US EPA Approval Signature

9-23-13
Date

Ms. Martha Bosworth
Site Assessment Manager
EPA New England
5 Post Office Square, Suite 100
Boston, MA 02109

September 23, 2013

Re: TO No. 5, Task No. 1, TDF No. 57
Case No. 43393, SDG No. A4A93
Southwest Research Institute – San Antonio, TX
Jard Company, Inc., Bennington VT
Tier 2, Stage_4_Validation_Electronic_and_Manual (S4VEM)

209 CB Congeners:

1/Groundwater/	A4A93
7/Soil/	A4B20, A4B28, A4B38, A4B42, A4B46, A4B52, A4C36
1/Sediment/	A4C08
3/PE/	A4C43 (TT2613), A4C44 (ASX0147), A4C45 (C0034)

Dear Ms. Bosworth:

A stage 4 electronic and manual validation was performed on the organic analytical data for one groundwater sample, seven soil samples, one sediment sample, and three performance evaluation samples collected by Weston Solutions Inc. for U.S. EPA at the Jard Company Site in Bennington, VT. The samples were analyzed according to USEPA SOW CBC01.2, December 2009. The samples were validated according to the EPA New England Environmental Data Review Program Guidance, April 22, 2013, using first the criteria in the Site Assessment Program Site Specific Quality Assurance Project Plan (QAPP) for Surface and Subsurface Soil/Source, Ground Water, and Sediment Sampling, Jard Company Inc., Bennington, VT, January 11, 2013, and then the USEPA SOW CBC01.2, December 2009, and then the EPA New England Environmental Data Review Supplement, April 22, 2013, and finally to EPA Region I's Environmental Services Assistance Team PCB Congener Data Validation SOP ESAT-01-0008 (10/7/10).

The data were evaluated based on the following parameters:

	I.	Data Completeness
*	II.	Preservation and Holding Times
	III.	Accuracy Check (Performance Evaluation Results)
*	IV.	Window Defining Mix
*	V.	Initial and Continuing Calibrations
*	VI.	Chromatographic Resolution and Sensitivity Check

SDMS Doc ID 564878

*	VII.	Blanks
NR	VIII.	Matrix Spike/Matrix Spike Duplicate
*	IX	Laboratory Control Samples
NA	X.	Field Duplicates
	XI.	Labeled Toxics/LOC/Window Defining Congeners and Clean-Up Standards
	XII.	Sample Analysis and Identification
	XIII.	Sample Quantitation
*	XIV.	2378-TCDD Toxicity Equivalents (TE)
*	XV.	Required Sample Reruns
*	XVI.	System Performance

* All criteria were met for this parameter.
NA Not Applicable.
NR Not Required.
Stage 2A Electronic Data Review Reports were available for this SDG.

Overall Evaluation of Data and Potential Usability Issues

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

- To determine the toxicity and types of Aroclors present in support of an HRS listing. A subset of samples will be submitted for PCB congener analysis to further identify Aroclor types and toxicity.

One single blind performance evaluation (PE) sample A4C45 (C0034) was evaluated for this SDG. All analytes were scored "Within Limits" except for PCB 105 which was scored "Action High". All positive detects for PCB 105 in the soil and sediment samples were estimated (J).

Two PE samples A4C43 and A4C44 were analyzed for 209 CB congeners, but contained Aroclors. A4C43 (TT2613) was scored using the Total PCBs value, not including the 9-chlorinated congeners and decachlorobiphenyl which are not typically found in Aroclor 1254. A4C44DL (ASX0147) was scored using the Total PCBs value, not including the 7 through 9-chlorinated congeners and decachlorobiphenyl which are not typically found in Aroclor 1242. Both PE samples scored "Within Limits". The PE scores are for informational purposes. No action would be applied based on these scores.

Data validation indicated the following data quality problems.

209 CB Congeners: Results were qualified due to "Action High" PE score for PCB 105, high labeled compound and cleanup standard recovery, non-compliant ion abundance ratio for PCB 189 in sample A4C08, and sample concentrations exceeding the instrument calibration range.

See the attached worksheets for details. The results reported on the Data Summary Tables are usable for the site objectives.

Sincerely,
TechLaw, Inc.

Leslie Downey
Data Validator

Louis Macri
Program Manager

Attachments: Data Summary Tables
EXES NFG Report #06 - Analytical Sample Listing
Data Validation Worksheets
Support Documentation:
PE Score Results
Communications
Field Notes
CSF Audit
DQO Summary Form

ESAT Generated Data Summary Table - Validated Results

Lab: Southwest Research Institute (SWRI) **Case**: 43393 SDG: A4A93 **SOW**: CBC01.2 **Analysis**: 209 CB Congeners

