Name:	Columbia Analytical Services	Contract:	EP09W001490
Lab Code:	TX01411	Case No.:	CB002
TO No.		SDG No.:	C0115
Matrix:	WATER (Soil/Water/Ash/Tissue/Oil)	Lab Sample ID:	EQ0900337-01
Sample wt/vol:	1000 (g/ml) mL	Lab File ID:	U220375
Decanted (Y/N):	Y	Ext. (Type):	SEPF
Date Received:			
Concentrated Extract Volume:	20.0 (ul)	Date Extracted:	08/25/2009
Inj. Vol:	1.0 (ul)	Cleanup (type):	SILICA
Date Analyzed:	09/09/2009		
GC Col.:	SPB-Octyl	ID:	0.25 (mm)
Dilution Factor:	1.0		
Concentration Units: (pg/L or ng/Kg)	pg/L	% Solids/Lipids:	0.0

HOMOLOGUE	PEAKS	CONCENTRATION	Q
Total MonoCB		0.00E+00	
Total DiCB	1	9.38E+02	
Total TriCB	9	7.58E+02	
Total TetraCB	8	7.74E+02	
Total PentaCB	11	1.98E+03	
Total HexaCB	12	8.50E+02	
Total HeptaCB	2	6.07E+01	
Total OctaCB		0.00E+00	
Total NonaCB	1	3.04E+01	
Decachlorobiphenyl	1	1.15E+01	
Total PCBs	45	5.40E+03	

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1140
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0115	**Units:**	ng/Kg
Lab Code:	E0900638-001	**Basis:**	Dry
		Percent Solids:	85.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/16/09 2144
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.778g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U221009	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U221005

Analyte Name	EDL
PCB 81	53.0
PCB 77	58.7
PCB 123	80.0
PCB 118	71.4
PCB 114	81.2
PCB 105	86.1
PCB 126	82.7
PCB 167	23.5
PCBs 156 + 157	31.9
PCB 169	26.9
PCB 189	22.1
PCB 209	46.0

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1140
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0115	**Units:**	ng/Kg
Lab Code:	E0900638-001	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	85.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/14/09 2148
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.778g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220970	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220966

Analyte Name	EDL
PCB 81	99.1
PCB 77	112
PCB 123	53.1
PCB 118	41.9
PCB 114	56.5
PCB 105	50.1
PCB 126	48.8
PCB 167	41.5
PCBs 156 + 157	57.6
PCB 169	45.6
PCB 189	31.4
PCB 209	45.5

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1220
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0116	**Units:**	ng/Kg
Lab Code:	E0900638-002	**Basis:**	Dry
		Percent Solids:	59.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/7/09 0102
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.165g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220863	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220856

Analyte Name	EDL
PCB 81	35.0
PCB 77	62.8
PCB 123	25.6
PCB 118	23.0
PCB 114	25.1
PCB 105	31.5
PCB 126	28.0
PCB 167	41.8
PCBs 156 + 157	60.8
PCB 169	53.1
PCB 189	48.4
PCB 209	163

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0915
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0117	**Units:**	ng/Kg
Lab Code:	E0900638-003	**Basis:**	Dry
		Percent Solids:	90.8

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/21/09 0443
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.417g	**Instrument Name:**	E-HRMS-01
		GC Column:	SPB-OCTYL
Data File Name:	U133538	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U133528

Analyte Name	EDL
PCB 81	18.9
PCB 77	20.5
PCB 123	45.2
PCB 118	41.4
PCB 114	48.1
PCB 105	43.5
PCB 126	46.8
PCB 167	30.9
PCBs 156 + 157	43.2
PCB 169	36.3
PCB 189	17.7
PCB 209	13.1

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0915
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0117	**Units:**	ng/Kg
Lab Code:	E0900638-003	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	90.8

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/14/09 2256
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.417g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220971	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220966

Analyte Name	EDL
PCB 81	32.0
PCB 77	36.6
PCB 123	56.6
PCB 118	50.6
PCB 114	61.3
PCB 105	56.9
PCB 126	60.8
PCB 167	48.7
PCBs 156 + 157	72.7
PCB 169	61.6
PCB 189	23.2
PCB 209	15.8