	Sample	A4A93		A4B20		A4B28		A4B38		A4B42	
	Location	JCW-004		JCS-148		JCS-025		JCS-072		JCS-084	
	Type	Field_Sample		Field_Sample		Field_Sample		Field_Sample		Field_Sample	
	Matrix	Ground Water		Soil		Soil		Soil		Soil	
	Dilution Factor	1, 100 D		1, 100 D		1		1, 20 D		1, 20 D	
	% Solid	N/A		90.1		89.8		73.6		87.5	
	Units	pg/L		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)	
CL#	Compounds	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1	PCB-1	16100		2360		34.0		2890		324	J[3]
1	PCB-2	154		89.0		2.5		174		22.3	J[3]
1	PCB-3	1210		494		12.4		904		119	J[3]
2	PCB-4	1310000	D	7070	D	227		7740	D	956	J[3] D
2	PCB-5	2000	U D	16400	D	1.9	U	1.9	U	36.6	UJ[3] D
2	PCB-6	7120	D	191	U D	108		7270	J[4]	704	J[3] D
2	PCB-7	2000	U D	481	D	20.4		1500		122	J[3] D
2	PCB-8	43200	D	191	U D	409		31700	J[4]	3180	J[3] D
2	PCB-9	2000	U D	1350	D	33.5		2450		245	J[3] D
2	PCB-10	1020000	D	3980	D	165		562		421	J[3] D
2	PCB-11	2000	U D	745	D	28.7		133		128	J[3] D
2	PCB-12/13	4000	U D	1800	D	137		1820		673	J[3] D
2	PCB-14	2000	U D	191	U D	1.9	U	1.9	U	36.6	UJ[3] D
2	PCB-15	408000	D	16200	D	1340		12500	D	12600	J[3] D
3	PCB-16	2000	U D	20800	D	1.9	U	15800	J[4]	36.6	UJ[3] D
3	PCB-17	102000	D	38500	D	2550		13800	J[4]	10300	J[3] D
3	PCB-18/30	146000	D	106000	D	2210		28300	J[4]	11000	J[3] D
3	PCB-19	2980000	D	137000	D	3480		3180		21100	J[3] D
3	PCB-20/28	1120000	D	473000	D	18100	J[4]	44900	J[4]	293000	J[3,4] D
3	PCB-21/33	19300	D	21700	D	697		16600	J[4]	757	J[3] D
3	PCB-22	39000	D	540000	J[4] D	8440	J[4]	17700	J[4]	122000	J[3,4] D
3	PCB-23	2000	U D	638	D	2.8		38.6		36.6	UJ[3] D
3	PCB-24	1400	J D	40900	D	1220		1.9	U	4290	J[3] D
3	PCB-25	16500	D	38100	D	1420		3050		12000	J[3] D
3	PCB-26/29	185000	D	26000	D	1820		7150		19300	J[3] D
3	PCB-27	489000	D	187000	D	3730		1860		26000	J[3] D
3	PCB-31	297000	D	209000	D	8100	J[4]	38400	J[4]	127000	J[3,4] D
3	PCB-32	3410000	D	842000	J[4] D	11900	J[4]	8150	J[4]	108000	J[3,4] D
3	PCB-34	14900	D	2680	D	99.4		129		488	J[3] D
3	PCB-35	4210	D	2060	D	31.3		892		1450	J[3] D
3	PCB-36	2000	U D	191	U D	1.9	U	1.9	U	36.6	UJ[3] D
3	PCB-37	781000	D	121000	D	3040		31400	D	58200	J[3] D
3	PCB-38	2000	U D	191	U D	49.4		1.9	U	36.6	UJ[3] D
3	PCB-39	2000	U D	191	U D	162		1.9	U	36.6	UJ[3] D
4	PCB-40/41/71	1380000	D	2110000	J[4] D	49400	J[4]	23000	J[4]	512000	J[3,4] D
4	PCB-42	678000	D	1320000	J[4] D	42400	J[4]	19100	J[4]	391000	J[3,4] D
4	PCB-43	38800	D	52100	D	2550		1270		36.6	UJ[3] D
4	PCB-44/47/65	1330000	D	2330000	J[4] D	114000	J[4]	50200	J[4]	875000	J[3,4] D
4	PCB-45/51	653000	D	811000	J[4] D	28200	J[4]	7850	J[4]	177000	J[3,4] D
4	PCB-46	123000	D	251000	D	5250	J[4]	2530		47600	J[3] D
4	PCB-48	311000	D	380000	D	8260	J[4]	10100	J[4]	129000	J[3,4] D
4	PCB-49/69	960000	D	1700000	J[4] D	83400	J[4]	67800	J[4]	564000	J[3,4] D
4	PCB-50/53	600000	D	565000	D	12800	J[4]	4800		128000	J[3] D
4	PCB-52	1100000	D	1980000	J[4] D	131000	J[4]	83600	J[4]	625000	J[3,4] D
4	PCB-54	21100	D	7550	D	342		86.0		1260	J[3] D
4	PCB-55	2000	U D	23000	D	117		243		566	J[3] D
4	PCB-56	72700	D	869000	J[4] D	4210	J[4]	28300	J[4]	43600	J[3] D
4	PCB-57	9290	D	21100	D	212		613		1780	J[3] D
4	PCB-58	2680	D	4330	D	1.9	U	1.9	U	1610	J[3] D
4	PCB-59/62/75	228000	D	361000	D	9720	J[4]	5510		107000	J[3] D
4	PCB-60	116000	D	520000	J[4] D	3080		21600	J[4]	38000	J[3] D

ESAT Generated Data Summary Table - Validated Results

Lab: Southwest Research Institute (SWRI) **Case**: 43393 SDG: A4A93 **SOW**: CBC01.2 **Analysis**: 209 CB Congeners

	Sample	A4A93		A4B20		A4B28		A4B38		A4B42	
	Location	JCW-004		JCS-148		JCS-025		JCS-072		JCS-084	
	Type	Field_Sample		Field_Sample		Field_Sample		Field_Sample		Field_Sample	
	Matrix	Ground Water		Soil		Soil		Soil		Soil	
	Dilution Factor	1, 100 D		1, 100 D		1		1, 20 D		1, 20 D	
	% Solid	N/A		90.1		89.8		73.6		87.5	
	Units	pg/L		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)	
CL#	Compounds	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
4	PCB-61/70/74/76	1150000	D	1430000	J[4] D	23400	J[4]	155000	J[4]	361000	J[3,4] D
4	PCB-63	24100	D	74500	D	1620		4300	J[4]	15200	J[3] D
4	PCB-64	1010000	D	1620000	J[4] D	61400	J[4]	52200	J[4]	463000	J[3,4] D
4	PCB-66	573000	D	1810000	J[4] D	17700	J[4]	120000	J[4]	260000	J[3,4] D
4	PCB-67	30300	D	76700	D	1560		2540		17500	J[3] D
4	PCB-68	3420	D	4520	D	222		727		1690	J[3] D
4	PCB-72	8020	D	9140	D	498		1220		3600	J[3] D
4	PCB-73	2000	U D	191	U D	1.9	U	1.9	U	36.6	UJ[3] D
4	PCB-77	36100	D	103000	D	644		17800	D	10100	J[3] D
4	PCB-78	2000	U D	191	U D	1.9	U	1.9	U	36.6	UJ[3] D
4	PCB-79	2000	U D	5530	D	1.9	U	369		443	J[3] D
4	PCB-80	2000	U D	191	U D	1.9	U	1.9	U	36.6	UJ[3] D
4	PCB-81	1380	J D	7440	D	38.8		951		634	J[3] D
5	PCB-82	12300	D	78800	D	539		5020	J[4]	5120	J[3] D
5	PCB-83/99	49400	D	223000	D	2210		27500	J[4]	19800	J[3] D
5	PCB-84	35400	D	174000	D	2350		4060	J[4]	15000	J[3] D
5	PCB-85/116/117	18400	D	124000	D	856		18200	J[4]	11200	J[3] D
5	PCB-86/87/97/108/119/125	45200	D	306000	D	2130		25400	J[4]	21900	J[3] D
5	PCB-88/91	60100	D	145000	D	3480		8960	J[4]	24300	J[3] D
5	PCB-89	7450	D	21600	D	288		404		2440	J[3] D
5	PCB-90/101/113	63200	D	301000	D	2880		28000	J[4]	24600	J[3] D
5	PCB-92	18200	D	52700	D	851		4670	J[4]	6070	J[3] D
5	PCB-93/95/98/100/102	331000	D	469000	D	16400	J[4]	25600	J[4]	143000	J[3] D
5	PCB-94	10600	D	9090	D	338		417		3540	J[3] D
5	PCB-96	17100	D	19800	D	873		306		6080	J[3] D
5	PCB-103	6910	D	3730	D	276		429		2370	J[3] D
5	PCB-104	2000	U D	191	U D	1.9	U	27.2		36.6	UJ[3] D
5	PCB-105	25200	D	190000	J[1] D	1490	J[1]	34900	J[1] D	17900	J[1,3] D
5	PCB-106	2000	U D	191	U D	1.9	U	1.9	U	36.6	UJ[3] D
5	PCB-107/124	2210	J D	9830	D	95.5		2290		900	J[3] D
5	PCB-109	2510	D	24900	D	176		4490	J[4]	1870	J[3] D
5	PCB-110/115	56400	D	453000	D	2680		46000	J[4]	34000	J[3] D
5	PCB-111	2000	U D	191	U D	1.9	U	19.2		36.6	UJ[3] D
5	PCB-112	2000	U D	191	U D	1.9	U	1.9	U	36.6	UJ[3] D
5	PCB-114	2180	D	15800	D	93.0		1720		1300	J[3] D
5	PCB-118	41400	D	269000	D	1900		45100	D	24100	J[3] D
5	PCB-120	2000	U D	356	D	1.9	U	84.1		36.6	UJ[3] D
5	PCB-121	2000	U D	191	U D	1.9	U	1.9	U	36.6	UJ[3] D
5	PCB-122	2000	U D	5760	D	51.2		1240		538	J[3] D
5	PCB-123	2000	U D	8160	D	68.3		2070		780	J[3] D
5	PCB-126	301		1500	D	13.5		413	D	194	J[3] D
5	PCB-127	2000	U D	191	U D	1.9	U	12.8		36.6	UJ[3] D
6	PCB-128/166	1450		10100	D	109		3000		1120	J[3]
6	PCB-129/138/160/163	7070		43400	D	488		12700	J[4]	5040	J[3]
6	PCB-130	532		3170	D	38.1		1010		406	J[3]
6	PCB-131	183		1700	D	12.0		184		109	J[3]
6	PCB-132	2780		20100	D	165		3790		1960	J[3]
6	PCB-133	75.5		191	U D	6.2		158		59.1	J[3]
6	PCB-134/143	420		2690	D	23.1		520		233	J[3]
6	PCB-135/151/154	1670		9450	D	95.1		2300		1170	J[3]

ESAT Generated Data Summary Table - Validated Results

Lab: Southwest Research Institute (SWRI) **Case**: 43393 SDG: A4A93 **SOW**: CBC01.2 **Analysis**: 209 CB Congeners