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0920
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0118	**Units:**	ng/Kg
Lab Code:	E0900638-004	**Basis:**	Dry
		Percent Solids:	93.4

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/6/09 1243
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.524g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220853	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220849

Analyte Name	EDL
PCB 81	8.51
PCB 77	9.79
PCB 123	8.48
PCB 118	7.70
PCB 114	8.40
PCB 105	8.39
PCB 126	8.83
PCB 167	8.29
PCBs 156 + 157	12.0
PCB 169	10.1
PCB 189	7.93
PCB 209	9.63

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0920
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0118	**Units:**	ng/Kg
Lab Code:	E0900638-004	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	93.4

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/22/09 1614
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.524g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U221063	**Blank File Name:**	U220297
ICAL Date:	10/19/09	**Cal Ver. File Name:**	U221060

Analyte Name	EDL
PCB 81	126
PCB 77	143
PCB 123	192
PCB 118	170
PCB 114	195
PCB 105	197
PCB 126	180
PCB 167	69.4
PCBs 156 + 157	94.6
PCB 169	79.1
PCB 189	106
PCB 209	145

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/ 4/09 1030
Sample Matrix:	Water	**Date Received:**	8/13/09
Sample Name:	C0119	**Units:**	pg/L
Lab Code:	E0900638-005	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/6/09 1227
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	930mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220346	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220342

Analyte Name	EDL
PCB 81	14.8
PCB 77	15.0
PCB 123	29.7
PCB 118	26.0
PCB 114	29.1
PCB 105	28.3
PCB 126	28.8
PCB 167	18.0
PCBs 156 + 157	24.4
PCB 169	19.9
PCB 189	12.3
PCB 209	8.92

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1520
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0120	**Units:**	ng/Kg
Lab Code:	E0900638-006	**Basis:**	Dry
		Percent Solids:	73.5

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/8/09 0059
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.390g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220882	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220877

Analyte Name	EDL
PCB 81	7.52
PCB 77	8.12
PCB 123	9.51
PCB 118	8.28
PCB 114	9.57
PCB 105	8.95
PCB 126	9.79
PCB 167	3.99
PCBs 156 + 157	5.74
PCB 169	4.67
PCB 189	5.94
PCB 209	0.901

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1520
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0120	**Units:**	ng/Kg
Lab Code:	E0900638-006	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	73.5

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/30/09 2105
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.390g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U221159	**Blank File Name:**	U220297
ICAL Date:	10/19/09	**Cal Ver. File Name:**	U221157

Analyte Name	EDL
PCB 81	32.7
PCB 77	35.3
PCB 123	71.9
PCB 118	59.8
PCB 114	73.0
PCB 105	70.5
PCB 126	63.6
PCB 167	18.3
PCBs 156 + 157	25.6
PCB 169	19.4
PCB 189	27.5
PCB 209	19.9

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 1535
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0121	**Units:**	ng/Kg
Lab Code:	E0900638-007	**Basis:**	Dry
		Percent Solids:	89.1

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/6/09 1352
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.467g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220854	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220849

Analyte Name	EDL
PCB 81	9.33
PCB 77	10.3
PCB 123	3.94
PCB 118	3.52
PCB 114	4.14
PCB 105	4.02
PCB 126	4.52
PCB 167	6.73
PCBs 156 + 157	12.5
PCB 169	9.68
PCB 189	17.9
PCB 209	4.61

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 1535
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0121	**Units:**	ng/Kg
Lab Code:	E0900638-007	**Basis:**	Dry
Run Type:	Dilution	**Percent Solids:**	89.1

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/15/09 0004
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.467g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220972	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220966

Analyte Name	EDL
PCB 81	37.6
PCB 77	45.4
PCB 123	94.8
PCB 118	78.8
PCB 114	103
PCB 105	92.3
PCB 126	98.6
PCB 167	88.3
PCBs 156 + 157	160
PCB 169	122
PCB 189	51.2
PCB 209	39.8

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ0900323-01	**Basis:**	Dry

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/2/09 1946
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.000g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220297	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220295

Analyte Name	EDL
PCB 81	1.81
PCB 77	2.09
PCB 123	3.82
PCB 118	3.16
PCB 114	3.37
PCB 105	3.47
PCB 126	3.17
PCB 167	3.04
PCBs 156 + 157	3.90
PCB 169	3.11
PCB 189	1.24
PCB 209	0.623