	Sample	A4A93		A4B20		A4B28		A4B38		A4B42	
	Location	JCW-004		JCS-148		JCS-025		JCS-072		JCS-084	
	Type	Field_Sample		Field_Sample		Field_Sample		Field_Sample		Field_Sample	
	Matrix	Ground Water		Soil		Soil		Soil		Soil	
	Dilution Factor	1, 100 D		1, 100 D		1		1, 20 D		1, 20 D	
	% Solid	N/A		90.1		89.8		73.6		87.5	
	Units	pg/L		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)	
CL#	Compounds	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
6	PCB-136	902		5280	D	47.5		621		534	J[3]
6	PCB-137	634		3800	D	42.7		1040		450	J[3]
6	PCB-139/140	176		1440	D	13.2		219		120	J[3]
6	PCB-141	1380		7130	D	62.0		1450		518	J[3]
6	PCB-142	20.0	U	191	U D	1.9	U	1.9	U	1.8	UJ[3]
6	PCB-144	305		1990	D	18.4		270		185	J[3]
6	PCB-145	20.0	U	99.8	J D	1.9	U	4.7		6.1	J[3]
6	PCB-146	670		4780	D	54.6		1410		575	J[3]
6	PCB-147/149	4040		22100	D	243		6150		2430	J[3]
6	PCB-148	20.0	U	191	U D	1.9	U	8.7		3.8	J[3]
6	PCB-150	20.0	U	99.7	J D	1.9	U	7.7		7.8	J[3]
6	PCB-152	64.5		166	J D	1.9	U	16.9		19.9	J[3]
6	PCB-153/168	4000		20900	D	276		7020		2870	J[3]
6	PCB-155	20.0	U	191	U D	1.9	U	0.19	J	1.8	UJ[3]
6	PCB-156/157	1160		7620	D	81.3		2130		974	J[3]
6	PCB-158	851		5410	D	50.7		1080		551	J[3]
6	PCB-159	20.0	U	191	U D	1.9	U	35.7		10.1	J[3]
6	PCB-161	20.0	U	2610	D	1.9	U	1.9	U	1.8	UJ[3]
6	PCB-162	20.0	U	231	D	2.9		75.9		31.3	J[3]
6	PCB-164	298		1490	D	24.1		768		207	J[3]
6	PCB-165	20.0	U	191	U D	1.9	U	4.9		1.8	UJ[3]
6	PCB-167	289		1830	D	19.6		640		227	J[3]
6	PCB-169	20.0	U	191	U D	1.9	U	1.9	U	1.8	UJ[3]
7	PCB-170	803		1520		38.4		1050		341	J[3]
7	PCB-171/173	236		544		12.7		374		142	J[3]
7	PCB-172	91.3		243		7.1		233		86.1	J[3]
7	PCB-174	592		1180		38.6		1260		424	J[3]
7	PCB-175	20.0	U	65.7		1.9	U	44.1		1.8	UJ[3]
7	PCB-176	78.0		186		4.2		141		55.7	J[3]
7	PCB-177	379		749		23.5		679		252	J[3]
7	PCB-178	130		228		9.5		282		94.3	J[3]
7	PCB-179	252		489		14.6		444		165	J[3]
7	PCB-180/193	1700		2670		88.0		2770		1040	J[3]
7	PCB-181	20.0	U	48.5		1.9	U	19.1		4.8	J[3]
7	PCB-182	20.0	U	1.9	U	1.9	U	1.9	U	1.8	UJ[3]
7	PCB-183/185	385		773		22.8		1070		401	J[3]
7	PCB-184	20.0	U	1.9	U	1.9	U	1.9	U	1.8	UJ[3]
7	PCB-186	20.0	U	1.9	U	1.9	U	1.9	U	1.8	UJ[3]
7	PCB-187	840		1480		60.6		1820		596	J[3]
7	PCB-188	20.0	U	2.4		1.9	U	1.9	U	1.8	UJ[3]
7	PCB-189	31.3		79.7		2.1		66.9		21.3	J[3]
7	PCB-190	124		276		8.4		277		79.6	J[3]
7	PCB-191	20.0	U	66.2		1.9	U	60.4		21.3	J[3]
7	PCB-192	20.0	U	1.9	U	1.9	U	1.9	U	1.8	UJ[3]
8	PCB-194	245		485		25.2		922		286	J[3]
8	PCB-195	98.8		183		9.4		390		117	J[3]
8	PCB-196	131		310		16.5		620		210	J[3]
8	PCB-197/200	33.7	J	97.8		6.6		215		55.7	J[3]
8	PCB-198/199	372		764		39.2		1240		358	J[3]
8	PCB-201	20.0	U	83.8		4.3		150		47.5	J[3]
8	PCB-202	82.1		154		10.2		208		58.7	J[3]

ESAT Generated Data Summary Table - Validated Results

Lab: Southwest Research Institute (SWRI) **Case**: 43393 SDG: A4A93 **SOW**: CBC01.2 **Analysis**: 209 CB Congeners

	Sample	A4A93		A4B20		A4B28		A4B38		A4B42	
	Location	JCW-004		JCS-148		JCS-025		JCS-072		JCS-084	
	Type	Field_Sample		Field_Sample		Field_Sample		Field_Sample		Field_Sample	
	Matrix	Ground Water		Soil		Soil		Soil		Soil	
	Dilution Factor	1, 100 D		1, 100 D		1		1, 20 D		1, 20 D	
	% Solid	N/A		90.1		89.8		73.6		87.5	
	Units	pg/L		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)	
CL#	Compounds	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
8	PCB-203	210		573		26.4		1000		276	J[3]
8	PCB-204	20.0	U	1.9	U	1.9	U	1.9	U	1.8	UJ[3]
8	PCB-205	10.3	J	21.0		1.9	U	76.0		20.8	J[3]
9	PCB-206	99.6		486		54.0		628		181	J[3]
9	PCB-207	20.0	U	55.0		4.6		76.1		21.5	J[3]
9	PCB-208	37.4		148		20.8		157		44.2	J[3]
10	PCB-209	13.3	J	79.8		63.2		89.6		56.5	J[3]
	Total MoCB	17400		2950		48.8		3970		465	J
	Total DiCB	2790000	D	48000	D	2470		65700	J	19000	J D
	Total TrCB	9590000	J D	2810000	J D	67100	J	231000	J	814000	J D
	Total TeCB	10500000	J D	18400000	J D	602000	J	682000	J	4770000	J D
	Total PeCB	805000	J D	2910000	J D	40000	J	287000	J	367000	J D
	Total HxCB	29000		178000	J D	1870		46600	J	19800	J
	Total HpCB	5640		10600		330		10600		3720	J
	Total OcCB	1180	J	2670		138		4820		1430	J
	Total NoCB	137		689		79.4		861		247	J
	DeCB	13.3	J	79.8		63.2		89.6		56.5	J
	Total PCBs^	23700000	J	24400000	J	714000	J	1330000	J	6000000	J
	Total TEQ#	36.2	J	177	J	1.54	J	46.0	J	22.0	J

S4VEM DATA VALIDATION QUALIFIER COMMENTS:

^ Total PCBs are the sum of the total homologues.

The Toxic Equivalent concentrations are calculated with the Toxicity Equivalency Factors (TEFs) found 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. The TE values are calculated using the final validated data and include the positive results and estimated values. The TE values are estimated (J) when any individual congener is estimated. The TE calculations do not include CRQL values.

J - Sample concentrations reported by the laboratory below the CRQL are flagged (J) on the Data Summary Table as estimated values with no superscripts.

[1] Soil performance evaluation sample score "Action High" for PCB 105; estimate (J) positive results for PCB 105 in all soil/sediment samples.

[2] Labeled compound recovery outside criteria; estimate (J, UJ) the affected sample results.

[3] Cleanup standard recovery outside criteria; estimate (J, UJ) results for all compounds.

[4] Sample concentration exceeds the instrument calibration range; estimate (J) the affected sample results.

[5] Toxic congener did not meet the identification criteria for ion abundance ratio; estimate (J) the affected sample result.

ESAT Generated Data Summary Table - Validated Results

Lab: Southwest Research Institute (SWRI) **Case**: 43393 SDG: A4A93 **SOW**: CBC01.2 **Analysis**: 209 CB Congeners

	Sample	A4B46		A4B52		A4C08		A4C36	
	Location	JCS-029		JCS-131		JCS-532		JCS-224	
	Type	Field_Sample		Field_Sample		Field_Sample		Field_Sample	
	Matrix	Soil		Soil		Sediment		Soil	
	Dilution Factor	1, 20 D		1, 100 D		1, 50 D		1, 10 D	
	% Solid	83.5		80.9		77.3		61.6	
	Units	ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)	
CL#	Compounds	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1	PCB-1	142	J[3]	285000	D	29.1	J[3]	82.0	
1	PCB-2	10	J[3]	10500	D	1.5	J[3]	33.2	
1	PCB-3	54.3	J[3]	30500	D	1.9	UJ[3]	92.3	
2	PCB-4	943	J[3] D	18600000	J[4] D	742	J[3] D	483	
2	PCB-5	38.6	UJ[3] D	7540	U D	95.8	UJ[3] D	1.9	U
2	PCB-6	586	J[3] D	4570000	D	95.8	UJ[3] D	319	
2	PCB-7	83.6	J[3] D	270000	D	95.8	UJ[3] D	54.8	
2	PCB-8	2540	J[3] D	17000000	J[4] D	394	J[3] D	1790	
2	PCB-9	189	J[3] D	892000	D	95.8	UJ[3] D	88.4	
2	PCB-10	44.4	J[3] D	631000	D	6170	J[3] D	93.7	
2	PCB-11	38.6	UJ[3] D	115000	D	340	J[3] D	965	
2	PCB-12/13	305	J[3] D	781000	D	776	J[3] D	146	
2	PCB-14	38.6	UJ[3] D	7540	U D	95.8	UJ[3] D	1.9	U
2	PCB-15	19600	J[3] D	10500000	D	22300	J[3] D	1320	
3	PCB-16	38.6	UJ[3] D	21100000	J[4] D	95.8	UJ[3] D	1720	
3	PCB-17	6200	J[3] D	22800000	J[4] D	8610	J[3] D	1230	
3	PCB-18/30	12200	J[3] D	36400000	J[4] D	5610	J[3] D	2840	
3	PCB-19	1550	J[3] D	6380000	D	47900	J[3] D	879	
3	PCB-20/28	261000	J[3,4] D	43000000	J[4] D	79700	J[3] D	5900	
3	PCB-21/33	4590	J[3] D	22200000	D	192	UJ[3] D	2990	
3	PCB-22	27400	J[3] D	13900000	D	33300	J[3] D	2540	
3	PCB-23	38.6	UJ[3] D	44100	D	95.8	UJ[3] D	2.0	
3	PCB-24	2690	J[3] D	7540	U D	4510	J[3] D	1.9	U
3	PCB-25	2940	J[3] D	2650000	D	8190	J[3] D	332	
3	PCB-26/29	5740	J[3] D	8040000	D	22600	J[3] D	840	
3	PCB-27	1650	J[3] D	3180000	D	30300	J[3] D	331	
3	PCB-31	149000	J[3,4] D	37800000	J[4] D	39700	J[3] D	4950	J[4]
3	PCB-32	18300	J[3] D	12800000	D	106000	J[3] D	1590	
3	PCB-34	374	J[3] D	131000	D	402	J[3] D	12.6	
3	PCB-35	844	J[3] D	314000	D	415	J[3] D	44.4	
3	PCB-36	38.6	UJ[3] D	7540	U D	95.8	UJ[3] D	1.9	U
3	PCB-37	104000	J[3,4] D	8050000	D	20400	J[3] D	2760	
3	PCB-38	38.6	UJ[3] D	7540	U D	95.8	UJ[3] D	1.9	U
3	PCB-39	38.6	UJ[3] D	7540	U D	95.8	UJ[3] D	1.9	U
4	PCB-40/41/71	226000	J[3,4] D	18900000	D	343000	J[3] D	5110	
4	PCB-42	192000	J[3,4] D	11900000	D	300000	J[3,4] D	3280	
4	PCB-43	38.6	UJ[3] D	584000	D	95.8	UJ[3] D	1.9	U
4	PCB-44/47/65	436000	J[3,4] D	27400000	D	466000	J[3,4] D	14900	J[4]
4	PCB-45/51	57100	J[3] D	8700000	D	118000	J[3] D	3010	
4	PCB-46	19100	J[3] D	2310000	D	35500	J[3] D	998	
4	PCB-48	58800	J[3] D	9510000	D	78500	J[3] D	2160	
4	PCB-49/69	301000	J[3,4] D	17400000	D	383000	J[3] D	7410	
4	PCB-50/53	47700	J[3] D	5820000	D	90900	J[3] D	2260	
4	PCB-52	355000	J[3,4] D	22500000	J[4] D	397000	J[3,4] D	15500	J[4]
4	PCB-54	321	J[3] D	84500	D	1200	J[3] D	37.7	
4	PCB-55	38.6	UJ[3] D	24000	D	95.8	UJ[3] D	39.6	
4	PCB-56	58600	J[3] D	2480000	D	39900	J[3] D	4320	J[4]
4	PCB-57	38.6	UJ[3] D	87100	D	2670	J[3] D	1.9	U
4	PCB-58	38.6	UJ[3] D	18700	D	993	J[3] D	509	
4	PCB-59/62/75	39500	J[3] D	3100000	D	65800	J[3] D	318	
4	PCB-60	29700	J[3] D	1360000	D	16200	J[3] D	1810	