Comments:

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ0900337-01	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/9/09 1131
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220375	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220374

Analyte Name	EDL
PCB 81	5.81
PCB 77	5.93
PCB 123	16.1
PCB 118	14.8
PCB 114	15.3
PCB 105	14.2
PCB 126	13.8
PCB 167	6.95
PCBs 156 + 157	9.14
PCB 169	6.31
PCB 189	6.38
PCB 209	3.95

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1140
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0115	**Units:**	Percent
Lab Code:	E0900638-001	**Basis:**	Dry
		Percent Solids:	85.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/16/09 2144
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.778g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U221009	**Blank File Name:**	U220297
ICAL Date:	08/19/09	***Cal Ver. File Name:***	U221005

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1392.879	70		25-150	0.80	1.325
PCB 77L	2000	1344.650	67		25-150	0.79	1.345
PCB 123L	2000	1216.935	61		25-150	1.56	1.135
PCB 118L	2000	1387.620	69		25-150	1.34	1.144
PCB 114L	2000	1192.718	60		25-150	1.56	1.159
PCB 105L	2000	1259.936	63		25-150	0.81	1.178
PCB 126L	2000	1405.253	70		25-150	1.61	1.267
PCB 167L	2000	1188.013	59		25-150	1.30	1.071
PCBs 156L + 157L	4000	2421.193	61		25-150	1.32	1.098
PCB 169L	2000	1256.933	63		25-150	1.35	1.173
PCB 189L	2000	1281.100	64		25-150	1.07	0.962
PCB 28L	2000	1046.551	52		30-135	1.04	0.933
PCB 111L	2000	1102.348	55		30-135	1.61	1.078
PCB 178L	2000	988.797	49		30-135	1.01	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1220
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0116	**Units:**	Percent
Lab Code:	E0900638-002	**Basis:**	Dry
		Percent Solids:	59.0

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/7/09 0102
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.165g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220863	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220856

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1550.354	78		25-150	0.78	1.324
PCB 77L	2000	946.862	47		25-150	0.77	1.344
PCB 123L	2000	1326.827	66		25-150	1.63	1.134
PCB 118L	2000	1515.371	76		25-150	1.35	1.144
PCB 114L	2000	1303.053	65		25-150	1.60	1.159
PCB 105L	2000	1212.729	61		25-150	0.44	1.178
PCB 126L	2000	1401.521	70		25-150	1.55	1.266
PCB 167L	2000	1401.171	70		25-150	1.25	1.070
PCBs 156L + 157L	4000	2814.291	70		25-150	1.24	1.097
PCB 169L	2000	1336.734	67		25-150	1.29	1.172
PCB 189L	2000	1466.763	73		25-150	1.00	0.962
PCB 28L	2000	1240.277	62		30-135	1.02	0.933
PCB 111L	2000	738.616	37		30-135	1.58	1.077
PCB 178L	2000	1240.150	62		30-135	1.05	1.011

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0915
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0117	**Units:**	Percent
Lab Code:	E0900638-003	**Basis:**	Dry
		Percent Solids:	90.8

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/21/09 0443
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.417g	**Instrument Name:**	E-HRMS-01
		GC Column:	SPB-OCTYL
Data File Name:	U133538	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U133528

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1423.439	71		25-150	0.73	1.341
PCB 77L	2000	1375.843	69		25-150	0.75	1.363
PCB 123L	2000	1199.832	60		25-150	1.45	1.140
PCB 118L	2000	1197.192	60		25-150	1.41	1.150
PCB 114L	2000	1108.912	55		25-150	1.45	1.167
PCB 105L	2000	1182.290	59		25-150	1.44	1.186
PCB 126L	2000	1119.844	56		25-150	1.47	1.279
PCB 167L	2000	1028.623	51		25-150	1.24	1.074
PCBs 156L + 157L	4000	1975.920	49		25-150	1.22	1.101
PCB 169L	2000	917.450	46		25-150	1.20	1.180
PCB 189L	2000	1172.527	59		25-150	1.04	0.961
PCB 28L	2000	1267.092	63		30-135	0.98	0.930
PCB 111L	2000	1311.228	66		30-135	1.55	1.082
PCB 178L	2000	1183.527	59		30-135	1.02	1.011