ESAT Generated Data Summary Table - Validated Results

Lab: Southwest Research Institute (SWRI) **Case**: 43393 SDG: A4A93 **SOW**: CBC01.2 **Analysis**: 209 CB Congeners

	Sample	A4B46		A4B52		A4C08		A4C36	
	Location	JCS-029		JCS-131		JCS-532		JCS-224	
	Type	Field_Sample		Field_Sample		Field_Sample		Field_Sample	
	Matrix	Soil		Soil		Sediment		Soil	
	Dilution Factor	1, 20 D		1, 100 D		1, 50 D		1, 10 D	
	% Solid	83.5		80.9		77.3		61.6	
	Units	ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)	
CL#	Compounds	Result	Flag	Result	Flag	Result	Flag	Result	Flag
4	PCB-61/70/74/76	319000	J[3,4] D	16600000	D	154000	J[3] D	17800	J[4]
4	PCB-63	7300	J[3] D	442000	D	4430	J[3] D	1.9	U
4	PCB-64	216000	J[3,4] D	14500000	D	202000	J[3,4] D	5700	J[4]
4	PCB-66	227000	J[3,4] D	6130000	D	180000	J[3] D	8320	J[4]
4	PCB-67	7330	J[3] D	702000	D	8400	J[3] D	150	
4	PCB-68	970	J[3] D	40800	D	1290	J[3] D	1.9	U
4	PCB-72	2060	J[3] D	69800	D	2090	J[3] D	19.7	
4	PCB-73	38.6	UJ[3] D	7540	U D	95.8	UJ[3] D	1.9	U
4	PCB-77	11100	J[3] D	269000	D	4600	J[3] D	1760	
4	PCB-78	38.6	UJ[3] D	7540	U D	95.8	UJ[3] D	1.9	U
4	PCB-79	328	J[3] D	7540	U D	423	J[3] D	279	
4	PCB-80	38.6	UJ[3] D	7540	U D	95.8	UJ[3] D	49.8	
4	PCB-81	539	J[3] D	16200	D	228	J[3] D	13.7	
5	PCB-82	3240	J[3] D	135000	J[2] D	6150	J[3] D	2670	
5	PCB-83/99	15100	J[3] D	514000	J[2] D	18100	J[3] D	10600	J[4]
5	PCB-84	13300	J[3] D	706000	J[2] D	15300	J[3] D	5940	J[4]
5	PCB-85/116/117	8380	J[3] D	238000	J[2] D	9150	J[3] D	9840	J[4]
5	PCB-86/87/97/108/119/125	16700	J[3] D	579000	J[2] D	23800	J[3] D	16400	J[4]
5	PCB-88/91	14000	J[3] D	621000	J[2] D	23200	J[3] D	3110	
5	PCB-89	1440	J[3] D	89100	J[2] D	2180	J[3] D	293	
5	PCB-90/101/113	23000	J[3] D	754000	J[2] D	25800	J[3] D	17600	J[4]
5	PCB-92	4800	J[3] D	208000	J[2] D	5560	J[3] D	1880	
5	PCB-93/95/98/100/102	74300	J[3] D	3710000	J[2] D	97900	J[3] D	15000	J[4]
5	PCB-94	1750	J[3] D	65200	J[2] D	2170	J[3] D	56.4	
5	PCB-96	2670	J[3] D	188000	J[2] D	3810	J[3] D	148	
5	PCB-103	722	J[3] D	50100	J[2] D	1390	J[3] D	44.0	
5	PCB-104	38.6	UJ[3] D	7540	UJ[2] D	95.8	UJ[3] D	1.9	U
5	PCB-105	14000	J[1,3] D	313000	J[1] D	8440	J[1,3] D	10800	J[1] D
5	PCB-106	38.6	UJ[3] D	7540	UJ[2] D	95.8	UJ[3] D	1.9	U
5	PCB-107/124	707	J[3] D	16300	J[2] D	615	J[3] D	483	
5	PCB-109	1080	J[3] D	40000	J[2] D	1230	J[3] D	707	
5	PCB-110/115	26000	J[3] D	647000	J[2] D	35500	J[3] D	22800	J[4]
5	PCB-111	38.6	UJ[3] D	7540	UJ[2] D	95.8	UJ[3] D	1.9	U
5	PCB-112	38.6	UJ[3] D	7540	UJ[2] D	95.8	UJ[3] D	1.9	U
5	PCB-114	639	J[3] D	24500	D	465	J[3] D	311	
5	PCB-118	18700	J[3] D	453000	D	11600	J[3] D	20900	D
5	PCB-120	38.6	UJ[3] D	7540	UJ[2] D	95.8	UJ[3] D	1.9	U
5	PCB-121	38.6	UJ[3] D	7540	UJ[2] D	95.8	UJ[3] D	2250	
5	PCB-122	365	J[3] D	10600	J[2] D	338	J[3] D	162	
5	PCB-123	670	J[3] D	10500	D	486	J[3] D	294	D
5	PCB-126	167	J[3] D	3520		30.7	J[3]	50.6	
5	PCB-127	38.6	UJ[3] D	7540	UJ[2] D	95.8	UJ[3] D	1.9	U
6	PCB-128/166	997	J[3] D	15900		233	J[3]	4020	
6	PCB-129/138/160/163	5550	J[3] D	71500		1470	J[3]	20700	J[4]
6	PCB-130	392	J[3] D	6180		123	J[3]	1.9	U
6	PCB-131	109	J[3] D	75.4	U	44.2	J[3]	166	
6	PCB-132	1560	J[3] D	32600		763	J[3]	7020	J[4]
6	PCB-133	62.3	J[3] D	800		21.6	J[3]	177	
6	PCB-134/143	212	J[3] D	2420		153	J[3]	425	
6	PCB-135/151/154	1170	J[3] D	16800		528	J[3]	5060	

ESAT Generated Data Summary Table - Validated Results

Lab: Southwest Research Institute (SWRI) **Case**: 43393 SDG: A4A93 **SOW**: CBC01.2 **Analysis**: 209 CB Congeners

	Sample	A4B46		A4B52		A4C08		A4C36	
	Location	JCS-029		JCS-131		JCS-532		JCS-224	
	Type	Field_Sample		Field_Sample		Field_Sample		Field_Sample	
	Matrix	Soil		Soil		Sediment		Soil	
	Dilution Factor	1, 20 D		1, 100 D		1, 50 D		1, 10 D	
	% Solid	83.5		80.9		77.3		61.6	
	Units	ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)	
CL#	Compounds	Result	Flag	Result	Flag	Result	Flag	Result	Flag
6	PCB-136	376	J[3] D	11300		335	J[3]	2030	
6	PCB-137	331	J[3] D	5560		110	J[3]	1190	
6	PCB-139/140	93.8	J[3] D	1270		43.1	J[3]	257	
6	PCB-141	852	J[3] D	13000		259	J[3]	2030	
6	PCB-142	38.6	UJ[3] D	75.4	U	1.9	UJ[3]	1.9	U
6	PCB-144	155	J[3] D	3330		76.9	J[3]	615	
6	PCB-145	38.6	UJ[3] D	157		3.9	J[3]	3.7	
6	PCB-146	707	J[3] D	7810		181	J[3]	1.9	U
6	PCB-147/149	2750	J[3] D	46000		1350	J[3]	14600	J[4]
6	PCB-148	38.6	UJ[3] D	75.4	U	2.8	J[3]	1.9	U
6	PCB-150	38.6	UJ[3] D	75.4	U	4.4	J[3]	3.9	
6	PCB-152	38.6	UJ[3] D	614		11.8	J[3]	6.6	
6	PCB-153/168	3510	J[3] D	39600		835	J[3]	14400	J[4]
6	PCB-155	38.6	UJ[3] D	75.4	U	1.9	UJ[3]	1.9	U
6	PCB-156/157	747	J[3] D	13100		103	J[3]	3150	
6	PCB-158	510	J[3] D	9260		116	J[3]	2050	
6	PCB-159	27.4	J[3] D	71.4	J	1.9	UJ[3]	86.8	
6	PCB-161	38.6	UJ[3] D	75.4	U	1.9	UJ[3]	1480	
6	PCB-162	30.8	J[3] D	381		4.9	J[3]	79.4	
6	PCB-164	216	J[3] D	1900		102	J[3]	787	
6	PCB-165	38.6	UJ[3] D	75.4	U	1.1	J[3]	18.3	
6	PCB-167	263	J[3] D	2970		35.5	J[3]	799	
6	PCB-169	38.6	UJ[3] D	75.4	U	1.9	UJ[3]	1.9	U
7	PCB-170	634	J[3]	4170		18.4	J[3]	3950	J[4]
7	PCB-171/173	229	J[3]	1210		6.5	J[3]	1330	
7	PCB-172	174	J[3]	438		4.9	J[3]	650	
7	PCB-174	749	J[3]	3570		23.5	J[3]	3460	
7	PCB-175	1.9	UJ[3]	75.4	U	1.9	UJ[3]	1.9	U
7	PCB-176	87.9	J[3]	461		2.5	J[3]	597	
7	PCB-177	537	J[3]	1590		15.3	J[3]	2410	
7	PCB-178	207	J[3]	617		6.2	J[3]	947	
7	PCB-179	343	J[3]	1230		11.8	J[3]	2270	
7	PCB-180/193	1860	J[3]	7610		50.3	J[3]	9850	J[4]
7	PCB-181	1.9	UJ[3]	75.4	U	1.9	UJ[3]	1.9	U
7	PCB-182	1.9	UJ[3]	75.4	U	1.9	UJ[3]	1.9	U
7	PCB-183/185	671	J[3]	2280		15.5	J[3]	4980	
7	PCB-184	1.9	UJ[3]	75.4	U	1.9	UJ[3]	1.9	U
7	PCB-186	1.9	UJ[3]	75.4	U	1.9	UJ[3]	1.9	U
7	PCB-187	1200	J[3]	3520		43.9	J[3]	7470	J[4]
7	PCB-188	1.9	UJ[3]	75.4	U	1.9	UJ[3]	1.9	U
7	PCB-189	35.8	J[3]	150		0.95	J[3,5]	113	
7	PCB-190	128	J[3]	652		4.3	J[3]	774	
7	PCB-191	24.2	J[3]	132		1.9	UJ[3]	105	
7	PCB-192	1.9	UJ[3]	75.4	U	1.9	UJ[3]	1.9	U
8	PCB-194	318	J[3]	1320		7.3	J[3]	1850	
8	PCB-195	142	J[3]	400		3.5	J[3]	826	
8	PCB-196	148	J[3]	990		3.1	J[3]	1850	
8	PCB-197/200	65.5	J[3]	313		3.8	UJ[3]	758	
8	PCB-198/199	509	J[3]	2010		13.9	J[3]	3560	
8	PCB-201	46.5	J[3]	240		1.9	UJ[3]	658	
8	PCB-202	88.8	J[3]	440		1.9	UJ[3]	1010	