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 0920
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0118	**Units:**	Percent
Lab Code:	E0900638-004	**Basis:**	Dry
		Percent Solids:	93.4

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/6/09 1243
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.524g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220853	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220849

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1794.484	90		25-150	0.78	1.324
PCB 77L	2000	1716.964	86		25-150	0.77	1.345
PCB 123L	2000	1550.472	78		25-150	1.61	1.133
PCB 118L	2000	1622.878	81		25-150	1.61	1.143
PCB 114L	2000	1495.249	75		25-150	1.59	1.158
PCB 105L	2000	1562.388	78		25-150	1.51	1.177
PCB 126L	2000	1710.498	86		25-150	1.56	1.265
PCB 167L	2000	1383.815	69		25-150	1.35	1.070
PCBs 156L + 157L	4000	2669.833	67		25-150	1.35	1.097
PCB 169L	2000	1399.722	70		25-150	1.34	1.172
PCB 189L	2000	1396.157	70		25-150	1.01	0.962
PCB 28L	2000	1257.694	63		30-135	1.03	0.933
PCB 111L	2000	1388.561	69		30-135	1.57	1.077
PCB 178L	2000	1263.564	63		30-135	1.00	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/ 4/09 1030
Sample Matrix:	Water	**Date Received:**	8/13/09
Sample Name:	C0119	**Units:**	Percent
Lab Code:	E0900638-005	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/6/09 1227
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	930mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220346	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220342

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	872.657	44		25-150	0.80	1.320
PCB 77L	2000	908.557	45		25-150	0.76	1.339
PCB 123L	2000	812.799	41		25-150	1.52	1.132
PCB 118L	2000	879.009	44		25-150	1.51	1.141
PCB 114L	2000	801.443	40		25-150	1.55	1.156
PCB 105L	2000	864.758	43		25-150	1.52	1.174
PCB 126L	2000	975.122	49		25-150	1.51	1.262
PCB 167L	2000	793.463	40		25-150	1.33	1.069
PCBs 156L + 157L	4000	1666.611	42		25-150	1.25	1.096
PCB 169L	2000	868.416	43		25-150	1.32	1.170
PCB 189L	2000	856.663	43		25-150	1.02	0.962
PCB 28L	2000	746.047	37		30-135	1.00	0.934
PCB 111L	2000	819.732	41		30-135	1.57	1.076
PCB 178L	2000	707.368	35		30-135	1.05	1.011

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/10/09 1520
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0120	**Units:**	Percent
Lab Code:	E0900638-006	**Basis:**	Dry
		Percent Solids:	73.5

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/8/09 0059
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	6.390g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220882	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220877

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1303.065	65		25-150	0.80	1.324
PCB 77L	2000	1306.382	65		25-150	0.77	1.345
PCB 123L	2000	1143.859	57		25-150	1.56	1.134
PCB 118L	2000	1267.811	63		25-150	1.56	1.143
PCB 114L	2000	1118.174	56		25-150	1.57	1.159
PCB 105L	2000	1222.606	61		25-150	1.58	1.177
PCB 126L	2000	1304.209	65		25-150	1.62	1.266
PCB 167L	2000	1027.647	51		25-150	1.34	1.070
PCBs 156L + 157L	4000	2063.133	52		25-150	1.35	1.097
PCB 169L	2000	1098.130	55		25-150	1.34	1.172
PCB 189L	2000	1045.141	52		25-150	1.08	0.962
PCB 28L	2000	915.397	46		30-135	1.04	0.933
PCB 111L	2000	1085.647	54		30-135	1.55	1.077
PCB 178L	2000	958.641	48		30-135	1.03	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	8/11/09 1535
Sample Matrix:	Soil	**Date Received:**	8/13/09
Sample Name:	C0121	**Units:**	Percent
Lab Code:	E0900638-007	**Basis:**	Dry
		Percent Solids:	89.1

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	10/6/09 1352
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.467g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220854	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220849

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1189.965	59		25-150	0.81	1.323
PCB 77L	2000	1114.175	56		25-150	0.79	1.344
PCB 123L	2000	1085.068	54		25-150	1.51	1.133
PCB 118L	2000	1197.522	60		25-150	1.60	1.143
PCB 114L	2000	1004.263	50		25-150	1.52	1.158
PCB 105L	2000	1108.827	55		25-150	1.56	1.176
PCB 126L	2000	1120.496	56		25-150	1.53	1.265
PCB 167L	2000	871.170	44		25-150	1.25	1.071
PCBs 156L + 157L	4000	1355.074	34		25-150	1.27	1.098
PCB 169L	2000	709.236	35		25-150	1.29	1.172
PCB 189L	2000	1107.029	55		25-150	1.07	0.962
PCB 28L	2000	881.484	44		30-135	1.02	0.933
PCB 111L	2000	913.457	46		30-135	1.78	1.077
PCB 178L	2000	910.577	46		30-135	1.03	1.011

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ0900323-01	**Basis:**	Dry

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/2/09 1946
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.000g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220297	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220295

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	2025.905	101		25-150	0.77	1.317
PCB 77L	2000	2095.100	105		25-150	0.80	1.339
PCB 123L	2000	1726.900	86		25-150	1.53	1.132
PCB 118L	2000	1880.066	94		25-150	1.53	1.142
PCB 114L	2000	1773.416	89		25-150	1.54	1.157
PCB 105L	2000	1836.321	92		25-150	1.55	1.174
PCB 126L	2000	2134.051	107		25-150	1.54	1.262
PCB 167L	2000	1807.559	90		25-150	1.28	1.069
PCBs 156L + 157L	4000	3831.632	96		25-150	1.28	1.095
PCB 169L	2000	2006.116	100		25-150	1.27	1.168
PCB 189L	2000	1620.729	81		25-150	1.04	0.963
PCB 28L	2000	1325.198	66		30-135	1.01	0.936
PCB 111L	2000	1386.481	69		30-135	1.54	1.079
PCB 178L	2000	1284.430	64		30-135	1.03	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ0900337-01	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/9/09 1131
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220375	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220374

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	996.785	50		25-150	0.75	1.320
PCB 77L	2000	1047.975	52		25-150	0.77	1.340
PCB 123L	2000	781.888	39		25-150	1.48	1.132
PCB 118L	2000	808.478	40		25-150	1.56	1.142
PCB 114L	2000	802.545	40		25-150	1.54	1.156
PCB 105L	2000	905.697	45		25-150	1.54	1.175
PCB 126L	2000	1068.609	53		25-150	1.52	1.263
PCB 167L	2000	872.606	44		25-150	1.25	1.069
PCBs 156L + 157L	4000	1936.219	48		25-150	1.24	1.096
PCB 169L	2000	1142.562	57		25-150	1.28	1.170
PCB 189L	2000	1150.089	58		25-150	1.01	0.963
PCB 28L	2000	1115.426	56		30-135	0.99	0.934
PCB 111L	2000	1305.366	65		30-135	1.54	1.076
PCB 178L	2000	1168.756	58		30-135	0.99	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ0900323-02	**Basis:**	Dry

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/2/09 1549
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.000g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220294	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220290

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1464.969	73		25-150	0.77	1.318
PCB 77L	2000	1459.221	73		25-150	0.79	1.337
PCB 123L	2000	1374.456	69		25-150	1.51	1.132
PCB 118L	2000	1357.895	68		25-150	1.63	1.141
PCB 114L	2000	1266.983	63		25-150	1.52	1.156
PCB 105L	2000	1351.934	68		25-150	1.49	1.174
PCB 126L	2000	1489.193	74		25-150	1.53	1.260
PCB 167L	2000	1186.671	59		25-150	1.30	1.068
PCBs 156L + 157L	4000	2512.952	63		25-150	1.23	1.095
PCB 169L	2000	1302.312	65		25-150	1.23	1.169
PCB 189L	2000	1255.544	63		25-150	1.08	0.963
PCB 28L	2000	1014.765	51		30-135	1.10	0.934
PCB 111L	2000	1256.238	63		30-135	1.52	1.076
PCB 178L	2000	1079.286	54		30-135	1.01	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ0900337-02	**Basis:**	NA

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/9/09 0446
Prep Method:	Method	**Date Extracted:**	8/25/09
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220371	**Blank File Name:**	U220375
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220361