ESAT Generated Data Summary Table - Validated Results

Lab: Southwest Research Institute (SWRI) **Case**: 43393 SDG: A4A93 **SOW**: CBC01.2 **Analysis**: 209 CB Congeners

	Sample	A4B46		A4B52		A4C08		A4C36	
	Location	JCS-029		JCS-131		JCS-532		JCS-224	
	Type	Field_Sample		Field_Sample		Field_Sample		Field_Sample	
	Matrix	Soil		Soil		Sediment		Soil	
	Dilution Factor	1, 20 D		1, 100 D		1, 50 D		1, 10 D	
	% Solid	83.5		80.9		77.3		61.6	
	Units	ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)		ng/Kg (dry wt)	
CL#	Compounds	Result	Flag	Result	Flag	Result	Flag	Result	Flag
8	PCB-203	234	J[3]	1000		8.2	J[3]	1850	
8	PCB-204	1.9	UJ[3]	75.4	U	1.9	UJ[3]	1.9	U
8	PCB-205	20.9	J[3]	75.4	U	1.9	UJ[3]	88.2	
9	PCB-206	144	J[3]	890		1.9	UJ[3]	1050	
9	PCB-207	15.8	J[3]	75.4	U	1.9	UJ[3]	180	
9	PCB-208	43.2	J[3]	248		1.9	UJ[3]	365	
10	PCB-209	51.4	J[3]	119		9.7	J[3]	932	
	Total MoCB	206	J	326000	D	30.5	J	208	
	Total DiCB	24200	J D	53400000	J D	30800	J D	5260	
	Total TrCB	598000	J D	239000000	J D	407000	J D	28900	J
	Total TeCB	2610000	J D	171000000	J D	2900000	J D	95500	J
	Total PeCB	242000	J D	9370000	J D	293000	J D	142000	J
	Total HxCB	20600	J D	302000	J	6910	J	81100	J
	Total HpCB	6880	J	27600		203	J	38900	J
	Total OcCB	1570	J	6710		36.1	J	12500	
	Total NoCB	203	J	1140		1.9	UJ	1600	
	DeCB	51.4	J	119		9.7	J	932	
	Total PCBs^	3500000	J	473000000	J	3640000	J	407000	J
	Total TEQ#	19.0	J	408	J	4.23	J	6.33	J

S4VEM DATA VALIDATION QUALIFIER COMMENTS:

^ Total PCBs are the sum of the total homologues.

The Toxic Equivalent concentrations are calculated with the Toxicity Equivalency Factors (TEFs) found 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. The TE values are calculated using the final validated data and include the positive results and estimated values. The TE values are estimated (J) when any individual congener is estimated. The TE calculations do not include CRQL values.

J - Sample concentrations reported by the laboratory below the CRQL are flagged (J) on the Data Summary Table as estimated values with no superscripts.

[1] Soil performance evaluation sample score "Action High" for PCB 105; estimate (J) positive results for PCB 105 in all soil/sediment samples.

[2] Labeled compound recovery outside criteria; estimate (J, UJ) the affected sample results.

[3] Cleanup standard recovery outside criteria; estimate (J, UJ) results for all compounds.

[4] Sample concentration exceeds the instrument calibration range; estimate (J) the affected sample results.

[5] Toxic congener did not meet the identification criteria for ion abundance ratio; estimate (J) the affected sample result.