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	558.746	28		25-150	0.79	1.320
PCB 77L	2000	579.105	29		25-150	0.79	1.340
PCB 123L	2000	498.386	25		25-150	1.51	1.132
PCB 118L	2000	528.082	26		25-150	1.52	1.142
PCB 114L	2000	489.158	24	Y	25-150	1.52	1.157
PCB 105L	2000	540.637	27		25-150	1.50	1.176
PCB 126L	2000	636.154	32		25-150	1.48	1.263
PCB 167L	2000	524.700	26		25-150	1.26	1.069
PCBs 156L + 157L	4000	1128.182	28		25-150	1.21	1.096
PCB 169L	2000	594.858	30		25-150	1.31	1.170
PCB 189L	2000	596.481	30		25-150	1.05	0.962
PCB 28L	2000	580.378	29	Y	30-135	1.00	0.934
PCB 111L	2000	659.099	33		30-135	1.53	1.076
PCB 178L	2000	589.890	29	Y	30-135	1.01	1.010

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	US Environmental Protection Agency	**Service Request:**	E0900638
Project:	Region 1 PCBs/CB002	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample Dup	**Units:**	Percent
Lab Code:	EQ0900323-03	**Basis:**	Dry

Chlorinated Biphenyl Congeners by HRGC/HRMS

Analytical Method:	1668A	**Date Analyzed:**	9/2/09 1130
Prep Method:	Method	**Date Extracted:**	8/20/09
Sample Amount:	5.000g	**Instrument Name:**	E-HRMS-02
		GC Column:	SPB-OCTYL
Data File Name:	U220291	**Blank File Name:**	U220297
ICAL Date:	08/19/09	**Cal Ver. File Name:**	U220290

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
PCB 81L	2000	1529.066	76		25-150	0.77	1.318
PCB 77L	2000	1577.630	79		25-150	0.80	1.337
PCB 123L	2000	1366.636	68		25-150	1.57	1.131
PCB 118L	2000	1365.069	68		25-150	1.54	1.140
PCB 114L	2000	1305.617	65		25-150	1.53	1.156
PCB 105L	2000	1405.880	70		25-150	1.57	1.174
PCB 126L	2000	1496.946	75		25-150	1.56	1.260
PCB 167L	2000	1264.012	63		25-150	1.27	1.069
PCBs 156L + 157L	4000	2640.381	66		25-150	1.26	1.095
PCB 169L	2000	1357.877	68		25-150	1.20	1.169
PCB 189L	2000	1325.324	66		25-150	1.04	0.963
PCB 28L	2000	1199.891	60		30-135	0.98	0.934
PCB 111L	2000	1314.008	66		30-135	1.57	1.076
PCB 178L	2000	1062.957	53		30-135	1.07	1.010

Comments:

Evidence Audit Photocopy

CB CONGENER COMPLETE SDG FILE (CSF) INVENTORY SHEET (DC-2)

LABORATORY NAME Columbia Analytical Services

CITY/STATE Houston, TX

CASE NO. CB002 SDG NO. C0115 SDG NOS. TO FOLLOW _____ _____ _____

TASK ORDER NO. _____

CONTRACT NO. EP09W001490

SOW NO. CBC01.0

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

		PAGE NOs.		CHECK	
		FROM	TO	LAB	EPA
1.	**Inventory Sheet** (DC-2) (Do not number)			✓	
2.	**SDG Narrative**	1	5	✓	✓
3.	**Traffic Report**	6	6	✓	✓
4.	**CB Congener Data**				
a.	Sample Data				
	Toxic CB Congener Data Summary (FORM I CB-1)	7	18	✓	✓
	Toxic CB Congener Toxicity Equivalence Summary (FORM I CB-2)	19	25	✓	✓
	CB Congener Sample Data Summary (FORM I CB-3)	--	--	✓	✓
	Selected Ion Current Profile (SICP) for each sample	26	--	✓	✓
	Quantitation Reports and Area Summaries	--	565	✓	✓
	Total Homologue Concentration Summary (FORM II CB)	566	572	✓	✓
b.	Quality Control Data				
	Method Blank Summary (FORM IV CB)	573	574	✓	✓
	CB Congner Descriptor Switching Resolution Summary (FORM V CB-1)	575	590	✓	✓
	CB Congener Ion Abundance Ratio Summary (FORM V CB-2)	591	606	✓	✓
	CB Congener (Labeled) Ion Abundance Ratio Summary (FORM V CB-3)	607	622	✓	✓
	Analytical Sequence Summary (FORM VIII CB)	623	646	✓	✓
c.	Calibration Data				
	Toxic CB Congener Initial Calibration Response Factor Summary (FORM VI CB-1)	647	652	✓	✓
	Toxic CB Congener Initial Calibration Ion Abundance Ratio Summary (VI CB-2)	653	658	✓	✓
	CB Congener Initial Calibration Response Factor Summary (FORM VI CB-3)	659	--	✓	✓
	CB Congener Initial Calibration Ion Abundance Ratio Summary (VI CB-4)	--	670	✓	✓
	Toxic CB Congener Continuing Calibration Summary (VII CB-1)	671	683	✓	✓
	Toxic CB Congener Continuing Calibration Retention Time Summary (VII CB-2)	684	696	✓	✓
	CB Congener Continuing Calibration Summary (VII CB-3)	--	--	✓	✓
	CB Congener Continuing Calibration Retention Time Summary (VII CB-4)	697	774	✓	✓

CASE NO. CB002 SDG NO. C0115 SDG NOS. TO FOLLOW

MOD. REF. NO.

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK EPA
d. Raw Quality Control Data				
Blank Data FORM I CB-1, CB-2, CB-3 (if applicable)	775	780	✓	✓
Blank Data including SICPs, Quantitation Reports, and Area Summaries for each blank analyzed	781	865	✓	✓
5. Comments: LCS/DLCS Forms and Data	866	953	✓	✓
Misc.	954	992	✓	✓
CPS01-CPS16 Raw Data	993	1505	✓	✓
ICAL Raw Data	1506	1927	✓	✓
CCAL Raw Data	1928	2427	✓	✓

Completed by:

(CLP Lab) [signature] (Signature) Darren Biles/Project Chemist (Print Name & Title) 12/19/09 (Date)

Audited by:

(USEPA) [signature] (Signature) JIM CHEN Chemist (Print Name & Title) 5/10/2010 (Date)

Non-RAS No:CB002 Sample No: C0118
Station Loc: MW-DUP02-0811-0920a Designate: Grab
Analysis: PCB Congeners + Homologues
Tag #: 45 Sampling Date/Time: 8/11/2009 / 09:20
Preservative:

Non-RAS No:CB002 Sample No: C0115
Station Loc: MW-25O1-0810-1140 Designate: Grab
Analysis: PCB Congeners + Homologues
Tag #: 40 Sampling Date/Time: 8/10/2009 / 11:40
Preservative:

Non-RAS No:CB002 Sample No: C0117
Station Loc: MW-29O1-0811-0915 Designate: Grab
Analysis: PCB Congeners + Homologues
Tag #: 44 Sampling Date/Time: 8/11/2009 / 09:15
Preservative:

Non-RAS No:CB002 Sample No: C0116
Station Loc: MW-25O1-0810-1220 Designate: Grab
Analysis: PCB Congeners + Homologues
Tag #: 41 Sampling Date/Time: 8/10/2009 / 12:20
Preservative:

Non-RAS No:CB002 Sample No: C0119
Station Loc: EB-01-0811-1030 Designate: Grab
Analysis: PCB Congeners + Homologues
Tag #: 49 Sampling Date/Time: 8/4/2009 / 10:30
Preservative:

Non-RAS No:CB002 Sample No: C0119
Station Loc: EB-01-0811-1030 Designate: Grab
Analysis: PCB Congeners + Homologues
Tag #: 48 Sampling Date/Time: 8/4/2009 / 10:30
Preservative:

Non-RAS No:CB002 Sample No: C0120
Station Loc: SB-06O1-0810-1520 Designate: Grab
Analysis: PCB Congeners + Homologues
Tag #: 52 Sampling Date/Time: 8/10/2009 / 15:20
Preservative:

Non-RAS No:CB002 Sample No: C0121
Station Loc: MW-31O1-0811-1535 Designate: Grab
Analysis: PCB Congeners + Homologues
Tag #: 54 Sampling Date/Time: 8/11/2009 / 15:35
Preservative:

Airbill was
shipped with
previous report